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Stocktaking of Developments in Dispute Resolution in the Digital Economy

Taxonomy and preliminary findings

Note by the Secretariat

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II. Digital technologies and their impact on dispute resolution *(continued)*

E. Information search functions

1. Definition and application

1. As discussed above (see para. 13 in A/CN.9/1154), electronic communication has led to a significant increase in the volume of information, including that to be dealt with in dispute resolution. In some cases, it is mentioned that the large volume of electronically stored information makes culling relevant information manually unrealistic. In the document production phase of such cases, information search functions such as keyword search and predictive coding have been used and have formed part of the procedure.

2. Keyword search is a basic function offered by computer technology. By using this function, certain documents which contain specific keywords may be extracted from a large pool of electronic documents. Related but slightly advanced technology enables the capturing of misspellings and typographical errors.

3. Predictive coding, also called technology-assisted review, is a type of machine learning technology that involves a software to code electronic document sets. More precisely, it is defined as "[a] process for prioritizing or coding a collection of electronically stored information using a computerized system that harnesses human judgements of subject-matter experts on a smaller set of documents and then extrapolates those judgements to the remaining documents in the collection."¹ Some technology-enabled service providers have integrated predictive coding into their platforms to facilitate document review by their users.

2. Issues on the application of information search functions

4. The term "documents" in international arbitration encompasses electronic documents. As such, especially when businesses are the disputing parties, a huge pool of electronically stored information is potentially subject to the document production process – a process by which a party, at the request of the arbitral tribunal, makes available to another party in arbitration documents for presentation as evidence – in accordance with article 27(3) of the UAR.

5. While article 27(3) of the UAR provides for document production in general terms, and paragraph 77 of the Notes describes the document production process in more detail, neither the UAR nor the Notes make specific reference to the use of technology in this process.

6. It should be noted that, as referred to in paragraph 76 of the Notes, approaches of arbitration laws and practices vary in terms of the scope of document production and that the description below should not be understood to endorse any particular practice. The underlying assumption would be that, with increased digitalization, a situation in which the use of technological means is preferable may arise, regardless of the difference in approaches. In the stocktaking discussions held in different regions, it has nonetheless been suggested that such a situation was unlikely to arise in civil law jurisdictions (see para. 76 below).

7. Regarding keyword search, a list of keywords is agreed to by the parties or ordered by the arbitral tribunal, if the parties are unable to reach an agreement, before it is implemented. Keyword search will likely end up unsuccessfully when there are too many keywords in the list, resulting in a large number of documents identified as responsive.

¹ The Sedona Conference Glossary: eDiscovery & Digital Information Management, Fifth Edition, 21 SEDONA CONF. J. 263 (2020)

8. Compared to keyword search, predictive coding is referred to as a more advanced technological means used to deliver outcomes that are expected to be higher in quality in terms of extracting relevant information.

9. The use of predictive coding software comes at a cost, which is not inexpensive at the time this note is prepared. For this reason, in deciding whether to use predictive coding software, the parties and, ultimately, the arbitral tribunal would need to consider in advance whether its use is proportionate to the value of the claim and whether its use will bring greater benefits such as time and cost savings, compared to other methods such as manual review. It would also be important for the parties to have equal access to information regarding the predictive coding software to be used.

10. If it is decided that predictive coding is to be used for document production, arrangements regarding the process will need to be agreed to by the parties or ordered by the arbitral tribunal. Such arrangements address issues as to what the size and content of the smaller seed set of documents to train the predictive coding software should be, how the parties will engage in the training of the software using the seed set of documents, and to what extent the predictive coding software should be trained to secure a certain level of accuracy in culling relevant information.

11. To safeguard the document production process from unreliable results by the predictive coding software, room for later human intervention may need to remain. For example, if certain types of documents that should be produced are clearly not produced, production of those types of documents may be reconsidered.

12. If found of interest, case law and best practices may be compiled and analysed to extract standards and provide guidance on the use of information search functions, especially the use of predictive coding software, in the document production phase.

F. Artificial intelligence

1. Definition and application

13. As part of the secretariat's exploratory and preparatory work on legal issues related to the digital economy, the secretariat was requested by the Commission to develop a legal taxonomy of emerging technologies and their applications in digital trade. A description on artificial intelligence (AI) is found in the respective section of the legal taxonomy. In a preliminary draft contained in A/CN.9/1064/Add.1, AI is referred to as the capability of a machine to exhibit or simulate intelligent human behaviour.

14. There are two features that make AI systems distinct. One is that, rather than simply performing pre-defined tasks in a "deterministic" manner, AI systems use methods or techniques that improve the performance of these tasks and allow for the performance of new tasks according to pre-defined objectives. Another is that AI systems have the capacity to process large quantities of data from multiple sources.

15. According to research conducted so far, no cases in which AI was used in the decision-making process of the arbitral tribunal have been identified. Albeit in the context of domestic court proceedings, it is reported that, in the Chinese judiciary, machine learning technology is being used to assist the provision of its services,² and exploratory research is under way in other jurisdictions such as France.

16. In complex arbitration cases, AI is being leveraged by the parties in their preparation of the case. Eventually, the arbitral tribunal may be compelled to use AI so as not to be underequipped in reviewing submissions and evidence submitted by the parties. AI is referred to as already being capable of drafting rather simple parts of arbitral awards, including on the procedural history. Considering the significant

² China, Beijing Internet Court, *Judicial White Paper*, "White paper on trials of Beijing Internet Court", available at https://regional.abina.doi/w.acm.cn/ndf/WhitepaperontrialcofPaijingInternetCourt.ndf

increase in the volume of documents submitted in arbitration, the competing desire of users to have complex disputes resolved swiftly, and the rapid pace in which AI-related technology is evolving, AI may gradually become further integrated into the decision-making process, including assessing of the credibility of witnesses, over time even in those complex cases that AI is not yet capable of performing its task at a desired level of quality.

2. Issues on the use of AI in decision-making

17. It would not be an exaggeration to state that AI is capable of assisting the arbitral tribunal in deciding on disputed issues. The scope of work that AI could perform does not appear to be limited and, in the future, the role undertaken by AI-enhanced services in arbitration will likely expand.

Regarding AI assistance to the arbitral tribunal, UNCITRAL texts do not make explicit reference on the matter. Due to the confidential, complex, and non-repetitive nature of cases in international arbitration, data for AI tend to be insufficient to ensure that AI is able to deliver accurate outcomes and reasons on the disputed issues. It is however noteworthy that databases are being rapidly fuelled by data, which could enable AI to further expand its role in arbitration. In practice, arbitrators are assisted by human assistants, who perform, under the arbitrator's control, functions such as organizing the documents, assisting in the legal research, review of pleadings and evidence, case logistics (such as correspondence and organization of hearings) (see also Notes, paras. 35-38 on 4. Administrative support for the arbitral tribunal, (b) Secretary to arbitral tribunal). Some of those functions may be undertaken by AI or AI-enhanced software. Furthermore, arbitrators might require the assistance of technical experts (see Notes, paras. 92–107 on 15. Experts). Instead of relying on experts, AI-enhanced software may be deployed in the evaluation of amounts of damages. However, if technology-assisted decision-making using AI-enhanced software were to become a viable option, for the purpose of preserving due process and fairness, it would be important to ensure that standards are set forth, such as that the technology used, including the way in which it is trained, is not biased, is disclosed to the parties, and is agreed to by the parties.

19. There is also a discussion on whether AI may replace human arbitrators. While there are no provisions in the UNCITRAL texts that explicitly preclude machine arbitrators, as seen in some provisions, UNCITRAL texts presuppose arbitrators as humans. For example, article 11(1) of the Model Law on Arbitration provides that "[n]o person shall be precluded by reason of his nationality from acting as an arbitrator" and article 12(1) of the same model law provides that "[w]hen a person is approached in connection with his [or her] possible appointment as arbitrator, he [or she] shall disclose any circumstances likely to give rise to justifiable doubts as to his [or her] impartiality or independence." Article 11 of the UAR contains the same content. In some jurisdictions, laws on arbitration explicitly provide for the employment of human arbitrators.³

20. For the reasons mentioned above, the enforceability of awards made by AI remains uncertain even if that was agreed to by the parties. Nevertheless, such awards may still qualify for contractual remedies and may be materialized through court proceedings. As in the case of technology assisted decision-making, standards may be needed to ensure the validity of the agreement concerning AI-made decisions.

21. As mentioned above, the stocktaking activities have yet to identify any cases in which AI was used in decision-making in international arbitration. It would thus seem premature to draw any preliminary conclusions as to the feasibility of work on this topic. As the area appears to be rapidly evolving, it would be advisable to continue to monitor developments in the area of AI in general and the use of AI in dispute resolution, bearing in mind both the positive and negative impact that the use of AI

³ For instance, the Kingdom of the Netherlands, Code of Civil Procedure article 1023, which provides that "[a]ny natural person of legal capacity may be appointed as arbitrator."

may have on arbitration, including gender-based biases and assumptions that AI might reflect. It should be noted that biases and stereotypes in data not only lead to biased decision-making by AI but also to perpetuating inequalities.

G. Online platforms and DLT systems

1. Definition and application

Online platforms

22. An online platform is defined in terms of a service that (i) is provided via the Internet or some other communications network by electronic means (i.e. an online service), and (ii) facilitates interactions between persons who interact using the service.⁴

23. Dispute resolution platforms are defined as online platforms that facilitate the resolution of disputes by providing a system for the exchange of electronic records and communications between parties.⁵

24. In arbitration, mediation and court proceedings, online platforms often called case management platforms are used to administer cases. On case management platforms, a dedicated workspace that is accessible only by specific users, such as the parties, the arbitral tribunal and staff members of the institution, is created. The workspace contains basic information of the case, such as the names and contact details of the parties and the arbitral tribunal, a calendar of events, uploaded documents, and other activities on the case. Functions to view, print and edit uploaded documents may be limited to certain authorized users. To prompt users to act as needed, they are automatically notified of the activities in the workspace via email.

25. Mainly for low-value disputes, some service providers offer simplified platforms to handle complaints, facilitate negotiation and administer mediation and arbitration. Such platforms facilitate the communication between parties and the neutral through message exchanges and enable the sharing of key documents.

DLT systems, including blockchain

26. Distributed ledger technology (DLT) may be defined in terms of a bundle of technologies and methods that are deployed to implement and maintain a ledger (or database) that is shared, replicated and synchronized on multiple networked computers (or servers).⁶ DLT may also be referred to as technology and methods encompassing cryptographic techniques and consensus mechanisms that are designed to ensure that the same data retained on each node remains complete and unaltered (i.e. "immutable"). Although they are sometimes described as "platforms", DLT systems are considered to be different from online platforms as not all DLT systems (systems that implement a distributed ledger) facilitate off-chain interaction between users, which is considered to be the defining feature of online platforms. Blockchain is a form of DLT that records transactions in blocks forming a chain.

27. DLT systems, including blockchain systems, are referred to as having categorical distinctions. One pertains to the distinction between "permissionless" and "permissioned". A permissionless system is open to access from any computer with no restrictions, whereas access to a permissioned system is restricted. Another pertains to the distinction between "public" and "private". A public system is a system in which there is no specific entity(s) managing or controlling it, whereas a private system is managed and controlled by a specific entity(s). Blockchain systems on which cryptocurrencies are traded are referred to as being permissionless and public.

⁴ A/CN.9/1064/Add.3, para. 3.

⁵ Ibid., para. 5(b).

⁶ A/CN.9/1116, para. 11.

28. Permissioned and private systems may be used in dispute resolution to electronically retain information. Used as such, DLT systems will perform a similar role as online platforms to manage cases. While such use cases are limited, the use of DLT systems on dispute resolution procedures will likely have a similar impact as that of other types of online platforms. It is reported that blockchain technology has been used in Chinese courts to store evidence.⁷

29. A larger impact of the use of DLT systems on dispute resolution may be observed in disputes arising from permissionless and public systems. On permissionless and public blockchain systems, as a result of users maintaining anonymity, specialized mechanisms to settle disputes have emerged and that outcomes of such mechanisms are automatically materialized within the systems.

2. Issues regarding dispute resolution on online platforms and blockchain

Case management platforms for regular court proceedings, arbitration and mediation

30. Case management platforms are increasingly being used by courts and arbitration/mediation institutions to administer their cases.

31. For such online case management platforms to be trustworthy, it is mentioned that accessibility, fairness, data protection and security are key. In terms of accessibility, it is mentioned that parties should have access to, be informed of, and be familiar with the technology used. To address the issue of uneven access to technology, it is reported that some jurisdictions have chosen not to opt for digital-only court proceedings and maintained the possibility of submitting paper-based documents for pro se litigants, at the cost of courts converting paper-based documents into electronic form.⁸ Regarding fairness, it is stated that online platforms should not provide certain users with systemic advantages and that bias, inequity and partiality should be avoided in all aspects of the platforms. As for data protection and security, it is mentioned that online platforms should minimize technological and operational risks and that they should meet applicable confidentiality standards.

Online dispute resolution services tailored to resolve low-value disputes within shorter time frames

32. Online processes tailored to resolve low value disputes within shorter time frames may take different forms and may involve dispute resolution platforms at different levels and of different nature. One kind is dispute resolution services that are integrated grievances services, akin to consumer grievance services, offered by e-commerce and other online service providers for their customers. A different kind is dispute resolution services that have emerged from those whose main activity was to provide dispute resolution services to interested parties.

33. The UNCITRAL Technical Notes on Online Dispute Resolution (Technical Notes) may provide some guidance. It states that online dispute resolution can assist the parties in resolving the dispute in a simple, fast, flexible and secure manner, without the need for physical presence at a meeting or hearing.⁹ It also states that the Technical Notes is intended for use in disputes arising from cross-border low-value sales or service contracts concluded using electronic communications. ¹⁰ The Technical Notes envisage a three-stage process consisting of negotiation, facilitated settlement and a final stage for swift and simple resolution of low value disputes.¹¹

⁷ China, Beijing Internet Court, Judicial White Paper, "White paper on the Application of Internet Technology in Judicial Practice", available at www.chinadaily.com.cn/specials/WhitePaperonthe ApplicationofInternetTechnologyinJudicialPractice.pdf.

⁸ Japan, Rules of Civil Procedure articles 132–10 and 132–11.

⁹ UNCITRAL Technical Notes on Online Dispute Resolution, para. 2.

¹⁰ Ibid., para. 5.

¹¹ Ibid., para. 18.

34. In the Technical Notes, among the principles of fairness, transparency, due process and accountability referred to in paragraph 7, the principle of transparency is elaborated in detail. Paragraphs 10–12 of the Technical Notes make reference to the desirability to disclose any relationship between the online dispute resolution (ODR) administrator and a particular vendor, the advisability of the ODR administrator to give a positive consideration to publish anonymized data or statistics on outcomes in ODR processes, and the need for all relevant information to be made available on the ODR administrator's website in a user-friendly and accessible manner.

35. With respect to strictly business-to-consumer disputes, the European Commission provides the European Online Dispute Resolution platform, in which a dispute between a trader and a consumer may be brought before an approved dispute resolution service provider to be resolved within a short time frame. Such a platform is provided to ensure that quality standards relating to fairness, efficiency and accessibility are met.

36. The Model Procedural Rules, included in the Collaborative Framework for ODR of Cross-Border Business-to-Business Disputes endorsed by the Asia-Pacific Economic Cooperation (APEC) in 2019, sets forth a three-stage process in the sequence of the negotiation stage, the mediation stage and the arbitration stage. It is mentioned to have been drafted on the basis of the UAR and the Technical Notes.

37. Some operators of platforms that perform activities, such as transactions of goods and services, act as the neutral of disputes between their users. This may raise various issues regarding transparency and accountability, and certain measures may be needed.

Blockchain and dispute resolution

38. In conventional dispute resolution, identifying the parties to the dispute and the claim is considered fundamental. However, as discussed above (see para. 29 above), on permissionless and public blockchain systems, users maintain anonymity and thus renders disputes arising from transactions on such blockchain systems unsuitable for resolution through conventional dispute resolution such as arbitration. For this reason, the development of specialized mechanisms may be inevitable.

39. One such specialized mechanism incentivizes non-disputing users to act as jurors. The mechanism is characterized as decentralized justice. The process is as follows: (i) the disputing parties present their position and evidence in writing; (ii) the jurors cast votes, using blockchain tokens, in favour of one out of multiple solutions; (iii) the solution receiving the highest number of votes is determined to prevail; and (iv) the jurors who voted in favour of the prevailing solution are returned their tokens used for voting and rewarded additional tokens, and those who voted against lose their tokens used for voting.¹²

40. Disputes arising from transactions on permissionless and public blockchain systems may be high value. As discussed above, the outcome of a specialized dispute resolution mechanism may be materialized automatically on the system. Despite the direct and large impact that the outcome could have on the parties to the dispute, the abovementioned specialized mechanism does not follow the processes of conventional dispute resolution that are in place to ensure due process and fairness. This may raise doubts as to whether dispute resolution delivered through such a mechanism is justifiable.

41. To ensure that dispute resolution through emerging mechanisms is justifiable, it thus seems that the basic parameters of dispute resolution need to be identified and that such mechanisms should be measured against those parameters.

¹² See document A/CN.9/1091, para. 25, and also the recording of the UNCITRAL Colloquium on Possible Future Work on Dispute Settlement held at the seventy-fifth session of Working Group II available at: https://uncitral.un.org/en/disputesettlementcolloquium2022.

Developing common principles

42. It appears that the increased use and development of dispute resolution on online platforms, which vary in form and nature, have attracted particular attention to the need for common guardrails to protect users of such dispute resolution from injustices. The essential question would be what the parameters are for dispute resolution processes or mechanisms on online platforms to be appreciated as being just.

43. Further research needs to be conducted to assess whether a common set of principles broadly applicable to the various forms of dispute resolution on online platforms and dispute resolution mechanisms on blockchain may be developed, and the feasibility of such an exercise as future work.

III. Summaries of discussions in the "World Tour"

A. Introduction

44. Following the fifty-fifth session of the Commission, the discussions on the topic of DRDE have been held in many different locations in the context of the "World Tour" (see para. 8, A/CN.9/1154). The key events were:

(a) Annual Tokyo Forum on Dispute Resolution in Tokyo, themed "Anchoring New Approaches to the Core Principles of Due Process and Fairness", co-organized by the secretariats of UNCITRAL and ICSID and the Ministry of Justice of Japan, held in person and online (Tokyo, 15–16 December 2022);¹³

(b) A breakfast side event titled "Stocktaking of Developments in Dispute Resolution in the Digital Economy", co-organized by the secretariat of UNCITRAL, American Society of International Law (ASIL), New York State Bar Association (NYSBA), and New York International Arbitration Centre (NYIAC), held in person (New York, 8 February 2023), and a side event titled "The New Age of Dispute Resolution: Digitization & Evolving Norms", co-organized by the secretariat of UNCITRAL, ASIL, NYSBA and NYIAC, held in person (New York, 13 February 2023);

(c) An event in the Latin American and Caribbean region titled "Dispute Resolution in the Digital Economy", co-organized by the secretariat of UNCITRAL, the Latin American Arbitration Association (ALARB) and the Secretariat for Economic Integration of Central America (SIECA-SICA), held online (Guatemala City, 7 March 2023);¹⁴

(d) An event titled "UNCITRAL's Dispute Resolution in the Digital Economy Initiative", co-organized by the secretariat of UNCITRAL and Science Po Law School, held in person during the Paris Arbitration Week (Paris, 29 March 2023);¹⁵ and

(e) A round table titled "UNCITRAL's Dispute Resolution in the Digital Economy Project, held in person during the Vienna Arbitration Days (Vienna, 13 May 2023).¹⁶

B. Tokyo Forum on Dispute Resolution

45. At the Tokyo Forum on Dispute Resolution, one session was dedicated to discussing the DRDE stocktaking project. In that session, three panels were organized

¹³ Information and recordings available at https://uncitral.un.org/en/tokyoforum2022.

¹⁴ Information and recordings available at https://uncitral.un.org/en/events/soluci%C3%B3n-decontroversias-en-la-econom%C3%ADa-digital.

¹⁵ Information and recordings available at https://uncitral.un.org/en/parisarbitrationweekdrde.

¹⁶ A summary will be drafted and included as part of a future report, as necessary.

to discuss (i) the use of technology in arbitration; (ii) online mediation; and (iii) dispute resolution on online platforms.¹⁷

1. The use of technology in arbitration

Electronic communication

46. The panel on the use of technology in arbitration started by recognizing that, even before the pandemic, electronic communication had been the prevalent means of communication in international arbitration proceedings, mainly over emails. It was mentioned that this was due to increased time and cost-efficiency and preference for a greener option. Notwithstanding that the UAR and other institutional rules were flexible enough to enable arbitral tribunals and parties to communicate electronically, it was pointed out that notices of arbitration and awards were communicated by delivery of hard copies with proof of service.

Electronic awards

47. Regarding electronic awards, the main findings of a survey carried out by the Centre for the Future of Dispute Resolution of Ghent University were presented. The survey sought responses from 43 commercial arbitration institutions which were leading on a global or regional scale and were responded by 22. Of the 22 institutions, 30 per cent responded that they communicated awards exclusively on paper, and 10 per cent responded that they had issued electronic originals of awards. Others (approximately 60 per cent) responded that they communicated that the electronic versions mostly consisted of simple scans of the wet ink originals. Approximately 60 per cent of the institutions responded that issuing electronic awards without paper originals was too risky under the current legal framework for international arbitration and a majority stated that an express rule allowing electronic awards would be necessary to overcome this obstacle.

Case management

48. As for case management, it was mentioned that the increase of information in electronic format aggravated the persistent imbalance between the parties' counsels producing and submitting the information and the arbitral tribunal digesting the information, which posed fairness and due process concerns. Various solutions, including the arbitral tribunal's effective use of case management conferences and inquisitorial attitude in managing the case, were discussed. It was noted that the UAR conferred on the arbitral tribunal broad discretionary power to conduct the arbitral proceedings as it considered appropriate and that the EAR made explicit reference to case management as a means for the arbitral tribunal to consult with the parties. Reference was also made to rule 31 of the ICSID Arbitration Rules, which obliged arbitral tribunals to convene one or more case management conferences. It was stated that the impact of this new rule awaited to be seen.

49. Evolving practices in some jurisdictions were shared. It was mentioned that, in 2020, the judiciary in Japan started to use a videoconferencing platform to facilitate communications on cases between the court and the parties. Ancillary functions of the platform were also used to facilitate the exchange of documents and other communications, which was said to have contributed to increasing the effectiveness and efficiency of case management. It was also mentioned that, in 2022, the Japanese judiciary further launched a pilot project in anticipation of the development of a new system for the electronic submission of documents in civil court proceedings.

¹⁷ Speakers in the panels were Andrés Jana, Joaquin Terceño, John Ribeiro, Maud Piers, Toby Landau, Yoshimi Ohara, Makoto Hashizume, Anne-Karin Grill, Andrea Hartmann-Piraudeau, Geoff Sharp, James Claxton, Mariel Dimsey, Shunsuke Mori, Satoshi Tsukamoto and Teresa Rodriguez de las Heras.

E-document production

50. With respect to e-document production, it was said that the document production phase had seen developments in various ways due to the impact of electronic communication. With the increased volume of documents exchanged and stored on electronic media, it was mentioned that sophisticated e-discovery platforms with advanced functions, including those for searching information, were becoming more commonly used by counsels. It was also mentioned that predictive coding software was used in common law jurisdictions to cull relevant information in the disclosure phase. While acknowledging the advantages of using such technologies, it was pointed out that human intervention was still needed to safeguard the outcome.

51. Relatedly, it was discussed that the existence of documents in electronic form had given rise to a new issue pertaining to the circumstances as to whether certain documents might be subject to production or disclosure through court proceedings. Based on the understanding that electronic documents were considered to be located at the place where the server was based, it was mentioned that parties were becoming careful not to move electronic documents across jurisdictions.

New forms of presentation of submissions and evidence

52. The use of technologies, such as 3D modelling, for the presentation of submissions and evidence were discussed. It was said that 3D modelling was a useful technology that could be used to replace site visits but also to make visible objects underground or underwater that would otherwise remain unseen. It was cautioned however that such technology could be misused to show facts that were not supported by evidence and mislead the arbitral tribunal.

Online hearings

53. With regards online hearings, it was mentioned that there was a transition back to physical hearings after the lifting of coronavirus disease (COVID-19)-related measures. It was nonetheless stressed that online hearings were here to stay but as a means to tailor proceedings in light of the specific circumstances of cases. Drawing from the lessons learned during the pandemic, it was suggested that UNCITRAL could review the various protocols and endorse or develop protocols taking into account the differences of technological background and circumstances in different jurisdictions.

AI in decision-making

54. On AI in decision-making, it was mentioned that AI was increasingly being deployed by counsels. Use cases of machine learning tools that mimic legal decision-making, referred to as predictive justice or predictive analytics, were found in some activities of State authorities such as courts and law enforcement agencies. It was not inconceivable that, at some point, AI might find its way into arbitral decision-making. At the same time, it was noted that, if this were to be the case, standards such as due process, independence and impartiality would need to be rethought. For instance, questions such as whether the arbitrator would need to seek the parties' consent to deploy AI, or it could be taken for granted as use of standard technology would need to be considered. Independence and impartiality might become an issue about algorithmic bias. It was recommended that the project continue to monitor the developments in light of the rapid evolution of technology in this area.

2. Online mediation

55. In the panel on online mediation, experts discussed experiences and best practices. It was acknowledged that online mediation's advantage was cost and time savings, and scheduling flexibility, which resulted in better participation of decision makers. It was also mentioned that parties appeared to be more generous on screen than in person. In highly emotional and contentious cases, some parties were reluctant to communicate physically but were forthcoming to communicate with the other party

online. Regarding disadvantages, it was said that online mediation entailed the risk of technical difficulties; various obstacles to rapport building, including absence of touch and body language; and the sense of lack of significance. It was however pointed out that the disadvantages of online mediation were often overblown and that the advantages often outweighed the disadvantages.

56. It was said that acknowledging the difference between physical and online communication was vital in conducting mediation online, and that ensuring that all parties share the same knowledge and understanding of the process and logistics was essential. It was also said that arrangements regarding confidentiality, privacy and security, including recording prohibition, were necessary (see para. 72 in A/CN.9/1154).

57. It was suggested that UNCITRAL could carry out work to share best practices on the conduct of online mediation in collaboration with the broader mediation community. In doing so, it was mentioned that neither a description that was too general nor too case specific would not be useful and that a balance needed to be kept in mind.

3. Dispute resolution on online platforms

58. In the panel on dispute resolution on online platforms, the Hong Kong International Arbitration Centre presented on its online case management platform (HKIAC Case Connect) and Deloitte Tohmatsu Financial Advisory (DTFA) presented on its chat style ODR platform "Smart Judgment" which was used by dispute resolution service providers and e-commerce shops.

59. In ensuing discussions, it was noted that, while there were different types of online platforms and those platforms consisted of different actors, there were certain basic principles that should govern the use of online platforms for dispute resolution. Several issues were pointed out as being inherent to dispute resolution on online platforms. Such issues included the scope and extent of recognition and enforcement of decisions, impartiality, data-confidentiality and valid consent, and redress and appeal. In addition, it was said that the main principles that needed to be guaranteed were accessibility, equality of arms, confidentiality, explainability, right to a reasoned decision, and judicial review.

C. Discussions in New York on the occasion of Working Group II

60. The breakfast side event provided an opportunity for the secretariat to brief delegates on the progress made on the stocktaking project and to have informal exchanges on the way forward.

61. Comments from State delegates evolved around the change brought about by technology in the dispute resolution landscape, the potential challenges ahead, and what should be addressed at the legislative level to tackle the disruptive aspect of technology.

62. It was mentioned that the taxonomy approach would help put the relevant issues into perspective but that the project should not lose sight of what needed to be done at the legislative level. In its notes to be presented to the Commission session, it was suggested that the secretariat attempt to propose several topics that were of high priority.

63. There was general acknowledgement on the positive impact of the digital transformation in dispute resolution mechanisms, such as the increased time and cost-efficiency achieved through the holding of virtual hearings and the use of AI. It was nonetheless noted that the disruptive aspects of digitalization, specifically on the principles of equity, fairness, due process could not be ignored.

64. The need to assess existing UNCITRAL instruments on electronic signature was mentioned in relation to the issue of electronic awards. It was also noted that there

was a need to further look into how the electronic version of the signature requirement was provided for in UNCITRAL instruments in dispute resolution such as the Singapore Convention.

65. At the side event "The New Age of Dispute Resolution: Digitization & Evolving Norms",¹⁸ issues on case management, new forms of presentation of submissions and evidence, interim measures on the preservation of assets, electronic awards and online mediation were discussed.

66. As discussed at the Tokyo Forum on Dispute Resolution, 3D modelling and other technologies for on-screen presentation were referred to as useful tools in arbitration. It was similarly mentioned that there was a need to safeguard against the risk of manipulation. On the question as to whether agreeing on a joint model between the parties would be desirable, it was said that agreeing on a common model between disputing parties was practically not easy and that efforts to reach an agreement might end up wasting time without yielding any productive results.

67. Regarding the issue on electronic awards, it was suggested that UNCITRAL could embark on legislative work to make them more broadly accepted. As for the issue on interim measures on the preservation of assets, it was mentioned that specificities of digital assets needed to be taken into account.

68. As for online mediation, while acknowledging that flexibility of the process was of importance, it was also highlighted that fairness was an essential principle that should guide the process.

D. Latin American and Caribbean event

69. At the Latin American and Caribbean event, four panels were organized, of which three panels were dedicated to DRDE.¹⁹ The three panels discussed (a) the use of technology in arbitration; (b) online mediation; and (c) dispute resolution on online platforms.

1. The use of technology in arbitration

Electronic communication

70. The panel on the use of technology in arbitration began by confirming the broad use of electronic communication in arbitration in the region. In practice, it was said that the arbitral tribunal in consultation with the parties would stipulate that communication be conducted electronically in the first procedural order.

Electronic awards

71. As for electronic awards, it was generally observed that cross-border enforcement of electronic awards in the region was uncertain. This was partly due to domestic court judges' interpretation of a "duly authenticated original award or a duly certified copy thereof" under the New York Convention. In most jurisdictions in the region, judges interpreted and accepted awards as duly authenticated originals when they were apostilled pursuant to the Convention of 5 October 1961 Abolishing the Requirement of Legalisation for Foreign Public Documents (HCCH 1961 Apostille Convention). The certification of awards by relevant apostille authorities in most jurisdictions was contingent upon confirmation of their actual wet ink signature, which was considered to be a significant obstacle to the cross-border recognition and enforcement of electronic awards.

¹⁸ Speakers were Hagit Elul, Martin Gusy, Christina Hioureas, Sherman Kahn, Emma Lindsay and Jacqueline Nolan-Haley

¹⁹ Speakers and moderators in the panels on the stocktaking project included Andrés Jana, Eduardo Zuleta, Héctor Flores, Julian Bordaçahar, Liliana Sanchez, Marianella Ventura, Alexandre Palermo, Rafael Lobo, Ximena Bustamante, Amada Arley, Teresa Rodriguez de las Heras, Hugo Romero, Laura Aguilera and Benjamin Astete.

72. In Panama, however, it was mentioned that there were electronic originals of awards issued in cases administered by the Panama Arbitration Centre, which were subsequently enforced in the Panamanian domestic courts. Specifically, it was said that the Centre authenticated copies of awards with the electronic signature of the Centre, which was registered with the Ministry of Foreign Affairs and the Panamanian authority in charge of registering electronic signatures. Electronic awards that meet the signature requirement under the relevant national law in Panama were treated as enforceable by the courts.

73. It was nonetheless underscored that electronic awards issued in accordance with the laws in Panama would likely not be treated as equally enforceable in other jurisdictions and that the obstacle regarding electronic awards persisted. To overcome this obstacle, the need to reform national legal frameworks was pointed out and it was said that UNCITRAL could play an important role in unifying and harmonizing the national laws and systems for broader acceptance of electronic awards.

Case management

74. The experiences of arbitration centres in the region in managing case management platforms were shared. It was said that materials such as guidelines and protocols were created to address the challenges in effectively handling large volumes of electronic documents. In those materials, commonly discussed were issues as to how to handle documents and what security these platforms should provide when processing large volumes of information, both of which were essential to preserving the integrity of proceedings.

E-document production

75. With respect to e-document production, it was mentioned that the process was commonly performed in electronic form and there were advantages such as cost and time reduction. Challenges in the production of paper-based documents, such as the need for the parties to consider the manner in which they should handle information, including storage, backup and criteria for deletion, were similarly encountered in relation to e-document production. It was pointed out that the way in which electronically produced documents would be presented to the arbitral tribunal and their management and protection would also need to be considered.

76. It was underlined that some issues being discussed in relation to the production of electronic documents were only relevant to common law e-discovery type practice and that they were not applicable to civil law practice or international arbitration in general. It was noted that, in international arbitration, parties preserved the right to agree on rules and soft law for the conduct of proceedings, which were readily available.

Online hearings

77. With regards online hearings, practices and experiences were shared, and examples of protocols and guidelines were presented. It was felt that online hearings brought more advantages than challenges. It was said that existing normative instruments such as the law of the seat of arbitration and applicable procedural rules, protocols and guidelines provided the foundation and necessary responses for mitigating those challenges. The responses that they provided include those concerning technical failures and witness tampering. It was said that institutions basically offered three types of hearings – virtual hearings, hybrid hearings and in-person hearings – as options for the parties and the arbitral tribunal to consider.

78. In addition, the question as to whether there was a right to a physical hearing was also discussed. It was said that some jurisdictions in the Latin American and Caribbean region had express provisions to ensure that the holding of virtual hearings was not in violation of the parties' due process rights.²⁰ In contrast, others remained

²⁰ Sentencia emitida por el Tribunal Constitucional de Peru, Expediente Nº 02738-2014-PHC/TC,

silent or unclear. It was thus pointed out that the region might need uniformity in this area.

2. Online mediation

79. In the panel on online mediation, best practices and experiences in the region were shared. It was noted that certain due diligence was needed before starting an online mediation. Such due diligence included steps such as ensuring audio and video quality, stable Internet connection, and proper functioning of the screenshare function, establishing a second channel of communication, if needed, and addressing confidentiality and data protection concerns. It was also noted that there was a need to continue due diligence during the online mediation.

80. While the engagement of institutions in the conduct of online mediation was not indispensable, it was mentioned that seeking institutional support could have certain advantages. It would help mediators focus more on the case than on logistical matters surrounding online mediation. Institutions were better placed to provide protection for the mediation process by providing certain services relevant to the mediation process, such as issuing certifications, and ensuring that information exchanged in the process is eliminated once it was terminated.

81. It was discussed that technology and mediation techniques were evolving, and that it was therefore important not to overregulate. That being said, it was increasingly being felt that there was a need for guidelines on how to guarantee and protect confidential information during the mediation process. It was also noted that there was a need to establish mediation principles such as neutrality, transparency, confidentiality, and voluntariness of the process. The need to monitor the use of AI in the mediation process was also mentioned. It was suggested that UNCITRAL could play a role in finding solutions to these issues and share practices and experiences through the development of texts in the form of guidance, recommendations, and protocols.

3. Dispute resolution on online platforms

82. In the panel on dispute resolution on online platforms, experiences on the administration of dispute resolution on online platforms were shared. SIECA's fully online experience in the resolution of interstate disputes was presented. The Arbitration and Mediation Centre of the Santiago Chamber of Commerce (CAM) presented on its online case management platform for arbitration and mediation (E-CAM Santiago).²¹ It was stated that the 2021 CAM Arbitration Rules directed tribunals to use CAM online platforms, and that over 5,000 arbitral cases had been processed. It was said that the platform was interconnected with the judiciary and that electronic transmission of information to the courts was possible.

83. CAM also presented on its B2C dispute resolution platform named "Resolución en Línea". The platform was used to settle disputes between certified companies and consumers.²² It was said that this platform had been established under a framework of self-regulation and good practices, in compliance with ODR-related guidelines adopted by institutions such as the International Council for Online Dispute Resolution (ICODR) and the Organisation for Economic Co-operation and Development (OECD).

84. The discussions were concluded by reiterating the importance of promoting good practices and adherence to established principles to ensure the trustworthiness of dispute resolution on online platforms.

with mandatory effect in Peru since 2015.

²¹ Information available online here www.camsantiago.cl/en/e-cam/e-cam/.

²² Information available at www.camsantiago.cl/en/e-cam/odr/.

E. Discussions in Paris

85. At the event in Paris, discussions were led by a panel, ²³ with around 40 participants from different jurisdictions. The topics discussed by the panel were: (a) AI in arbitration and e-document production; (b) electronic awards; (c) impact of databases on arbitration; (d) case management; and (e) interim measures on the preservation of assets.

86. The discussions commenced with the UNCITRAL secretariat providing an overview of and progress made on the stocktaking project, followed by interactive discussions on the topics, and concluded with remarks from the ICC International Court of Arbitration on the impact of technological developments and its impact on costs, transparency, and cybersecurity for arbitral institutions. Recent work on ICC Case Connect, a digital case management platform for ICC arbitration cases, was also mentioned.

AI in arbitration and e-document production

87. Starting the discussions, the use of AI in arbitration was illustrated in the aspects of (i) e-document production; (ii) outcome prediction; and (iii) decision-making. It was mentioned that AI without doubt enhanced time and cost efficiency by managing massive amount of documents and identifying relevant documents, but also raised ethical and practical issues. It was said that representative data and a sufficiently large database were required for accurate predictions. In response, it was said that large databases were being developed. The concern of AI's bias, including gender bias, were also mentioned.

88. Decision-making by AI was also cautioned against. It was stated that decision-making was a determination of causality and application of the rule of law to facts, while AI on the other hand is only able to determine the correlation between data sets. A recent case where a Colombian judge consulted an AI chatbot on Colombian family law was mentioned as an example. The impact of relying on AI was akin to taking judicial notice, which could compromise the fairness of the proceeding and jeopardize the rule of law principles.

89. Further risks and concerns of AI in international arbitration were also pointed out, such as (i) enhancing and consolidating the conservatism of the parties and disregarding the human factor in arbitration; (ii) exploiting data considering that AI bases its prediction on past information; (iii) mainstreaming of minority or unnoticed decisions; (iv) over-representation of common law countries due to common law case law being more readily available; and (v) overburdening arbitration proceedings with new disputes over how data was used and interpreted.

Electronic awards

90. On the topic of electronic awards, it was generally understood that, under the current international and national legal frameworks, electronic awards were not an attractive option for arbitrators and the parties, compared to paper-based awards mainly due to concerns of their enforceability.

91. It was stated that the setbacks in the use of electronic awards were not all arbitration specific. Setting aside of awards was handled in court proceedings and enforcement also concerned the functioning of other public bodies, such as land-title registries and bailiffs. In order to encourage the use of electronic awards, it was suggested to allow a more digital-friendly interpretation of the New York Convention, and to prepare a complementary treaty obliging contracting States to provide a more friendly treatment of electronic awards.

²³ Speakers were Yas Banifatemi, Lars Markert, Pietro Ortolani, Pierre-Olivier Savoie, Alexandre Vagenheim and Francesca Hill

Impact of databases on arbitration

92. Following a live demonstration on the conflict-checker database which identified relationships between arbitrators and counsels, the impact of databases on rules regarding conflict of interest and disclosure was discussed. It was stated that such databases would benefit the parties in the selection and appointment of arbitrators by flagging any potential conflict of interest. It was mentioned that, with increased cooperation with arbitral institutions, such databases were fuelled by relevant information.

93. There were, however, concerns that such databases would risk over-disclosing information, and that the information obtained might provide ammunition for undue use of information as tactics to derail proceedings. In response, it was said that while it might invite challenges to the composition of arbitral tribunals, it should be stressed that such challenges were legal questions to be determined by the arbitral tribunal, in which only grounded challenges should be entertained.

Case management

94. Regarding case management, it was said that the virtual setting incentivized arbitrators to hold more case management meetings, as they could be easily arranged. Reference was made to case management tools such as platforms set up by arbitral institutions, hearing presentation software, and electronic hyperlinks for case evidence, which had contributed to improving the efficiency of proceedings. Predictive coding technology in e-document production was briefly discussed, and it was felt that the development of guidelines on its use would be desirable. It was also mentioned that UNCITRAL could contemplate work on data privacy and security.

Interim measures on the preservation of assets

95. Finally, issues on interim measures on the preservation of assets were discussed. It was stated that a distinction needed to be drawn as to the power of arbitral tribunals and the power of domestic courts. It was mentioned that arbitral tribunals could prohibit the disposal of certain assets, but it was within the ambit of the power of the courts to actually attach specific assets. On the arbitral tribunal's power to issue interim measures, reference was made to a case in which an arbitral tribunal ordered a party to post a certain amount of security in an escrow. Regarding the court's power to attach assets, unique features of digital assets were discussed. Reference was made as to how enforcement of cryptocurrency would be materialized in domestic courts. For instance, to preserve cryptocurrency, the courts would have to identify whether the cryptocurrency was in the cold or hot wallet, and whether the cryptocurrency may be sold following its seizure. In conclusion, it was suggested to explore how digital assets could be categorized as a property.

IV. Next steps

96. The secretariat will continue to conduct research, compile information and seek inputs from different parts of the world. As discussed above, the issues that concern rapidly evolving technologies such as AI will be closely monitored. Other issues where progress remains at a relatively early phase will be further looked into to evaluate their potentials as areas for possible future work.

97. In relation to the impact of digital technologies on arbitration, the stocktaking project will focus on the following topics with the aim of putting forward concrete proposals to the Commission at its fifty-seventh session in 2024:

- A legal framework on recognition and enforcement of electronic awards;
- Guidance on electronic notices of arbitration and their service;
- A legal text on case management conferences and their conduct, including on expert assistance;

- Guidance on new forms of presentation and submissions and evidence, and e-document production;
- Guidance on interim measures on the preservation of assets; and
- Guidance on the conduct of online hearings.

98. As for online mediation, the stocktaking project will continue to compile information with the aim of possibly preparing a guidance material on online mediation reflecting best practices.

99. With respect to dispute resolution on online platforms, further work may be carried out to develop common principles that would govern such dispute resolution, as well as those for the resolution of disputes arising from transactions on DLT systems, particularly blockchain systems. In this connection, the secretariat will continue to seek collaboration with the Inclusive Global Legal Innovation Platform on Online Dispute Resolution (iGLIP on ODR) (see A/CN.9/1064/Add.4 paras. 17-36).