

# TRANSFORMING ARBITRATION



Exploring the  
Impact of AI, Blockchain,  
Metaverse and Web3

Edited by  
MAUD PIERS  
and  
SEAN MCCARTHY

**RADBOUD  
UNIVERSITY  
PRESS**


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# Preface

SOPHIE NAPPERT

**T**he topics treated in this book prompt important thinking about the foundational structures underpinning international dispute resolution. That current technology is disruptive of international arbitration is a truism. That this disruption demands no less than the complete re-assessment of certain first principles, and of what it now means to be a lawyer and an arbitrator is, I would argue, an imperative call for our field in modern times. Technology is offering the opportunity to re-write the rules and concepts underpinning cross-border dispute resolution, and to make the process more accessible and less convoluted; in other words, fitter for the purposes of 21<sup>st</sup> century commerce.

Some of the questions that arise include: the role of the rule of law and its respect for the dignity of human agency, and the place of that dignity in a coded environment; the intervention of human intelligence in the application of legal rules, as opposed to their mechanistical utilization; the displacement of human intelligence when algorithmic systems enter the field of law; the place of knowledge, and legal knowledge, as distinguished from the information and data that is processed and repurposed by algorithmic tools; the tension between the promise of more speed, better accuracy in the digestion of voluminous data, on the one hand, with, on the other hand, the time reliance and biases that come with the human factor in decision-making.

It is a privilege to write the preface of this book, and a tall order to address such big questions in a manner that does them justice. In this preface I aim to do no more than share a few observations on the phenomena that are the development of the Web3 economy and the meteoric rise of artificial intelligence. I would like to outline some of the synapses that these phenomena create with governance and the rule of law, more specifically with international arbitration as a tool for governance and as an instrument for upholding the rule of law.

The role of international arbitration as an instrument for the guardianship and application of the rule of law has long been recognised.<sup>1</sup> It is part of the “human element” of governance and the rule of law, which a school of scholarship on legal philosophy terms “thoughtfulness and the rule of law”. This school of thought posits that human beings “*want to be ruled thoughtfully. Or, to put it in a democratic idiom, we want our engagement in governance to be thoughtful and reasoned, rather than rigid and mechanical.*”<sup>2</sup> The rule of law, a “*value-laden concept*”, “*expresses a powerful commitment to dignity and respect for the dignity of human agency in the forms and procedures it requires for law.*”<sup>3</sup>

This is an ethos that resonates particularly strongly in the 21<sup>st</sup> century, an era in which it can be tempting to view human attributes as overtaken by lightning technological advances and, as a result, found wanting.<sup>4</sup>

This sentiment is exacerbated by the feature of anthropomorphism that sits at the core of generative AI and large language models (LLMs). To the human mind, the LLMs’ ability to “speak human”, and to “understand” conversational prompts, acts as a powerful (albeit false) indicator that there must also be human intelligence, human understanding, and human logic at work behind the algorithmic rhetoric. The UK Bar Council, in its 2024 guidance on generative AI, ranks this feature first in the list of key risks inherent in LLMs: “[LLMs] *are designed and marketed in such a way as to give the impression that the user is interacting with something that has human characteristics. One of the mechanisms by which this is sought to be achieved is by the use of anthropomorphic language to describe what is happening. Perhaps the most obvious example of this is the use, by OpenAI, of the word ‘Chat’ in the name of its LLM products (ChatGPT). As set out above, LLMs (at least at the current stage in their development) do not have human characteristics in any relevant sense.*”<sup>5</sup> Specifically, a large language model “*is not a conventional research tool, it does not analyse the content of data and it does not think for itself.*”<sup>6</sup>

Relatedly, it has been observed that, in parallel with the LLMs’ conversational ability, the AI innovation market is driven by the “displacement of human judgment”, that is, the delegation to algorithmic tools of tasks that historically relied on human intelligence and decision-making: “*In the domain of law, autonomous machine decision-making is transforming adju-*

*dication. Technologies range from automated compliance and monitoring software that reports breaches of contracts, to chatbots and other natural language interfaces that automatically fill out and in some cases file legal documents, to a range of automated dispute resolution systems (e.g., online “blind bidding” to reconcile competing confidential settlement offers, automated negotiation software using AI to calculate dispute resolution outcomes that maximise the preferences of both sides, and customised automated systems designed to resolve customer to customer and customer to corporation disputes).”<sup>7</sup>*

In time, one could foresee the “displacement” of human judgment veering into the “outsourcing” of that judgment to AI tools. Putting aside the important societal implications of dehumanising the exercise of legal judgment (i.e., ridding the exercise of judgment from intrinsic attributes such as empathy, solicitude, forbearance), the potential consequences of outsourcing (even only some) legal decision-making to artificial intelligence as regards the application of the rule of law by international tribunals are worth pondering. One salient question is what would remain of the “thoughtfulness” element of the rule of law in that construct.

When looking at international arbitration as an instrument of the rule of law, it is important to recall that the rule of law rests on pillars of procedural and institutional values. Thus tenets such as procedural due process, “*the independence of the judiciary, the responsibility of the legal profession, and the care and impartiality with which courts approach questions of evidence, argument, and proof*”<sup>8</sup> are part of the fabric of the rule of law and of its “thoughtful” application: “*In this regard, too, law has a dignitarian aspect: it conceives of the people who live under it as bearers of reason and intelligence.*”<sup>9</sup>

This brings to the fore the question of the time factor inherent to the “thoughtful” application of the rule of law. Procedural due process contributes prominently to the time-consuming aspects of international arbitration. I have argued elsewhere that due process as currently conceived of and applied also sits uneasily with the values of the actors of the Web3 economy: the instantaneousness of transactions, immediacy of outcome,

and trust in dispute management by a community of one's peers rather than by an institutional, centralised decision-making body.<sup>10</sup>

Algorithmic tools, large language models and the automation of legal processes by way of smart contracts are being deployed as a means of streamlining the dispute process, with the laudable view of providing cheaper, more accessible justice. It is a valid question to ask in what manner this affects the application of the rule of law, weighing the place of “thoughtfulness”, on the one hand, and expedient effective justice, on the other.

In closing, let me say a word about knowledge. Epistemology tells us that the concept of knowledge requires someone who knows – historically a human being. Knowledge also “*has the function of focusing our attention on what we do not know*”.<sup>11</sup>

As regards legal knowledge more specifically, it has perceptively been stated that the law “*is not a body of knowledge that can be reduced to propositions or rules; its primary object is not truth, as if it were a kind of science, but justice. Legal knowledge is an activity of mind, a way of doing something with the rules and cases and other materials of law, an activity that is itself not reducible to a set of directions or any fixed description.*”<sup>12</sup>

This begs the question whether legal knowledge is amenable to coding. Does the code “know” anything? Because algorithms can perform certain tasks beyond human capability, it is tempting for the human to answer that question in the affirmative. However, knowledge and the immutable storage of information are not the same. Knowledge and data sorting are not the same. Crucially (as things currently stand), the code does not know what it does not know, and the code does not factor in a notion of justice.

What constitutes “justice” in the Web3 economy and whether this is an economy that will embrace a new concept of justice that finds it worthwhile to trade in the rule of law for immediate, automated outcomes are important questions for future consideration and development.

For the time being, however, so long as we consider it worthwhile for the rule of law to continue to have a place in modern society, alongside the tremendous advantages offered by technology, then the last kilometre

must remain human. Emerging regulation, such as the EU's AI Act,<sup>13</sup> aims to provide us with the processes that will enable this.

Perhaps the true challenge for dispute resolution in the 21<sup>st</sup> century is to deliver a carefully balanced process that retains the thoughtful, human-centric application of the rule of law whilst at the same time producing prompt, accurate justice.

## Notes

- 1 Neuberger, Lord David. "History of the Rule of Law and International Arbitration", ICC Dispute Resolution Bulletin 2023-3. *See also* Nappert, Sophie. "International Arbitration as a Tool of Global Governance: The Use (and Abuse) of Discretion" in Brousseau, Glachant, Sgard, eds, *The Oxford Handbook of Institutions of International Economic Governance and Market Regulation* (2019).
- 2 Waldron, Jeremy. *Thoughtfulness and the Rule of Law*, Harvard University Press (2023), 11 (hereafter, Waldron).
- 3 Waldron, 4.
- 4 Spaulding, Norman W. "Is Human Judgment Necessary?" in Dubber, Pasquale, Das, eds, *The Oxford Handbook of Ethics of AI*, Oxford University Press (2020), 374, 389-390 (hereafter, Spaulding).
- 5 Bar Council of England and Wales, "Considerations when using ChatGPT and generative artificial intelligence software based on large language models", issued on 30 January 2024. Available at <https://www.barcouncilethics.co.uk/documents/considerations-when-using-chatgpt-and-generative-AI-software-based-on-large-language-models/>. *See also* Spaulding, 376.
- 6 *Ibid.*
- 7 Spaulding, 386 (footnotes omitted).
- 8 Waldron, 4.
- 9 Waldron, 172.
- 10 Nappert, Sophie. "Twenty-First Century Arbitration: The Question of Trust" in Bédard, Pearsall, eds, *Reflections on International Arbitration: Essays in Honour of Professor George Bermann*, Juris Publishing (2022), Chapter 24. Available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3956155](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3956155)
- 11 White, James Boyd. "Legal Knowledge" (2002) *Harvard Law Review* 115:1396, 1399 (hereafter White). *See also* Nagel, Jennifer. *Knowledge: A Very Short Introduction*, OUP (2014).
- 12 White, *ibid.*
- 13 Available at [https://www.europarl.europa.eu/doceo/document/TA-9-2024-0138\\_EN.pdf](https://www.europarl.europa.eu/doceo/document/TA-9-2024-0138_EN.pdf)

# Introduction

MAUD PIERS AND SEAN MCCARTHY

**T**his book is a compilation of the fruit of the intellectual exchange and contemplation nurtured during the ArbMetaBlock2023 Conference at Ghent University, held on May 26, 2023. This conference was organized by the Center for the Future of Dispute Resolution in collaboration with NautaDutilh and Nater Dallafor, and sought to explore the evolving landscape of dispute resolution and to deliberate on how new technologies like blockchain, the metaverse and artificial intelligence (will) impact arbitration as a prominent form of alternative dispute resolution. Through our discussions, it became evident that there is an urgent need to prepare for these forthcoming changes and to gain clarity on the strategies necessary for navigating them effectively. Furthermore, profound questions arose regarding the extent to which these emerging technologies challenge established procedural and arbitration norms. It became apparent that a thorough and nuanced discourse on the implications of these technological advancements for the field of dispute resolution, particularly arbitration, is imperative. This realization sowed the seeds for this volume, which aims to explore the transformative potential of these technological advancements for law, legal practice, and the arbitration landscape.

This book sheds light on the practical applications of blockchain, the evolving concept of the metaverse and Web3, and the implications of artificial intelligence (AI) for arbitration procedures. It demonstrates, for instance, that blockchain is no longer a distant concept but a tangible reality, and that disputes arising from transactions involving cryptocurrencies, NFTs, and more, necessitate a tailored approach. Furthermore, it explores the opportunities arising from new technologies such as AI and the metaverse for arbitration procedures, often overlooked yet significant. Several chapters delve into the complexities and challenges presented by these innovative technologies. A recurring question throughout the various chapters is whether traditional, analogue approaches are equipped to embrace these opportunities and address these challenges while upholding the values upon which mechanisms like arbitration are founded. In



the spirit of rigorous academic inquiry, this book dares to challenge established norms and envisages the evolving role of arbitration in an era of rapid digital transformation.

The authors of this book encompass a diverse array of thought leaders, spanning from academics to attorneys, in-house lawyers to policymakers, and arbitrators. Each brings a unique perspective to the table, contributing a crucial piece to the puzzle essential for a deeper understanding of the evolving arbitration landscape in the digital age.

Nino Sievi and Viola Donzelli commence this book in a fitting manner by posing a crucial question: Is there such a thing as crypto arbitration? Drawing on their research into a series of public cases and providing an account of selected cases from their own practice, they convincingly establish the existence of what they call ‘crypto arbitration’. They primarily explore how conventional arbitration methods effectively resolve these crypto disputes, shedding light on the peculiarities and recurring challenges they entail.

Cemre Kadioğlu Kumtepe continues this investigation by delving into the wider concept of blockchain arbitration and further clarifies the distinction between traditional off-chain arbitration for blockchain disputes and innovative blockchain dispute resolution mechanisms. In her chapter, another highly relevant question comes to the fore, namely whether and to what extent blockchain dispute resolution mechanisms, despite being oftentimes labelled as ‘arbitration’, deviate from traditional arbitration practices and established notions of due process. A central focus of this chapter lies in assessing the impact of blockchain arbitration mechanisms on enforceability. Cemre also extensively delves into the critical question of how due process influences enforceability, particularly in scenarios where the automatic execution of awards is coupled with party anonymity. She further explores the extent to which due process remains or should remain a pivotal consideration and questions whether automatic execution, without adherence to due process norms, can truly align with current justice standards. This chapter not only underscores the nuanced complexities within blockchain arbitration but also raises fundamental questions about the evolving landscape of due process and justice within this innovative realm.

In Chapter 3, Matthias Lehmann further explores this discussion, emphasizing the transformative impact of both blockchain and artificial intelligence on arbitration, and their implications for the longstanding status, within the international arbitration community, of the New York Convention. His point of departure is that blockchain arbitration introduces a paradigm shift, enabling a global community of users to serve as arbitrators, while AI poses the intriguing possibility of supplanting human arbitrators with algorithmic decision-making. Lehmann's inquiry revolves around a pivotal question: are decisions made through current blockchain arbitration or AI models compatible with the New York Convention, warranting recognition and enforcement within its framework? This fundamental query is intertwined with an examination of another development: the potential for self-enforcement through mechanisms like smart contracts, which autonomously execute decisions. Lehmann scrutinizes these mechanisms and their complexities, aiding in forming a stance on whether a different framework, distinct from the NYC, may be necessary.

Professor Crenguta Leaua, Mihaela Apostol & Ekaterina Oger Grivnova explore the opportunities and challenges that the development of the metaverse and on-chain digital assets pose to classic legal concepts.

In Chapter 4, Crenguta Leaua focuses on the transformative impact of the metaverse on our understanding of (the legal) reality and its implications for the diverse array of metaverse 'protagonists', including creators, avatars, and observers. She highlights the necessity of adapting our legal frameworks to accommodate this complex digital reality, currently still operating under a hybrid of laws rooted in the natural world, but which diverges significantly from its physical counterpart. Crenguta also delves into the multifaceted identities and roles of humans and players (some of which are AI-based) within the metaverse, probing how these dynamics challenge traditional arbitration laws. Furthermore, she examines how the coexistence of the physical world alongside the metaverse, as well as the presence of multiple sub-realities within it, disrupt conventional legal paradigms. This chapter underscores the imperative of embracing and navigating the complexities of the metaverse within our evolving legal landscape and advocates for a nuanced, multidimensional approach to legal thinking.

Following on from that and in her chapter “Metaverse and Private International Law: Challenges in Determining Governing Law,” Ekaterina Oger Grivnova highlights how the Metaverse’s lack of physicality disrupts traditional Private International Law (PIL) processes, particularly in determining applicable laws. She explores the challenges in determining the governing law, focusing on issues related to contractual and non-contractual obligations within the metaverse, such as contractual arrangements between users and platforms, as well as tort disputes covering personal offenses and intellectual property infringements. Ekaterina discusses the difficulties in classifying these issues and the ambiguity in selecting applicable PIL rules, exacerbated by the diverse legal recognition of digital assets across jurisdictions. Ekaterina concludes by emphasizing the inadequacy of traditional PIL frameworks in addressing the complexities of the metaverse, and underscores the need for new legal frameworks and potentially even a ‘lex metaversia’ to navigate the emerging complexities.

Mihaela Apostol delves further into another aspect of Private International Law, examining the challenges of determining jurisdiction in cross-border disputes involving digital assets. Defining digital assets broadly, including cryptocurrencies and virtual land, she further highlights the escalating frequency of such disputes. She also reflects on the evolving legal landscape through an analysis of various court cases from different legal systems, focusing on common issues like tort matters, regulatory issues, and contractual disputes. These cases are meant to illustrate the clash between the territorial nature of courts’ jurisdiction and the inherently delocalized nature of digital assets presenting a series of legal questions, including on jurisdiction *ratione materiae*, *personae*, and *loci*. Like Ekaterina, Mihaela advocates for clearer, harmonized legal frameworks, to address jurisdictional challenges in digital asset disputes, highlighting ongoing initiatives like the Law Commission of England and Wales’ research paper on digital assets and conflict of laws, and discussing the role of soft law citing the UNIDROIT Principles on Digital Assets on Private Law 2023 as a notable example.

In her chapter, Amy J. Schmitz takes a step back and stresses the importance of a cautious approach to integrating technology. She examines the rise of what she calls oarb, a term used to define arbitration that integrates the use of technology to facilitate the procedure, and explores its

potential to improve access to justice. More specifically, she delves into the roles of AI, blockchain, and the metaverse in arbitration, discussing their respective benefits and challenges. With AI, she emphasizes the need for responsible implementation to address concerns like bias and privacy. Regarding blockchain, she explores its potential for transparent and decentralized dispute resolution systems. In the metaverse, she examines the possibilities of virtual arbitration hearings and the associated challenges. Amy advocates for a holistic approach to integrating technology in arbitration, emphasizing clear goals, stakeholder involvement, contextual understanding, appropriate structures, resource allocation, and accountability. She underscores the importance of technology complementing the core principles of arbitration rather than overshadowing them.

The questions raised in the preceding chapters also resonate with policy-makers. In Chapter 8, Takashi Takashima discusses how advancements in technology not only require arbitrators to have a deeper understanding of technical intricacies but also to raise concerns regarding the efficiency and fairness of dispute resolution processes. This has prompted the United Nations Commission on International Trade Law (UNCITRAL) to undertake initiatives aimed at addressing the challenges posed by digitalization in dispute resolution. Specifically and first of all, Takashi explores two ongoing projects within UNCITRAL: the legislative work conducted by Working Group II on technology-related dispute resolution and adjudication, and the project focused on assessing developments in dispute resolution within the digital economy (DRDE project). Through an analysis of these initiatives, Takashi provides valuable insights into how UNCITRAL is poised to balance the utilization of digital technologies in dispute resolution, ensuring that traditional norms are upheld as necessary safeguards while embracing technological advancements to foster a more efficient and equitable international trade law landscape. How this should be done has recently been the subject of intense debate, and opinions are divided. For example, should the New York Convention be amended to address the requirements for the recognition and enforcement of electronic awards? Takashi notes that this is under discussion and that WGII is working towards creating greater legal certainty on this matter, thereby supporting digitalization.

Dirk Van Gerven and Aija Lejniece discuss the impact of digital technology on the legal profession, emphasizing the need for adaptation. Dirk Van Gerven explores the use of software tools in legal work, highlighting the importance of human oversight to ensure accuracy and avoid legal liabilities. Dirk addresses professional codes of conduct in the digital age, focusing on confidentiality and ethical standards in lawyer-client communications. He also examines the concept of digital legal entities and the potential role of artificial intelligence in legal proceedings and makes us wonder about whether the future will be one in which there are digital clients and digital lawyers. Dirk concludes by advocating for modernization. He points out the obligation of the state to update the judicial system, but also emphasizes the need for lawyers to embrace digital literacy and continued education necessary to navigate the evolving landscape of the legal profession in the digital era.

The final chapter, written by Aija Lejniece, offers a clear and practical roadmap for law firms to effectively manage the growing role of AI in their operations. She not only outlines how firms should structure this integration but also introduces nine concrete AI governance principles for firms to adhere to. Lejniece places these principles in the context of current regulatory frameworks and explicitly references this backdrop, providing a strong foundation for responsible AI use and countering the dystopian concerns some have raised – with a nod to Asimov’s laws. She further examines how existing ethical standards address the professional use of AI by lawyers, offering thoughtful insights into the ethical challenges involved. Her proposals for good governance are both practical and actionable, grounded in the latest developments and regulatory initiatives.

These final two chapters serve as the perfect conclusion to the book, inviting readers to engage in concrete reflection on the evolving legal landscape. What sets them apart is their immediate applicability, as they offer actionable recommendations that practitioners can implement right away. By grounding discussions in existing initiatives and real-world scenarios, they bridge theory with practice, making them particularly resonant. As such, they not only underscore the significance of the preceding chapters but also serve as a call to action, urging readers to consider how they can adapt and thrive in the ever-changing legal profession.

This book stands as a testament to the collaborative efforts of a group of esteemed thought leaders committed to pushing the boundaries of dispute resolution through meticulous analysis and insightful discourse. Each chapter, enriched by the diversity of its authors, offers a distinct perspective and a wellspring of ideas that propel us toward a future where the fusion of technology and tradition may shape a more adept dispute resolution arena. Our aspiration is that the insights shared by these authors will not only deepen your understanding but also ignite your curiosity for further exploration and encourage your contributions to innovation within the field. With this in mind, we wish you both enjoyment and intellectual enrichment as you delve into these pages.

## CHAPTER I

# Crypto Arbitration – Is It Really a Thing?

NINO SIEVI AND VIOLA DONZELLI

## I Introduction

The world of arbitration has seen the rise of many categories of arbitration disputes in the recent two decades, such as energy, construction, post-M&A, investment, sports or commodities arbitration. Are we currently witnessing the rise of yet another category – crypto arbitration? The present chapter will delve into this question.

First, the term “crypto arbitration” will be specified. A wide variety of disputes arise in the crypto/blockchain ecosystem. This chapter will concentrate on crypto arbitration pertaining to off-chain disputes. It will not delve into the mechanisms established for resolving ‘on-chain’ disputes, nor will it explore decentralized justice protocols.

Second, for there to be a category of “crypto arbitration” there need to be actual cases. The chapter gives an overview of cases in the public domain. Moreover, the chapter analyses whether sub-categories have already crystallized in the broader “crypto arbitration” dispute category.

Third, before announcing the advent of a new disputes category, the question needs to be asked whether crypto arbitrations bring with them such unique issues that warrant putting them in their own category. Both, the factual and legal issues, that arise with exceptional frequency in crypto arbitrations will be outlined.

## 2 Terminology

Due to the broad range of applications for blockchain and crypto technology, a wide range of potential and actual crypto-related disputes can be expected. Some examples of these disputes may include disputes related to the functioning and existence of cryptocurrency platforms, crypto

frauds, disputes regarding new regulations of cryptocurrency, disputes regarding investments and other business transactions regarding crypto businesses. While much has been written on how such disputes could be resolved “on the blockchain”,<sup>1</sup> the present chapter focuses on off-chain disputes to be resolved by means of traditional *ad hoc* or institutional arbitration.

In this context, it is crucial to differentiate between on-chain disputes, arising directly from on-chain transactions, and off-chain disputes, which have a broader connection to the blockchain (section 2.1). Further, it is important to distinguish between institutional or *ad hoc* arbitration on the one hand, and the recently emerging blockchain-based means of dispute resolution in the crypto world on the other (section 2.2).

## 2.1 On-chain vs. Off-chain Disputes

### *On-chain Disputes*

As previously stated, on-chain disputes are those that arise directly from on-chain transactions; that is, transactions that take place wholly or partially on a blockchain network.<sup>2</sup>

On-chain disputes often involve “smart contracts”<sup>3</sup> whose purported strength is their predetermined capacity to self-execute and enforce their content. Nevertheless, this characteristic poses a hindrance for smart contracts to adjust to the distinctive and frequently altering conditions of a specific situation. The programming of a smart contract with sufficient assurance as to the possible forthcoming hazards and situations is seemingly unachievable, just as it is daunting to believe that one can address all potential issues of a contractual relationship in an off-chain contract.<sup>4</sup> A multitude of disputes are anticipated, including those concerning the software’s functionality and the application of conventional legal principles, such as the principle of good faith, to smart contracts.<sup>5</sup>

Disputes relating to smart contracts will differ from those arising under conventional contracts in some respects. Owing to the self-executing and self-enforcing character of smart contracts, such differences may pertain to the issue of who is typically required to commence proceedings. As a



result of its self-executory character, payment collection may be automated under a smart contract. Following this, the onus would not be on the creditor to concern themselves with the collection process, but on the debtor to ensure that the automatically paid amount is not reclaimed.<sup>6</sup>

### *Off-chain Disputes*

Off-chain disputes, on the other hand, are related but do not directly concern on-chain transactions or concern the blockchain technology more generally.<sup>7</sup>

Off-chain disputes, just like on-chain disputes, can take various forms. Such disputes may, for instance, arise between investors and cryptocurrency exchange platforms. Also, they may concern the effective functioning of the platform, or may develop between crypto platforms and a state owing to new regulations that affect the crypto platforms' business interests. Additionally, disputes originating from corporate transactions, like mergers and acquisitions of cryptocurrency-related businesses, are likely to occur.

At a first glance, these off-chain crypto disputes seem not to fundamentally differ from other categories of disputes traditionally settled by arbitration, such as commercial or investment treaty disputes, because – unlike on-chain disputes – they are less fundamentally linked to the crypto technology as such.

However, off-chain cryptocurrency disputes do possess unique characteristics that differentiate this dispute subtype from disputes unrelated to cryptocurrency, such as traditional commercial disputes. As an example, off-chain cryptocurrency disputes are often characterized by an “ultra”-international dimension that due to the inherent decentralization of cryptocurrencies makes the association of a specific dispute to any jurisdiction very difficult. This affects questions of jurisdiction, applicable law and enforcement of claims. Another example is the difficulty linked with the identification of the counterparty in a specific dispute, arising out of the fact that the cryptocurrency world is, to a wide extent, anonymous.

## 2.2 Institutional and Ad Hoc Arbitration vs. Decentralised Blockchain-Based “Arbitration”

In the crypto world, it is not uncommon to hear the term “arbitration” as the dispute resolution method for crypto disputes, including both on-chain and off-chain disputes. Arbitration is a dispute resolution mechanism which is based on the contractual consensus of the parties to submit their dispute to one or more arbitrators for a binding decision. By choosing arbitration, the parties waive jurisdiction of state courts in favour of a private procedure. Arbitral awards are enforceable, virtually world-wide, under the prerequisites of the New York Convention on the Recognition and Enforcement of Arbitral Awards.<sup>8</sup>

However, it is crucial to differentiate between the traditional notion of institutional or *ad hoc* arbitration, on the one hand, and the so-called blockchain-based “arbitration” as developed by dispute resolution platforms for the very purpose of solving crypto-specific disputes, on the other hand.<sup>9</sup>

With the latter term, one refers to the new and efficient dispute resolution mechanisms the crypto world is actively exploring to best suit the peculiarities of on-chain disputes. Prominent examples for platforms that offer such dispute resolution means are Kleros, Aragon, Jur, Juris, Sagewise or Mattereum.<sup>10</sup>

As a matter of an example, Kleros is an open source online dispute resolution protocol which uses blockchain and crowdsourcing to fairly adjudicate disputes.<sup>11</sup> By leveraging blockchain, crowdsourcing, and game theory, Kleros democratizes access to justice in the decentralized economy.<sup>12</sup>

It will be interesting to observe whether blockchain-based “arbitration” will become the preferred method for resolving on-chain disputes, or if alternative mechanisms will be devised in due course. As we will outline below, traditional arbitration still takes precedence for the resolution of off-chain disputes.

### 3 Are There Actual Crypto Arbitration Cases?

In the following section 3.1, we will provide evidence that crypto arbitration is not just written and spoken about, but actually practiced. We will give examples of arbitrations of off-chain disputes and what issues they have posed. In section 3.2, we will show that the disputes already witnessed in the crypto world can be divided into subcategories, each with peculiar features relevant for the resolution of such disputes.

#### 3.1 Examples of Off-chain Disputes Resolved by Arbitration

##### *Binance/HKIAC*

On 19 May 2021, Binance, the biggest cryptocurrency exchange worldwide in terms of trading volume, experienced a sudden halt. Several traders were unable to exit their positions as the markets plummeted, resulting in substantial losses and liquidations.<sup>13</sup>

In fact, on 19 March 2021, Chinese regulators announced their intentions to clamp down on digital coins,<sup>14</sup> resulting in the cryptocurrency market experiencing the largest one-day declines of Bitcoin and Ethereum since March 2020. This led to the overall value of the crypto market plummeting by approximately USD 1 trillion.<sup>15</sup> Especially, Binance's futures platform was significantly affected by the crash. Binance automatically liquidated clients' futures trades if the losses exceeded a certain threshold. Traders could avoid such liquidation by either adding collateral or closing their positions. That day, this was not possible.<sup>16</sup>

Binance's terms of use contain an arbitration clause that submits all disputes to a Hong Kong seated tribunal under the HKIAC Rules.<sup>17</sup> A group of affected traders joined forces and finally invoked such arbitration clause, initiating arbitration proceedings before the Hong Kong International Arbitration Centre (HKIAC) in August 2021.<sup>18</sup> The "class action" style arbitration was supported and funded by Liti Capital, a Swiss private equity firm providing litigation financing.<sup>19</sup>

Another peculiarity of the case lies in the "class action" nature of the arbitration. For many investors, individual arbitration proceedings would be prohibitively expensive, or at least disproportionate to the loss suffered.

In fact, each claimant faced costs of approximately USD 65'000. For many investors, the funding provided by Liti Capital has been crucial to join the proceedings and claim compensation for their losses.<sup>20</sup>

### *Binance/ICC*

On 25 October 2021, The Block reported that an unnamed “wealthy investor” based in Europe had initiated ICC proceedings in Switzerland against Binance, claiming to have lost USD 140 million due to Binance’s automated liquidation system.<sup>21</sup>

The investor claimed that his funds were wrongfully liquidated by Binance in November 2020. It is also alleged that Binance had a conflict of interest in the liquidation.<sup>22</sup>

Binance’s lack of official headquarters played a particular role in this case: the claim was filed against more than 45 entities around the world allegedly associated with Binance.<sup>23</sup>

### *Coinbase/AAA*

On 14 October 2022, nearly 100 investors filed a consolidated arbitration request with the American Arbitration Association, accusing Nasdaq-listed us cryptocurrency exchange Coinbase and its affiliates of negligence for failing to address security issues with its wallet service, which allows users to store their crypto assets.

Coinbase allows investors to trade, transfer and store digital currencies. The investors allege that a security flaw has allowed fraudsters to drain more than \$21 million in assets from their accounts. Specifically, they allege that fraudsters lured customers with the promise of high returns from “liquidity mining pools” and used “malicious smart contracts” to secretly steal all of their assets through unauthorised transactions. The investors say Coinbase was made aware of the scam in late 2021, but refused to fix the problem, properly handle complaints or warn users until they were served with a draft lawsuit in July 2022. In the arbitration, they are seeking damages and injunctive relief against Coinbase.<sup>24</sup>

In fact, the Coinbase Wallet Terms of Service contain a special arbitration clause for users located in the us or Canada. The clause provides for the

AAA's Consumer Arbitration Rules and allows for individual claims to be heard in batches of up to 100 to promote efficiency.<sup>25</sup>

*Genesis Global Capital/AAA*

In 2022, three investors in crypto-leading programme Gemini Earn have filed a class action claim with the American Arbitration Association against cryptocurrency lender Genesis Global Capital and its parent company, Digital Currency Group (DCG), alleging that Genesis Global Capital engaged in a billion-dollar sham transaction to hide its insolvency.<sup>26</sup>

Gemini Earn was a programme that allowed investors to lend their cryptocurrency assets to Genesis in exchange for high interest payments. In November 2022, Genesis halted all withdrawals and transactions after it reportedly suffered more than USD 1.8 billion in losses following bad loans to two failed crypto hedge funds. This created a liquidity problem for both Genesis and Gemini.<sup>27</sup>

The three investors claim that Genesis has failed to return the digital assets paid for in Gemini Earn. This was required under the Master Agreement between Genesis and its users. The investors further allege that Genesis has been insolvent since the summer of 2022, but has maintained its precarious financial position by orchestrating a “sham transaction” with DCG, which bought the right to collect USD 2.3 billion debt owed to Genesis by the failed crypto hedge fund Three Arrows in exchange for a USD 1.1 billion promissory note due in 2023.<sup>28</sup>

In late 2022, Gemini notified its users that it had updated the dispute resolution clause in its terms of service. Whereas this dispute resolution clause previously referred disputes to AAA arbitration, the updated clause referred all disputes to National Arbitration and Mediation (NAM). Interestingly, class action arbitration is allowed under the AAA rules, but not under the NAM rules. It appears that users were given seven days to object to the NAM arbitration. Hours before the deadline, class action arbitrations were filed with the AAA.<sup>29</sup>

*“Bitcoin Jesus”/HKIAC*

In 2022, Seychelles-headquartered CoinFLEX, a cryptocurrency exchange, initiated arbitration proceedings for USD 84 million against a well-known

investor, Roger Van, nicknamed “Bitcoin Jesus”, for purportedly defaulting on his account.<sup>30</sup>

In fact, the contract between CoinFLEX and “Bitcoin Jesus” provided for arbitration seated in Hong Kong under the HKIAC Rules.<sup>31</sup>

According to public sources, Roger Van renounced his US nationality, becoming a citizen of Saint Kitts and Nevis. He is said to live in Japan. Also, Roger Van announced through Twitter that he denies having defaulted on a debt to an unnamed third party. Rather, Roger Van alleges to himself have a claim for a substantial amount of money against CoinFLEX.<sup>32</sup>

*StakeHound SA v. Celsius Network Limited/Swiss Arbitration Centre*  
In October 2020, StakeHound SA soft launched the online platform “stakehound.com” which facilitated so-called liquid staking. The parties entered into a staking services agreement, as Celsius Network Limited was interested in using the online platform to make use of liquid staking. Thereafter, Celsius Network Limited placed more than 60’000 ETH in exchange for “stTokens”, which they could deploy on other investments or return to StakeHound to get their ETH back.

In the sequel, a dispute arose because access to private keys for a total of around 38’000 ETH had been lost. The company Fireblocks, a blockchain security service provider, who held the private keys to around half of the transferred ETH, had failed to secure the cryptographic private keys. Upon being informed of this, StakeHound SA suspended the operation of its platform and halted its liquid staking activities. Thereafter, Celsius Network Limited demanded the return of all of its ETH.

On 24 April 2023, StakeHound SA initiated arbitration with the Swiss Arbitration Centre requesting a declaration that inter alia its suspension of its platform was legal and that for the duration of such suspension it was not obliged to return any ETH to Celsius Network Limited.<sup>33</sup> Celsius Network Limited challenged the jurisdiction of the arbitral tribunal and argued that US bankruptcy proceedings prevented the arbitration from moving forward.<sup>34</sup> It then filed a claim in US bankruptcy courts for return of the tokens, which put the arbitration as well as some of the submissions filed in the arbitration into the public domain.<sup>35</sup>

*Further examples outside the public domain*

The innate confidentiality of arbitration proceedings means that the cases in the public domain likely only make up a fraction of all crypto-related disputes. Indeed, the authors can confirm from their practice that many other crypto-related arbitrations have taken place in recent years.

For example, the authors are aware of a dispute between a crypto exchange and a market maker which arose under a services agreement and led to an ICC arbitration in Zurich. Further, they have been involved in several *ad hoc* arbitrations relating to tokens issued under an investment agreement that were later on rescinded or terminated due to misrepresentations. Also, arbitrations under various arbitral rules arose in the context of token purchase agreements.

### 3.2 Categorization of Crypto Disputes

Among the various crypto disputes that the crypto world has already witnessed, it seems possible to form categories, each with its own peculiarities that are relevant for the resolution of such disputes.<sup>36</sup>

*Fraud and Mis-Selling Disputes*

Firstly, fraud and mis-selling disputes are already a reality in the crypto sector. These disputes can involve, for example, so-called ‘rug pulls’, where developers promote crypto-related projects, collect investors’ money and disappear without delivering the product.<sup>37</sup>

An example of such a fraud and mis-selling dispute is the representative action lawsuit before the Singapore High Court filed in September 2022 against Terraform Labs’ co-founder Do Kwon and three other defendants.<sup>38</sup> The plaintiffs claim that they were misled into believing that the cryptocurrency Terra USD would have a relatively stable price due to its specific design. Instead, the plaintiffs suffered significant losses after Terra USD crashed. The lawsuit escalated to an Interpol Red Notice requesting Do Kwon’s arrest.<sup>39</sup>

While the claims against fraudsters are usually fought in state courts due to the absence of an arbitration agreement, such frauds can still lead to arbitrations. Such fraud-related arbitrations are usually directed against

service or platform providers (e.g., crypto exchanges) that are deemed to have violated a duty of care. As an example, we refer to the “Coinbase/AAA”-arbitration outlined hereinabove.

### *Disputes Relating to Crypto Business Transactions*

Secondly, disputes relating to investments, corporate transactions and joint ventures involving crypto businesses have already been numerous and will continue to rise. The following two examples are illustrative:

In August 2022, Galaxy Digital, a digital asset merchant bank, pulled out of its USD 1.2 billion merger with BitGo, a crypto wallet provider, after allegedly failing to provide certain audited financial statements in breach of the acquisition agreement.<sup>40</sup>

In November 2022, BlockFi Inc, a digital asset lender, sued Emergent Fidelity Technologies Ltd, a vehicle linked with Sam Bankman-Fried, in the US courts seeking to seize Bankman-Fried’s shares in the online trading company Robinhood, which Bankman-Fried had allegedly pledged as collateral just days before his FTX crypto exchange collapsed. In fact, BlockFi Inc had filed for bankruptcy protection due to the severe liquidity crunch it experienced after Bankman-Fried’s FTX collapse.<sup>41</sup>

Since such agreements increasingly contain arbitration clauses, we expect to see a rise in such crypto arbitrations.

### *Disputes Relating to Crypto Regulations*

Thirdly, disputes linked to the development of crypto regulations are to be expected. Initially, it was thought that crypto technology would not need to be regulated by any state and therefore would not be affected by specific state laws. Rather, crypto was initially perceived as a transparent, fair, and impartial technology, that would operate in its own ecosystem without the need to rely on traditional financial markets. Indeed, until recently, crypto has operated in a legal grey area in most countries.<sup>42</sup>

Recent years have demonstrated mounting regulatory scrutiny of the crypto sector across numerous jurisdictions. The implementation of fresh regulations has the potential to prompt legal conflicts, including cases that may be brought by crypto investors under investment treaties. For



example, claims for breach of fair and equitable treatment may arise out of regulatory actions that are arbitrary or discriminatory.<sup>43</sup>

While regulatory litigation will take place in state court, crypto regulation may play an increasing role in arbitration between private actors in the crypto world.

### *Disputes Linked to the Functioning and Existence of Crypto Platforms*

Fourthly, disputes linked to the functioning or existence of crypto platforms already exist and will continue to exist.

Instances of crypto platform outages resulting in disputes have been documented. The aforementioned class action arbitration against Binance under the HKIAC rules and the ICC arbitration filed against Binance serve as illustrations of such events. The HKIAC case concerns investors seeking compensation for losses incurred during a platform freeze, while the ICC case involves an issue with automated liquidation.

Also, crypto disputes will inevitably arise from the insolvency and bankruptcy of crypto businesses.<sup>44</sup>

## **4 Do Crypto Arbitration Cases Present Special Issues?**

The aforementioned cases indicate not only that crypto arbitrations actually exist, but that subcategories can already be identified in their wider realm. Further, it resorts from these cases that crypto arbitrations have specific peculiarities that set them apart from other categories of arbitration and are likely to arise as recurring issues or questions. Hereinafter, we will outline some of the issues that underpin many crypto arbitrations and give them their unique character.

First of all, there is a technical background to crypto arbitration lying in the blockchain technology underpinning the crypto business. Equally, the crypto world and its products (tokens, platforms, decentralized autonomous organizations) have their unique characteristics that are pivotal for truly coming to grips with any crypto arbitration. For example, a core

issue such as ownership can only be understood by people having a basic knowledge of private keys and digital wallets. Equally, standard operations such as minting or staking form part of “crypto-proficiency”.

In the context of arbitrations involving crypto exchanges, there are two recurring procedural issues that we could observe from the above cases. One, the issue of mass arbitration, as very often a multitude of an exchange’s customers are affected by the same event or action. Second, there is the issue of whether users of an exchange qualify as consumers and might thus render any arbitration agreement void or affect a dispute’s arbitrability. On this last issue, case law is starting to evolve restricting access to arbitration.<sup>45</sup> For example, the English High court recently refused to enforce an arbitration award relating to a crypto consumer contract reasoning that enforcement would be contrary to public policy as it contravened key provisions of the Consumer Rights Act 2015 and the Financial Services and Markets Act 2000.<sup>46</sup>

Another issue often encountered in crypto arbitrations is the identification of the correct counter-party, given that crypto businesses may be organised and operated in an opaque manner, sometimes by several entities in a number of different jurisdictions. In this regard, DAOs (Decentralized Autonomous Organization) pose a significant problem, as their legal nature is highly controversial and makes their involvement in any arbitration problematic.<sup>47</sup> Where a DAO operates without a so-called wrapper entity (such as a limited liability company that is used for entering into contracts between the DAO and third parties), the legal qualification of a DAO raises intricate issues of private international law: which law should govern the qualification of a DAO if there is no evident link between the DAO and the real-world? Depending on the applicable law, the DAO might be qualified as a legal entity that does not itself have the capacity to hold any rights or claims (e.g. simple partnership under Swiss law). In such case, a suit against a DAO will fail, as the DAO does not have standing to be sued. Instead, the individual members of the DAO must be sued. Yet, the identity of such members is often unknown.

Further, the high volatility of crypto assets and crypto businesses lead to issues in quantifying damages. This is particularly relevant in cases where a claimant seeks compensation for the missed opportunity to invest in a

platform and earn profits, as well as for damages determined based on the difference between the purchase price and the market value at a specific moment.<sup>48</sup> There are few similar public companies to compare with, and while valuing cryptocurrencies might seem easy, it is hard when they are not easily traded due to lack of a liquid market. Also, predicting the future of crypto businesses is challenging, especially during times of market instability like in the winter of 2021.

Dissipation of assets is an omnipresent risk in crypto arbitrations due to the easily transferable nature of crypto assets. This will often raise the issue of interim measures by state courts or by an emergency arbitrator.

Finally, the regulatory background of crypto is of relevance to crypto arbitration. In particular, the legality of crypto transactions may pose a risk in regard to arbitrability and enforcement of an award. In this regard, there are already two known instances where courts have refused – on the ground of public policy – to enforce awards that ordered the transfer of crypto assets.<sup>49</sup> The violation of public policy was found in the ordering of a respondent to make debt payment in a cryptocurrency, as such currencies would pose risks for the parties involved and the State (encouraging tax evasion and facilitating economic crime). Further, the illegality of a crypto transaction is sometimes raised as grounds to void an agreement.<sup>50</sup>

Overall, the technical as well as legal issues underpinning crypto arbitrations call for some degree of specialization of the lawyers handling such cases. It seems outlandish to expect a novice to grasp these complexities and be aware of the typical risks of such disputes without serious training and familiarization with the crypto industry.

## 5 Conclusion

As this chapter has shown, there are many arbitration cases relating to the crypto industry. It is even possible to already start discerning subcategories of such disputes. Further, the issues arising in such disputes are unique and have repetitive patterns. These observations taken together justify qualifying crypto arbitration as a new category of arbitration cases

on par with energy, construction, post M&A, investment, sports or commodities arbitration.

Admittedly, the crypto winter in 2021 and the recent action by regulators in the US, UK and Switzerland have put a question mark around the future of the crypto industry as a whole. However, recent developments best mirrored in the increasing Bitcoin value may serve as indications of a recovery. As the crypto industry might start anew to flourish, so will crypto arbitration.

## Notes

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- 46 English High Court, *Payward Inc v Chechetkin* [2023] EWHC 1780 (Comm).
- 47 UK Jurisdictional Taskforce Digital Dispute Resolution Rules (n 62) Rule 11.
- 48 Taylor, Edward, Wu, Jennifer & Li, Zach. “Crypto Arbitration: A Survival Guide” *Kluwer Arbitration Blog* (29 Sep 2022). <https://arbitrationblog.kluwerarbitration.com/2022/09/29/crypto-arbitration-a-survival-guide/>.
- 49 Court of Appeal of Western Central Greece, decision No 88/2021, report at: <https://www.marketscreener.com/quote/stock/PUBLIC-POLICY-HOLDING-COM->

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- 50 Singapore High Court, *Rio Christofle v Malcolm Tan Chun Chuen* [2023] SGHC 66.

## CHAPTER 2

# Defining Boundaries of Due Process in Blockchain Arbitration

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## I Introduction

Blockchain, a decentralized ledger technology (DLT), has become prominent in our lives with the rise of Bitcoin, a type of cryptocurrency.<sup>1</sup> In addition to cryptocurrencies, blockchain presented many uses, which led to new types of disputes.<sup>2</sup> Arbitration has become one of the preferred methods to resolve such disputes related to blockchain transactions. On the other hand, blockchain applications, which can be referred to as blockchain dispute resolution (BDR) mechanisms, have been developed to resolve disputes. As it is not clear what is meant by blockchain arbitration, it becomes important to define blockchain arbitration and relevant due process standards. Regardless of the interpretation, due process is important to have enforceable outcomes. For BDR, it is also important for the legitimacy and reliability of the processes.

Blockchain arbitration, first of all, may refer to traditional (off-chain) arbitration for the resolution of blockchain disputes. Arbitrating this category of disputes is feared to have certain challenges as to the due process of the proceedings, which has an ultimate impact on enforceability (see chapter 1, p. 32-34 for other challenges). Due process is a concept that is mainly related to adjudicative processes. Although the scope of due process depends on the procedure, applicable legal sources, and the interpretation under the law, some of the fundamental notions of due process such as notification of parties, independent and impartial arbitrator, parties' opportunity to present their case and right to be heard are common across jurisdictions and arbitration procedures, whether national or international.<sup>3</sup>

The features of blockchain technology may create obstacles that prevent having the same level of due process that is generally required in the context of off-chain arbitration. For instance, difficulties with identifying the parties may hinder notification, hearings, and arbitrators' disclosure obli-



gations, and challenge them due to conflicts of interest. Furthermore, parties may not get adequate redress because of difficulties in tracing and reversing the transactions on blockchain. Also, decentralization of blockchain applications may prevent identifying the responsible party and make it difficult to get the platforms who created these applications to comply with the awards or court orders granting enforcement. These aspects raise concerns about whether the parties to disputes related to blockchain transactions can have due process during traditional arbitration.

As a response to the challenges posed by the features of the technology such as irreversibility of transactions, pseudonymity of the users, and automated execution, it is suggested that the solution may come from within the blockchain community through BDR mechanisms. Among blockchain's many uses, some platforms have emerged to provide dispute resolution on the blockchain without the need for state involvement and with the idea of "bringing justice to unjusticed" following the idea of cryptocurrencies that brought "banking to the unbanked".<sup>4</sup> Following the decentralization philosophy of the blockchain, the platforms wanted to offer processes that remain outside the scrutiny of states whereas there is a form of oversight when off-chain alternative and online dispute resolution (ADR/ODR) procedures are reviewed by the courts, particularly in the context of annulment or enforcement procedures.

BDR as used in this chapter reflects the out-of-court processes facilitated by private platforms that may be consensual such as mediation and negotiation, or adjudicative-like arbitration.<sup>5</sup> BDR overall can be described as a type of ODR mechanism.<sup>6</sup> Although blockchain is used by some courts for validating evidence and verification of court judgments,<sup>7</sup> the use of new technologies in litigation is out of the scope of this chapter. Current out-of-court practices involve two main adjudicative BDR processes: on-chain arbitration and on-chain crowdsourced voting. BDR adjudication especially attracted the attention of the arbitration community with the on-chain crowdsourced voting. This process resolves disputes through the votes of a crowd that are incentivized through crypto economics and game theory principles.

Crowdsourced voting that does not follow the traditional international arbitration practice was labelled as “arbitration” creating unease among the arbitration practitioners due to significant differences from the arbitration procedure.<sup>8</sup> These concerns were mainly about the selection of non-lawyer jurors, lack of hearings, limited options for evidence submission, and how decisions are made in the sense that rather than applying the law to the facts established through evidence, jurors are incentivized to side with the majority to get a reward, and automatic execution of these outcomes without the scrutiny of courts.<sup>9</sup> On the other hand, the platforms argue that following incentivization and game theory principles will result in honest and fair outcomes.<sup>10</sup> Although reaching honest and fair outcomes is mostly related to substantive justice, the incentivization of anonymous, non-expert jurors acting as a crowd impacts procedural due process. Therefore, this new way of resolving disputes raised the question of whether we are reaching a new understanding of due process or whether it is still relevant in the context of BDR.

Due process standards may mainly come from off-chain ADR/ODR and arbitration principles. These include but are not limited to principles such as UNCITRAL Arbitration Rules<sup>11</sup>, UNCITRAL Arbitration Model Law<sup>12</sup>, UNCITRAL Technical Notes<sup>13</sup>, the Council of Europe ODR Guidelines<sup>14</sup>, the New York Convention<sup>15</sup>, rules of arbitration institutions<sup>16</sup> and the EU ADR Directive for consumer disputes<sup>17</sup>. Even if they are not directly applicable, the values that aim to be protected enshrined in the standards can be interpreted for BDR adjudication.

In addition to ensuring procedural guarantees of fair trial and the right to be heard, due process has an impact on enforceability. This is relevant in the context of off-chain arbitration mainly resolving blockchain disputes, but also for certain BDR platforms providing on-chain arbitration resulting in awards that are to be enforced by the courts, presumably under the New York Convention due to the international nature of the transactions. This is different from the situation where the parties have agreed to a form of on-chain arbitration and the platform’s design provides the possibility for awards to be enforced automatically via smart contracts. Similarly, there are certain platforms that automatically executes the outcomes of on-chain crowdsourced voting. However, I am of the opinion that due process remains relevant, precisely because the automatic execution of

awards deprives parties from the opportunity to seek redress or get their awards and outcomes scrutinized by a court. This gets even more critical when parties do not know each other's identity, or may not reverse the transaction on blockchain. In other words, automatic execution combined with other features of the technology on the one hand, and a lack of adherence to the standards of due process on the other hand, may lead to intolerable injustice. If platforms cannot provide a certain level of due process, this will diminish the legitimacy and reliability of the overall BDR system.

This chapter unravels the terminological confusions around blockchain arbitration and addresses how the common notions of procedural due process in these processes might be challenged by the salient features of blockchain applications. The chapter draws the contours of due process, however, it does not lay out different interpretations of due process or exhaustively lists due process requirements. Within this scope, Section 2 investigates due process issues that may arise during traditional (off-chain) arbitration procedures dealing with blockchain disputes. Section 3 delves into BDR or in other words blockchain-based ODR platforms and addresses due process for on-chain processes. Section 4 discusses how off-chain enforcement decisions can be transferred to blockchain for execution after on-chain arbitration or off-chain arbitration resolving blockchain disputes. Through this exploration, the chapter contributes to a clearer understanding of due process within the evolving landscape of blockchain arbitration.

## **2 Challenges to Due Process in Off-chain Arbitration for Resolving Blockchain Disputes**

When blockchain first emerged, there was optimism that it would eliminate disputes. Contrary to expectations, blockchain architecture has not proven immune to conflicts, underscoring the inescapability of disputes in human interactions.<sup>18</sup> Traditional (off-chain) arbitration is proposed as a means to address these disputes. To understand any challenges that may be posed by off-chain arbitration while resolving blockchain disputes, Section 2.1 analyses the choice of forum clauses included in the conditions of the blockchain platforms and discusses recent blockchain disputes.

Section 2.2 focuses on how certain features of the technology and its application may threaten due process in arbitration.

## **2.1 Platforms' Choice of Off-chain Arbitration for Blockchain Disputes**

There is not an agreed-upon definition for blockchain disputes.<sup>19</sup> Types of disputes concerning blockchain may include disputes related to the breach of legal contract,<sup>20</sup> or interpretation of the smart contract terms.<sup>21</sup> The disputes may be related to blockchain governance such as online voting, updating the blockchain protocol and data structure, transparency concerns, disputes between wallet providers and users such as the amount of currency in their wallet, denial of access due to lost passwords and inheritance of cryptocurrencies.<sup>22</sup> The disputes may also relate to hacking of accounts,<sup>23</sup> copyright disputes<sup>24</sup> and fraudulent misappropriation of cryptocurrencies<sup>25</sup> or any other issue that may arise from the use of a blockchain application.

Traditional (off-chain) arbitration is considered to be a good option to resolve these disputes due to being more delocalized compared to courts while having an enforcement mechanism with international effect as a result of the New York Convention.<sup>26</sup> Although this perspective oversimplifies the enforcement procedure for awards regarding blockchain disputes for the reasons detailed below, we see that the New York Convention still forms the backbone even for on-chain arbitration.<sup>27</sup> The other argument for off-chain arbitration is that it is a private and institutional mechanism providing a neutral platform and expertise.<sup>28</sup> While it is true that parties can select arbitrators with special expertise, the judges in some jurisdictions like the UK have been dealing with blockchain disputes and developing expertise in the area; hence, expertise may not automatically make arbitration a better forum as it is dependent on the circumstances of each individual arbitrator's experience in the field.

Contrary to the belief of supporters of off-chain arbitration for blockchain disputes, relying on the New York Convention standards may not be relevant at all. Even though blockchain technology is known to be inherently cross-border, facilitated by the computation power of the nodes around the world, a blockchain application may be restricted to users within a cer-

tain jurisdiction, or the choice of forum clauses may refer to the courts; hence, it may not provide for international arbitration to trigger New York Convention enforcement.

Due to its potential benefits, many blockchain platforms may select institutional arbitration to resolve their disputes.<sup>29</sup> However, it is wrong to assume that all blockchain platforms or other platforms adopting blockchain technology for some of their operations opt for arbitration as their preferred dispute resolution mechanism. For instance, users of Meta products that access the platforms with their business and commercial capacity agree to the exclusive jurisdiction of the US District Court for the Northern District of California or a state court located in San Mateo County.<sup>30</sup> When accessed within the UK, the terms state that Meta may bring any claim against users that are consumers “in any competent court in the UK that has jurisdiction over the claim.”<sup>31</sup> Meta currently is not on-chain but Meta’s (or Facebook’s) metaverse is likely to support and use blockchain transactions like the NFTs or merely move to blockchain for increased security.<sup>32</sup> Unless Meta comes up with other governance standards for its blockchain operations, these provisions will become relevant.

Similarly, although it is not on-chain, Roblox, a metaverse platform with its native digital currency and future mediations to implement blockchain, has a “Mandatory Informal Dispute Resolution” step that requires all users to apply before escalating the dispute to arbitration.<sup>33</sup> Roblox’s “Terms of Use” emphasizes that the arbitration agreement is only for US residents.<sup>34</sup> Arbitration is administered by FedArb per FAA.<sup>35</sup> Parties can choose to go to a small claims court but the users waive their right to class action and jury trial.<sup>36</sup> Users are given the chance to opt out of arbitration by sending a written notice within 30 days of signing up to the services of the platform.<sup>37</sup> Roblox has provisions for consumers and in particular EU consumers.<sup>38</sup>

Even the BDR providers may prefer litigation and state courts over arbitration to resolve any disputes that may arise with their users, let alone any of the BDR platforms or procedures.<sup>39</sup> On one hand, this makes sense as the independence of the jurors or arbitrators may become controversial while evaluating a case against the platform. On the other hand, this may indicate distrust of the BDR platforms of their own mechanisms, especially the

crowdsourced voting in which the platforms advertise that anonymous jurors remain impartial and independent, and reach honest and fair outcomes through crypto-economic principles.<sup>40</sup> It should be noted that one of the crowdsourced voting platforms, Aragon Court, refers claimants to its platform first, with the option to bring a claim against it before the Court of Zug in Switzerland.<sup>41</sup> As detailed further below, although referring to another forum for dispute with the platform prevents the potential conflicts of interest with the users, it is unusual to see involvement of state courts instead of another BDR platform. Subjecting themselves to the jurisdiction of a state court that they heavily criticised shows that BDR platforms are parting ways with the blockchain's decentralization discourse, which was the ideology behind their creation.<sup>42</sup>

The “Terms of Service” of OpenSea, a non-fungible token (NFT) platform, includes a dispute resolution clause providing that any disputes that a user might have with the platform will be resolved by binding arbitration, administered by JAMS under the US Federal Arbitration Act (FAA).<sup>43</sup> Depending on the amount in dispute, parties may also go to a small claims court, and they may seek injunctive or equitable relief in a court.<sup>44</sup> The user releases the platform of any claims, damages, or demands concerning any disputes that may arise with other users and the users waive their right to class actions and jury trials.<sup>45</sup> This mechanism has been triggered by an OpenSea user who filed a claim against the platform for failing to protect their accounts from hacking, which led to the stealing of their NFTs from their wallets.<sup>46</sup> In response to the claims, OpenSea filed a motion to compel arbitration triggering the arbitration agreement, which was granted by the court.<sup>47</sup>

Coinbase, a cryptocurrency exchange platform, on the other hand, has a tiered mechanism. If the disputes against Coinbase are not resolved via internal complaint procedure, users accept the exclusive jurisdiction of courts of England and Wales at their domicile.<sup>48</sup> This choice of forum is without any prejudice to mandatory consumer laws.<sup>49</sup>

These examples indicate that the blockchain platforms may prefer litigation and domestic arbitration to BDR when concerning their actions.

An example of an international arbitration agreement is found in Binance's Terms of Use.<sup>50</sup> Binance, another cryptocurrency exchange platform, requires users to go through their internal complaint mechanism before commencing arbitration, administered by the Hong Kong International Arbitration Centre (HKIAC) per the HKIAC Rules.<sup>51</sup> Almost seven hundred crypto users triggered the clause and brought arbitration against Binance, claiming that the platform was unavailable at a time when cryptocurrency values plummeted, which caused users to lose millions.<sup>52</sup> The unknown identity of the operators of the platform is the main obstacle to the arbitration proceedings.<sup>53</sup> It is pointed out that the class action waiver in the agreement was added after arbitration proceedings commenced.<sup>54</sup> Binance in its terms of use recognizes that users might have other forum options as per applicable law, which protects consumers.<sup>55</sup>

Having provisions for the consumer gains particular importance as jurisdictions may consider disputes involving crypto transactions as consumer disputes.<sup>56</sup> However, it may not be easy to define the legal relationship between the parties. A user bringing claims against the platform may be considered a consumer through buying cryptoassets such as tokens or cryptocurrencies offered by the platform to access its services. The same user could be using the platform to sell a certain type of digital asset to another user of the platform. In such user-to-user transactions, it is highly unlikely that the selling user would be classified as a consumer, while the buyer might be. As a result, different agreements may be needed based on the roles of the users. All users need to conclude an agreement with the platform, which may be classified as a consumer agreement. A personal buyer would be a consumer against the seller, who might be considered as a consumer against the platform. Their status will be determined per the classification of consumers and micro-enterprises under the applicable rules. The status of the users may alter the exclusive jurisdiction requirements and cause users to end up in different forums based on their role in the transaction. A single "Terms of Use" presented on the website may not be sufficient to cover the intricacies of this tripartite relationship.

Even if a platform includes an arbitration agreement, arbitration may not be international; thus, relying on the New York Convention may not be an issue at a first sight. However, it should be noted that the standards and principles of the New York Convention are often reflected in national leg-

isolation. The parties may easily end up before the courts if the dispute relates to a small claim, or consumers may prefer the exclusive jurisdiction of the courts at their residence. Pre-dispute arbitration agreements may also become unenforceable against consumers from certain jurisdictions such as in the EU member states.<sup>57</sup> The fragmentation among the platforms' choice of process and forum impacts determining the due process standards. The forums change from litigation to tiered processes involving internal dispute resolution or complaint mechanisms, and national, international, and consumer arbitration.

Despite the cross-border nature of the technology, the application may not trigger international arbitration. The standards may change based on the process selected by the platforms to resolve blockchain disputes. However, there are common basic notions of due process under the New York Convention, arbitration rules and national arbitration laws.<sup>58</sup> These include notification of the parties about every stage of the proceedings, independence and impartiality of arbitrators and the opportunity to present one's case or right to be heard. The next section addresses the tension points between the basic due process requirements and the blockchain applications.

## **2.2 Obscured Due Process – Anonymity and Other Beasts**

During an off-chain arbitration, features of blockchain technology may challenge the application of ordinary procedural steps. These challenges, if not navigated adeptly, may jeopardize the enforcement of awards by breaching due process guarantees. The primary hurdles arise from the anonymity of users, the irreversibility of transactions, and the inherent transparency of the blockchain.

The anonymity of users and non-traceability are stated among the main features of blockchain.<sup>59</sup> At face value, this is problematic for satisfying certain due process requirements such as notification of the parties and respecting their right to be heard via hearings. However, except for some decentralized autonomous organizations (DAOs), the majority of the blockchain users are not anonymous but rather pseudonymous, which means that users sign up to platforms with their emails and additional ID details, and have avatars, usernames or alphanumeric keys which can be



traced back to their real-life identity.<sup>60</sup> In almost all instances, the users access the platforms via some sort of intermediary such as exchanges or wallet providers, where they need to provide certain ID information. Pseudonymity is therefore a better term to describe the concealed identity of most blockchain users. As part of their ID controls, some blockchain platforms have warnings for parents in their “Terms of Use” about the use of the platform by minors.<sup>61</sup> This is not any different than users of any other online service provider such as consumers on an e-commerce platform. Therefore, the pseudonymity of the users is not exactly an obstacle that prevents satisfying the due process requirements.

Even if the parties are purely anonymous, there has been a line of cases where the courts experimented with different modes of notification (or alternative service) such as service via an NFT airdrop, hyperlink, or via email,<sup>62</sup> and social media accounts.<sup>63</sup> Considering arbitration to be more flexible than court procedures, it can be assumed that tribunals may easily get creative to reach the end goal of duly notifying the parties with the condition that the public policy is observed in the relevant jurisdiction.

Some concerns have also been voiced against pseudonymity within the scope of arbitrators’ independence and impartiality, as this would prevent arbitrators from satisfying their disclosure obligations.<sup>64</sup> The pseudonymity may only present additional concerns if arbitrators had a way of knowing the real identities of the pseudonymous parties and did not disclose conflicts of interest. Mere pseudonymity, if the parties wish to remain as such, should not be a concern since arbitrators will also be blinded to the parties’ identities.

The pseudonymity could also be a problem for hearings, impeding parties’ right to be heard. The platform and the parties agree on the permissions given to each individual involved in the proceedings. It is highlighted that pseudonymity does not provide confidentiality *per se*, if the participants in the proceedings including the arbitrators, transcribers, and case managers may have access, and know the parties.<sup>65</sup> The parties may also agree not to have any hearings in their arbitration agreements or may agree on a videoconference, where they can be more comfortable.<sup>66</sup> The physical hearings are not considered mandatory in most jurisdic-

tions.<sup>67</sup> The videoconference option may also increase the accessibility of arbitration for the parties that are transacting online and on-chain.<sup>68</sup>

As seen in some court cases, the judges can order retraction of certain information to preserve privacy.<sup>69</sup> For privacy and confidentiality purposes, arbitration is known to be a better process. However, not only the process but what can be transferred to blockchain is important; thus, arbitrators should be cautious in their award about their instructions on what information can be put on-chain. This is a crucial point as it indicates that the decision-makers need to consider features of blockchain while handling these types of disputes. For our purposes, these features are transparency and being irreversible (tamper-proof).<sup>70</sup> On the other hand, these features may also help with evidence-taking as everything is recorded on-chain and they are trusted to be original.<sup>71</sup> Hence, the technology itself may contribute to the parties' opportunity to present their cases.

The parties are naturally more tech-literate than parties to off-chain disputes as they are already involved in blockchain transactions. However, challenges may arise that impact parties' right to be heard, and raise concerns about impartiality. For instance, hardware or software may not be available to all parties, which could hinder their access to the process.<sup>72</sup> Additionally, the parties may live in different time zones, so holding hearings may require additional considerations.<sup>73</sup> Cybersecurity breaches may compromise confidentiality and evidence-taking, potentially leading to challenges of arbitrators or the final award.<sup>74</sup>

Most importantly, as detailed above, some jurisdictions may define crypto owners or users as consumers.<sup>75</sup> Arbitrating these disputes would require special treatment of consumers and any other 'weaker' parties pursuant to the applicable law, such as avoiding pre-dispute agreements or having additional procedural protections removing language and technology barriers, providing more information about the procedure, availability of opting out of the process and a redress mechanism.<sup>76</sup>

Pseudonymity may also affect enforcement. The Digital Dispute Resolution Rules (DDRR) released by the United Kingdom Jurisdictional Task Force (UKJT), require the tribunal to protect pseudonymity unless revealing the identities is necessary for "the fair resolution of the dispute, for

the enforcement of any decision or award, for the protection of the tribunal's own interests, or if required by any law or regulation or court order".<sup>77</sup> Whether parties will be willing to comply with the decision to reveal their identities to the arbitrators or the court for enforcement or whether a blockchain platform may be ordered to give information about the parties' identities is yet to be seen.

To conclude, when it comes to arbitrating blockchain disputes, tribunals need to be more flexible than usual. The pseudonymity of the users makes it difficult to follow regular procedural steps when it comes to notification, hearings, and arbitrators' disclosure obligations to ensure independence and impartiality, privacy and confidentiality, and enforceability of the awards or arbitration agreements. The involvement of consumers may require additional considerations in terms of the agreement and the special procedural requirements for consumers. However, looking at the adaptability shown by some courts, blockchain disputes should not create concerns for the tribunals but rather call for creative approaches while rendering an enforceable award.

### **3 Adjudicative Blockchain Dispute Resolution (BDR) and Due Process**

The other interpretation of blockchain arbitration could be the use of blockchain for dispute resolution. The use of blockchain to resolve disputes triggered an initial negative response against the BDR processes as they seem to threaten the core values of due process. It is not easy to respond if we should follow traditional due process requirements in the new BDR setting, need brand new rules for due process or change our mindset completely while dealing with BDR.

To find our north, it is essential to rely on legal standards as a compass. To figure out what legal standards are relevant, it is a must to understand and define adjudicative BDR. Being a newly developing area, arbitration and crowdsourced voting are mostly and wrongly used interchangeably. At this point, it becomes important to contour the lines between these two adjudicative processes. Section 3.1. addresses the dilemma between decentralization and due process, which requires regulation or applica-

tion of legal concepts on-chain. Section 3.2 defines on-chain arbitration and tries to clarify the terminological ambiguities with crowdsourced voting that are explored in Section 3.3.

### 3.1 Decentralization of Justice and Due Process

Ensuring that the platforms respect due process rights requires introducing governance to the BDR platforms that offer adjudication processes. This may sound against the main idea of blockchain which is regulation-averse and aims to escape intermediaries and the state's autocracy, creating a more democratic and decentralized society online.<sup>78</sup> Due process can and should be observed in adjudicative BDR for a few reasons.

First, BDR is not an ordinary blockchain application, but it is a judicial activity. Second, BDR has a limited enforcement capability within the system. It is less problematic when the subject matter of the dispute is already on-chain, such as cryptocurrency, NFT or other digital assets. It is easier to execute the decision about a subject matter that is already on-chain. There are some initiatives to represent rights over off-chain assets on-chain. For example, property rights on real-life assets can be represented on blockchain via technologies such as digital twins.<sup>79</sup> You can enforce the property right and enable the transfer of the digital representation, but this does not guarantee the debtor's physical transfer of the property.

At this point, you may need state involvement to either decide the case again and/or to execute the decision. To bypass the first step and to avoid court proceedings, it is good to have the procedure recognized as legitimate and in compliance with the due process requirements. A futuristic but very possible scenario would be denying a debtor's access to the off-chain real property through mechanisms such as smart locks.<sup>80</sup> As it is unlikely to apply this scenario to all real-life disputes, state intervention will be necessary for some time at least for situations when the subject matter of the dispute is off-chain, and the debtor is noncompliant. Self-sufficient mechanisms, which are recognized to be reliable and legitimate, are important to minimize the state's intervention and expedite the process when such intervention cannot be avoided.

Finally, like the manifestations of decentralization when the Internet first emerged, blockchain decentralization has become moot.<sup>81</sup> Similar to most blockchain applications, BDR platforms are not decentralized as they were advertised initially.<sup>82</sup> BDR platforms are backed by governments, the same people fund/invest in different BDR platforms or BDR platforms are established as corporations operating under the state's law.<sup>83</sup> The power over the code is not transferred to the community in most platforms, so governance decisions are rarely made by the users or the computing power is dispersed unequally among the users.<sup>84</sup> This results in a code that determines the procedure in an undemocratic way.

As part of the “decentralization” discourse, the BDR platforms aim to “bring power back to the people” almost demonizing the state power.<sup>85</sup> In contradiction with this stance, the platforms declare to be in compliance with the requirements of state authorities and rely on audit reports.<sup>86</sup> This is a good effort on the side of the platforms for increasing transparency, but accepting state regulation on one side and trying to follow it religiously while denying it on another is conflicting. Enshrining minimum due process rights is in fact less contradictory to the philosophy behind decentralization as these rights are essentially developed over the centuries to preserve people's right to fair trial and right to be heard against the arbitrary use of the state's power.<sup>87</sup> Due process in on-chain arbitration is particularly relevant because the platforms claim to render awards that are enforceable under the New York Convention. Platforms, by referring to state-made rules, confirm that decentralization is not the goal.

On the flip side, due process rights would also protect users from the arbitrary governance decisions made by the platform developers, who are replacing legislation with the code without any legitimate explanation about why we should trust the blockchain democracy that is currently overseen by the developers more than the state democracy. Therefore, due process and a level of formality may be introduced to BDR. While doing so, it is important to consider the advantages of these processes as they can be effective, especially for blockchain/smart contract disputes.<sup>88</sup>

### 3.2 On-chain Arbitration

In contrast to the resolution of disputes concerning blockchain transactions via traditional, off-chain arbitration,<sup>89</sup> the term on-chain arbitration is used to refer to the arbitration procedure facilitated by blockchain and smart contracts. There are not many examples of on-chain arbitration as it is mainly at the design stage or has been conceptualized but never materialized by some initiatives.<sup>90</sup> Due process standards in on-chain arbitration depend on how the platforms are designed and how they will operate.

In the procedures that are described as on-chain arbitration, blockchain is used to create an infrastructure that is generally referred to as “hubs” or, exacerbating the terminological confusion, “courts”, that can be developed by arbitrators, institutions, or communities to facilitate the arbitration procedures.<sup>91</sup> Arbitrators and community members acting as arbitrators can resolve disputes based on their established rules. Some platforms situate themselves as an arbitration institution or an appointing body that facilitates dispute resolution.<sup>92</sup>

From their descriptions, it is understood that these groups will provide services for their communities following the rules they establish, which will be written into smart contracts to self-execute. These procedures are designed by coders allowing anybody to create hubs to have absolute freedom over their rules and procedures leading to self-executed outcomes. Parties to arbitration typically have autonomy over the procedure, but in these systems, they are restricted by the platform’s design and the rules provided to them. As in traditional arbitration, parties do not need to have the same procedural rights as in court litigation.<sup>93</sup> However, if the parties cannot alter the procedure, they must be made aware of the process, understand the extent of their procedural rights, and voluntarily submit their disputes to that platform.<sup>94</sup> In most respects, on-chain arbitration is a form of online arbitration with similar issues that may come to light such as the seat of arbitration, delocalization of arbitration, validity of arbitration agreement, and uncertainty over the applicable law.<sup>95</sup> Because these debates are not specific to on-chain arbitration, they are not addressed in this chapter.

What is striking about on-chain arbitration is the enforcement of awards. If the design of the platforms allows, the parties may opt for automatic execution of the award by amending the underlying smart contract. However, in the UKJT DDDR, the New York Convention is mentioned to be the enforcement mechanism instead of the smart contract execution.<sup>96</sup> Matreum stated that they will adopt the UKJT DDDR in their arbitration procedures.<sup>97</sup> Therefore, some platforms offering on-chain arbitration will have to observe due process requirements per the New York Convention interpreted by the court at the jurisdiction where the enforcement will be sought. This will need careful selection of the jurisdictions. The same due process issues in off-chain arbitration addressing blockchain disputes are relevant for on-chain arbitration as well. These include pseudonymity's impact on notification, ensuring the right to be heard via hearings, having unbiased decision makers, ensuring privacy and confidentiality, and enforcement of decisions.<sup>98</sup>

It should be noted that having the procedure on-chain while relying on court enforcement seems counter-intuitive and redundant.<sup>99</sup> On-chain arbitration could be useful for parties to a dispute concerning an asset that is already on-chain when they want to have a procedure conducted by experts and based on legal rules that are more formal than crowdsourced voting. The parties should be able to agree that their award will be implemented on-chain. Following the New York Convention standards may act as a safeguard to guide arbitrators to meet the due process requirements as interpreted at the seat and render enforceable awards.

In a forward-looking scenario, the case might concern an off-chain dispute without any digital assets involved. It is good to remember that some platforms initially set out to resolve traditional disputes alongside blockchain disputes.<sup>100</sup> The parties may wish to have on-chain arbitration to utilize certain functions of the technology such as for record-keeping, automated appointment of arbitrators, and increased security via cryptographic keys. It is unlikely that parties to off-chain disputes will prefer on-chain arbitration as self-execution would not be relevant or applicable at this stage. Ultimately, the explanations about implementing the enforcement or refusal of enforcement decisions will need to be considered for parties to on-chain arbitration relying on the New York Convention enforcement and/or trying to resolve off-chain disputes.<sup>101</sup>

### 3.3 On-chain Crowdsourced Voting

As noted, crowdsourced voting is different from the blockchain arbitration process, even if it is occasionally conceptualized as arbitration. It is not sufficient to consider crowdsourced voting as arbitration just because it was labelled as such by the BDR platform.<sup>102</sup> Crowdsourced voting can be considered a form of adjudicative out-of-court process, as a result of which the jurors decide the case and the outcome self-executes via smart contracts. BDR platforms gather anonymous jurors to decide on a dispute by incentivizing them with cryptocurrency rewards following game theory principles, specifically Schelling Points.<sup>103</sup> The game theory principles, crowd wisdom, anonymity and self-executing outcomes have already been used in ODR before they were implemented on the blockchain.<sup>104</sup> Blockchain and smart contracts enable platforms to combine all of them creating a unique process that threatens due process from different angles.

Categorizing blockchain crowdsourced voting is an important exercise to derive the applicable standards and expectations from such procedures in terms of due process rights they need to guarantee. There are different views on crowdsourced voting. Some argue that it can be regarded as arbitration because it satisfies the main requirements of the process and assert that decision-making through crypto-incentivization does not diminish its standing compared to traditional arbitration.<sup>105</sup> The majority opinion, however, opposes that view for various reasons. The first reason is that crowdsourced voting does not follow well-established international commercial or investment arbitration practices.<sup>106</sup> Another argument is that crowdsourced voting is not arbitration because it is less judicial due to fundamental procedural discrepancies among the two procedures such as “problematic” incentivization of the voters and lack of reasons.<sup>107</sup> On the other hand, Model Law for Decentralized Autonomous Organizations prepared by the Coalition of Automated Legal Applications (COALA) does not categorize crowdsourced voting but states that any outcomes rendered on-chain will receive the same status and treatment as an international arbitral award without the requirement of following due process standards.<sup>108</sup> This statement is conflicting if not concerning because parties to an international arbitral award expect to enjoy certain procedural protections.



Not having an agreed-upon definition of arbitration makes the classification more difficult. When compared to existing mechanisms, crowdsourced voting shows similarities with adjudication (e.g., construction adjudication), mandatory administrative proceedings (e.g., ICANN's UDRP) and baseball arbitration. It is also argued that the outcomes should be considered like a consent award.<sup>109</sup> However, on-chain crowdsourced voting diverges from these mechanisms as it restricts parties' ability to resort to a court due to automatic execution via smart contract, although in theory parties still have the option to seek redress.<sup>110</sup> This means that parties to on-chain crowdsourced voting should consent to the procedure and determine whether the outcome will automatically execute or not, as this may significantly impact redress options. On-chain crowdsourced voting is more restrictive in terms of party autonomy to shape and determine the procedure. The jurors are asked a yes/no question, and a variety of choices are generally not available. As the outcome is to resolve the dispute, in other words, as it is a zero-sum game, the parties are not forced to think about the best possible outcome or put themselves in the shoes of the counterparty as would be the case in baseball arbitration. The decision-makers do not apply legal rules and in most of the platforms they lack expertise.

This reveals that although on-chain crowdsourced voting does not exactly follow established procedures, it shares some common grounds with existing alternative procedures and that we are still in the ODR/ADR realm. On the other hand, the way the technology combines different principles and techniques may require tailoring due process standards to the respective BDR procedure, and may call for more *sui generis* thinking.

As much as it is one of the fundamental principles of adjudication, due process does not have a single definition. It is interpreted differently across jurisdictions, procedures, courts, and tribunals. There are various elements to consider while defining the due process requirements applicable to each process or circumstance. Factors such as the binding and non-binding nature of the outcome and the availability of redress mechanisms determine the extent to which due process requirements should be observed.<sup>111</sup>

While crowdsourced voting does not replicate traditional arbitration procedure, it may converge to arbitration in terms of the severity of the outcome's implications. For example, if the parties agree that the decision will be binding and it will self-execute, then due process should be observed more strictly. Whereas if parties agree that they will not be bound by the outcome and it will not self-execute, they may enjoy less strict formalities.<sup>112</sup> The latter is unlikely to be preferred by the parties as it undermines all the advantages of going to BDR in the first place. There is no need to qualify this procedure as an arbitration that fits within the scope of New York Convention as the process itself aims to become self-standing. Consequently, blockchain crowdsourced voting can be categorized as a *sui generis* form of adjudicative ADR and part of the myriad private adjudication procedures that fall outside of the scope of the New York Convention, while benefitting from similar due process standards. With respect to crowdsourced voting the interpretation of due process under the New York Convention may come in handy to understand the rights that are aimed to be protected.

Introducing due process standards and the associated level of formality does not mean that adjudicative BDR processes should be subject to procedural rules that are as strict as court proceedings. As long as parties voluntarily participate and are aware that they may not get the same protections as traditional mechanisms, especially court litigation, BDR processes may enjoy less strict standards with the caveat that the process provides minimum guarantees that cannot be waived by the parties' agreement.<sup>113</sup> Therefore, there should be a bottom line which ensures that core values are not excluded.

The minimum ground should be established by considering the peculiarities of the process and the use of the technology. These peculiarities include the use of game theory principles instead of legal rules, lack of redress mechanisms due to automatic execution, lack of expertise, and jurors' interest in the outcome. As a first step to determining the due process requirements for on-chain crowdsourced voting, parties should *consent* to the adoption of game theory rather than legal rules and should be *informed* about the procedure including the impact of the outcome, availability of redress and enforceability of the outcome. This requires waiver of certain due process guarantees in exchange of benefits that BDR may

provide such as efficiency and ease of enforcement. Moreover, pseudonymity should not present an obstacle for the notification process neither for off-chain arbitration resolving blockchain disputes nor for on-chain arbitration. Also in terms of independence and impartiality of the jurors, pseudonymity may have a positive impact as neither the jurors nor the parties reveal their identities. If a party suspects any bias, they should be able to raise this concern within the internal mechanism. Some BDR platforms provide for repetition of the same process with an increased number of jurors.<sup>114</sup> Although this is not a judicial redress or appeal in a traditional sense, it reduces the impact of a biased juror's vote in the overall decision, which may be useful. The platforms should be encouraged to have an internal redress mechanism with embedded due process safeguards or allow parties to go to court.

Furthermore, pseudonymity plays an important role in the outcome as game theory principles require each juror to reach their conclusion separately without colluding with each other. Therefore, hearings are against the idea of crowdsourced voting. As it is not considered to be a mandatory right, parties should be informed about the unavailability of the hearings.

The most concerning issue in relation to due process is the incentivization mechanism as jurors' remuneration depends on voting with the majority, which leads jurors to have an interest in the outcome.<sup>115</sup> Alternative decision-making incentives or remuneration mechanisms can be considered by the platforms. One example is Oath's fee mechanism which pays each juror a standard fee deposited by the parties but distributes credit scores to incentivize juror participation.<sup>116</sup>

On a final note: developing due process standards requires paying attention to the rights of weaker parties such as consumers. Additionally, BDR is likely to hold the users to standard terms. Although on-chain arbitration may provide more flexibility for the users in their agreements, the underlying design of the platform will remain the same; hence the procedure will only be as flexible as the platform allows it to be. On-chain crowdsourced voting is even more restrictive as the procedure is pre-determined and the parties do not have the option to amend the agreement or the procedure in current practice. Therefore, it is important for platforms to be designed or coded in a way to prevent power imbalances, inherent inequalities, or biases.

## 4 Adapting Traditional Mechanisms to Enable On-chain Enforcement

Due process guarantees are important for off-chain arbitration that handles blockchain disputes as well as for on-chain arbitration procedures that rely on state enforcement under mechanisms like the New York Convention. If the award fails to meet the due process requirements, the court will deny enforcement. Of course, there are other conditions for enforceability, which are addressed in the literature.<sup>117</sup> However, the subsequent legal steps following the court's decisions, which often involve technical considerations, are frequently overlooked. This is unfortunate, because if the court's decision cannot be executed on-chain, then it becomes unnecessary to discuss or even continue innovating dispute resolution systems.

Transposing court's decision on-chain requires legal grounds or guidance to modify the code or smart contract underlying the blockchain transaction. Whether the court granted or refused enforcement of the award is irrelevant in technical sense because both instances require modification of the code. How do we execute an award or how do we take back an already executed award if the enforcement is refused or the award is set aside? This leads us to consider creating the legal grounds to ensure that the courts enforce awards and provide guidance for the arbitrators to render compatible awards.

There are different perspectives on navigating the enforcement procedures involving agreements allowing for partially or fully automated performance via smart contracts. The International Institute for the Unification of Private Law (UNIDROIT) recommends national procedural laws be adapted to facilitate procedures involving digital assets, including enforcement.<sup>118</sup> A few recommendations for adaptations are provided as examples. For instance, if an identified person or a custodian of a digital asset refuses to reveal the password or transfer the key to transfer the possession of the digital asset, the court should be able to order such transfer or "otherwise enable access to that asset."<sup>119</sup> Keeping confidentiality and privacy, the procedural law could be adapted to enable gathering necessary information for effective proceedings or any other process.<sup>120</sup> To avoid loss of the value represented by the digital assets by their quick transfer, it is recommended that the law should facilitate interim reliefs such as

freezing orders or transfer of control to a public authority.<sup>121</sup> The cross-border nature of the transactions and the jurisdictional concerns are flagged to be considered while amending the procedural rules.<sup>122</sup> In this vein, UNIDROIT also calls for international best practices to address enforcement procedures against digital assets.<sup>123</sup>

Interestingly, the Law Commission in the UK found that no reform is necessary with the rules providing for injunctions and enforcement – not only because some provisions may accommodate digital assets, but also because even with law reform, the intended objective cannot be fully realized, rendering such reform redundant.<sup>124</sup> For instance, the Law Commission emphasized that with respect to enforcement by appointment of a receiver/third party, there is no reason to believe that they will transfer their private keys to the public authority, if a defendant is non-compliant with the order in the first place.<sup>125</sup> The law already enables effecting an on-chain transfer by authorising a nominated person (possibly a custodian) to execute the transfer if the defendant refuses or neglects the order.<sup>126</sup> Awarding damages in crypto assets is a debated issue, which is left to be determined by the courts in the UK.<sup>127</sup> Such divergent views on the categorization and treatment of digital assets suggest that coming up with best practices will be a challenging endeavour.

Besides the discussions on reforming procedural rules, the idea of configuring the technology for effective enforcement is explored. The European Law Institute's (ELI) Principles on the Use of Digital Assets as Security recommends an escrow mechanism to overcome the enforcement challenges posed by the non-compliant defendant who refuses to transfer control over the digital asset or transfer the private key.<sup>128</sup> Similarly, the EU Data Act requires all smart contracts to have internal functions that would reset, stop or interrupt to avoid undesired execution.<sup>129</sup> This would aid parties to stop automated execution, resort to arbitration or court, and resume per the outcome of the procedure. Some platforms also have strategies to guide their users. For instance, Binance warns users that it may place a hold on the digital assets in a user's account when it is informed that the user is in unlawful possession of the assets without any obligation to do so.<sup>130</sup>

Another approach would be requiring and enabling arbitrators to attach explicit commands to the award to order coders or the DAO involved to alter the transaction. Alternatively, as provided under the UKJT DDDR, arbitrators could be given the power to “operate, modify, sign or cancel any digital asset” or direct any interested party to do the same.<sup>131</sup> The tribunal may use “any digital signature, cryptographic key, password or other digital access or control mechanism” to reach this objective.<sup>132</sup> It is necessary to clarify the tribunal’s discretion with respect to digital assets as it ensures the enforceability of the award and it is equally important that the tribunals with this discretion give clear instructions in the award for its enforcement.

Although arbitration is preferred due to ease of enforcement via the New York Convention, obtaining the enforcement decision does not guarantee the technical implementation of the order on-chain. It is undoubted that relying solely on the New York Convention or other procedural rules for the enforcement of awards will have to be supported by rules or guidelines explaining the technical pathways to transfer the keys, passwords, or digital assets. Likewise, blockchain platforms will also need to have internal technical and governance structures to facilitate the enforcement of awards. This also supports the idea that instead of relying on off-chain mechanisms we need to have on-chain processes and enforcement procedures that respect the due process rights to minimize the reliance on the courts.

## 5 Conclusion

Discussing due process in blockchain arbitration presents a challenge because of the terminological confusion surrounding the term. Do we mean the resolution of blockchain disputes by arbitration, or arbitration on blockchain or are we using it as a catch-all term to describe all mechanisms that utilize blockchain for dispute resolution? When due process in blockchain arbitration is discussed, it is done so by only referencing the New York Convention. To address this ambiguity, this chapter analyses each interpretation and explores the relevant due process standards for each process. Beginning with off-chain arbitration for blockchain disputes, it is seen that not all blockchain platforms opt for arbitration but

when they do, it may not be international arbitration. This restricts the application of the New York Convention.

The chapter then turns to BDR mechanisms. It is seen that in most instances blockchain arbitration is used to refer to crowdsourced voting that renders self-executing outcomes relying on blockchain and smart contracts. Blockchain is in fact used for facilitating arbitration that is similar to off-chain online or traditional arbitration. There is no need to label crowdsourced voting as arbitration since the term evokes specific rules and formalities. Comparison with similar off-chain procedures indicates that on-chain crowdsourced voting can be broadly described as an adjudicative ADR process, and it is seen that the New York Convention is not directly applicable to on-chain crowdsourced voting. Due to the adjudicative nature of the juror's decision, self-executing outcomes, and the difficulty in reversing transactions, it creates the effect of binding decisions that are enforced without the need for judicial redress. Consequently, due process requirements for arbitration may become relevant for crowdsourced voting to the extent that they help us understand the due process rights and the values that need to be protected.

For on-chain arbitration, platforms and rules describe two different enforcement mechanisms. The first one is automatic execution of arbitration decisions via smart contracts and the second one is enforcement under the New York Convention. If the platform provides and the parties agree to self-execution of on-chain arbitration awards, the court enforcement will be bypassed. The second option of court enforcement seems futile as it renders the self-enforcement that might be the most advantageous feature of BDR obsolete. However, enforcement under the New York Convention is mentioned by the rules and platforms. In this case, on-chain arbitration can still be preferred due to increased transparency, security, anonymity, and record-keeping properties.

What is common for both on-chain arbitration and crowdsourced voting is that if the outcomes automatically execute, the parties will not have the option to seek redress. Even if it is legally possible to appeal to a court, the court's decision will likely not have any practical effect as the subject matter of the dispute will already have been transferred to the counterparty as an irreversible blockchain transaction. It is essential to have a system where

parties' due process rights are respected. On the other hand, if the outcomes are not self-executing and parties need to seek court enforcement, due process becomes important for such outcomes to be enforceable.

Consequently, it is important to understand what is relevant for blockchain adjudication and develop due process standards considering the needs of the users and why they would choose BDR in the first place and protect the weaker parties rather than aggravating power imbalances. Ensuring compliance with the standards may require introducing formality and state involvement with BDR. As much as it may be against decentralization, which is subtly overthrown by the platforms themselves, respecting parties' due process rights must be the priority.

## Notes

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- 10 See for example, George, William. “Kleros Cryptoeconomics: Towards a Theory of Decentralized Justice” Kleros, *Dispute Revolution: Kleros Handbook of Decentralized Justice* 78 kleros.io.
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- 24 *Hermes International v. Rothschild*, U.S. District Court for the Southern District of New York, No. 1:22-cv-00384; *Shenzhen Qice Diechu Cultural Creativity Co Ltd (Qice) v. Hangzhou Yuanyuzhou Technology Co Ltd (Bigverse)* (22 April 2022) Hangzhou Internet Court Civil First Judgment No. 1008 discussed by Xiao, Baiyang. “Copyright and Non-fungible Tokens: Experience from China” (2023) 30(4) *International Journal of Law and Information Technology* 444, 459-465.
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- 26 Soares 85, 88. The source refers to international arbitration as a “decentralized substitute to domestic tribunals”, which can be interpreted as a delocalized procedure somewhat physically detached from a country and do not rely on arbitrators to be appointed by states. The term “decentralization” as used in the blockchain context should be handled with caution as arbitration does not float free from the state-made laws, arbitrators can be appointed by a central authority such as arbitral institutions and the awards are enforced by the courts.
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- 31 *Ibid*.
- 32 La Capra, Emi. “Facebook Metaverse: Will It Support Blockchain?” *CoinMarketCap* (2022).
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- 35 *Ibid*. 11(b)(ii)/(iv).
- 36 *Ibid*. 11(b)(x); 11(b)(i).
- 37 *Ibid*. 11(b)(ix).
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- 39 Jur, “Terms of Service” 13.2 (states that any dispute arising regarding the Terms of Service will be subject to the exclusive jurisdiction of Court of Zug in Switzerland). <https://jur.io/terms-of-service/>.
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the Aragon Association, which provides other services besides Aragon Court still has a similar clause in its “Terms and Conditions” referring to Aragon Court. <https://anj.aragon.org/terms.pdf>. Aragon, “Terms and Conditions” Whether this is about falling behind updating the terms or whether they foresee a possible revitalization of Aragon Court is uncertain. <https://aragon.org/terms-and-conditions>.

- 42 See Section 3.1 for further discussion on the decentralization and due process.
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- 44 *Ibid.*
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- 59 Kaal & Calcaterra III.
- 60 UK Law Commission, “Smart Legal Contracts: Advice to Government” 3.22. For completely decentralized DAOs, where there is no central body like an exchange that can be targeted, it is difficult to follow a litigation strategy. UK Law Commission, “Decentralised Autonomous Organisations (DAOs) A Scoping Paper” July 2024 3.21 <https://lawcom.gov.uk/document/decentralised-autonomous-organisations-scoping-paper/>.
- 61 For example, Roblox “Introduction”; OpenSea “Accessing the Service”.
- 62 See for example the UK cases, *D’Aloia v Persons Unknown* (n 15) para 38; *Osbourne v Persons* (n 13) para 47-48.
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- 64 Chan & Hay 226.
- 65 Chen 266.
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## CHAPTER 3

# The New York Convention's Borderline. Blockchain Arbitration and Artificial Intelligence

MATTHIAS LEHMANN<sup>1</sup>

New technologies are disrupting the world of dispute resolution. Blockchain arbitration (BA) allows a community of users across the globe to act as arbitrators.<sup>2</sup> Artificial intelligence (AI) even offers the prospect of replacing human arbitrators with algorithms.<sup>3</sup> Are these new phenomena compatible with the New York Convention (NYC)?<sup>4</sup> In particular, must states recognise and enforce decisions rendered via BA or AI under the Convention?

Some may deem this discussion moot. After all, the new technologies harbour the possibility of 'self-enforcement', for instance via a smart contract that holds digital assets of the defendant in escrow and automatically transfers them to the winning claimant.<sup>5</sup> However, not all technological dispute resolution methods feature a self-enforcement mechanism. A reason may be that defendants are reluctant or unable to put their digital assets in escrow. And even where they do, the amount may not suffice to satisfy the award.

Therefore, award enforcement by real people in the real world remains important. To this end, the compatibility of the new dispute resolution methods with the NYC is relevant. One can hardly overstate the significance of this question. If it were to be answered affirmatively, this could herald a true modernisation of arbitration. We would witness a pivotal moment in time, in which technology upheaves dispute resolution. No longer would it be necessary for humans to argue and converse with each other over the proper solution of the case. Instead, entirely different ways of solving disputes would be opened. But if the question were to be answered negatively, it would mean that the traditional way of solving disputes would endure in its importance. Human arbitrators would still have to interact with each other and debate over the right decision in a case. This could change only if a new, technology-open convention were elaborated and ratified by at least a similar number of states.



## 1 Blockchain Arbitration

### 1.1 Description and Differences to Traditional Arbitration

Blockchain Arbitration is used here to describe arbitration procedures conducted on the blockchain, in accordance with the logic and rules inherent to the blockchain environment. This definition, therefore, differs from the definition of BDR of blockchain dispute resolution used in Chapter 2.<sup>6</sup> A typical BA is quite different from ordinary arbitration. As a point of reference, I am using Kleros, which is currently the leading system in this area.<sup>7</sup> Kleros offers a way of solving disputes that is entirely digital. To start with, the notice of arbitration and the statement of claim will be sent electronically.<sup>8</sup> The claimant will typically have to provide security for the fees by ‘staking’ crypto assets, which can be compared to putting them into a digital vault.<sup>9</sup> ‘Jurors’ – i.e. decision-makers – will be selected algorithmically, typically from a roster of the members of a Decentralized Autonomous Organization (DAO); they will also have to stake crypto assets to show their seriousness and willingness to act as jurors.<sup>10</sup> The claim, the defence and all pieces of evidence will be sent electronically to the selected jurors. They will also render their decision electronically in cyber-space, without knowing each other or meeting physically or virtually. Even the arbitration agreement may be made digitally, for instance by ticking a box in a window that pops up when the contract is concluded on the internet.

The most crucial difference to traditional modes of dispute resolution, however, is the way in which the jurors will be rewarded. Those who voted in accordance with the majority will receive a fee and additional crypto assets on top of those that they staked. In contrast, those in the minority will not receive any fee; in addition, they will see their staked crypto assets either fully or partially taken away. (As a matter of fact, those crypto assets will serve to reward the jurors that are in the majority.) The purpose of this system is to incentivise jurors to vote honestly.<sup>11</sup> Given that they act anonymously, they would lose nothing by voting in bad faith. An incentive scheme has therefore been designed to ensure the proper decision is reached.

The fundamental idea underpinning BA is that a majority of the people will arrive at the right decision. In other words, BA relies on the ‘wisdom of the crowds’.<sup>12</sup> The linchpin of this idea is the so-called Schelling point, after the Nobel prize-winning game theorist Thomas Schelling. Schelling illustrated his concept by an experiment in which participants were asked to meet in New York City the next day, but were not given the exact time and place.<sup>13</sup> Although they could not communicate with one another, a majority chose to come at noon to the information booth at Grand Central Station. This was meant to show that a majority of reasonable people, even when deciding in absence and not being able to communicate with each other, will agree on a certain result, which Schelling calls the ‘focal point’. The focal point can be understood as proving the ‘wisdom of crowds’, which supposedly exceeds that of any single individual.

Some systems allow an appeal against any decision rendered.<sup>14</sup> In order to make full use of the wisdom of the crowds, each appeal will be decided by double the number of jurors as before. At the same time, the fees also increase. While the appeal can be repeated infinitely, the increase in the fees is designed to incentivise parties to abstain from unnecessary appeals.

## 1.2 The Requirements of the NYC

It is doubtful whether this model is sufficient to qualify BA processes as ‘arbitration’ under the New York Convention. As a matter of fact, many of the features of the new type of dispute resolution are at odds with the Convention’s provisions.

For starters, Art II(1) NYC requires an agreement ‘in writing’, and it is by no means sure that this also covers an electronic exchange of communication, let alone agreements made on a blockchain.<sup>15</sup> Second, Art V(1)(b) NYC requires that each party is able to present its case, which it may be inhibited to do in a blockchain context, where the parties do not interact with the jurors. Third, Art I(1) NYC starts from the idea that the award is made within the territory of a certain state, however such a ‘seat state’ is impossible to locate in the decentralised environment of BA. Fourth, Art IV(1)(a) NYC calls for a ‘duly authenticated original’ of the award, which may be difficult to produce where jurors vote in cyber-space. Fifth, the typical

motivation of awards is highly unusual in BA, where jurors cast their votes independently of each other and most often need not give any reason why they voted in a certain way.

Still, none of these problems is unsurmountable.<sup>16</sup> One may for instance interpret the ‘in writing’ requirement broadly in line with the principle of equivalence of written and electronic form;<sup>17</sup> the parties in BA can at least submit their pleadings and any evidence to the jurors; the seat can be fixed by agreement in a particular country; the award could be signed electronically by the jurors; and the parties could be deemed to have renounced the requirement of a motivated award, as it is also possible in decisions made *ex aequo et bono*. This shows that the NYC requirements, if taken in isolation, may be complied with by BA.

### 1.3 The Notion of ‘Arbitration’

The most fundamental problem is, however, whether BA may be at all considered as ‘arbitration’ in the sense of the NYC. Though the letter of each of its provisions can be complied with, BA could be completely outside its scope. That is because BA, contrary to what its name suggests, may not be arbitration, but something entirely different.<sup>18</sup>

Whether this is the case or not is particularly hard to answer given the lack of a definition of arbitration in the Convention itself. There is no universal agreement of what arbitration is either.<sup>19</sup> The well-known debate between those likening it to a contract and those stressing its similarity to judicial proceedings does not need to be repeated here.<sup>20</sup> As is also well-known, the first view tends to result in a greater role of party autonomy than the second. Proponents of contractual characterisation will therefore most probably consider BA as arbitration provided the parties have agreed on it, while those stressing the quasi-judicial function of arbitration might lean to the opposite conclusion.

Independently of the ‘true’ nature of arbitration – which may not be summed up with any one category but is more likely to be hybrid – there are important arguments to allow new technologies in arbitration. In particular, the right of the parties to fashion the proceedings according to

their own preferences is almost universally recognised.<sup>21</sup> If they wish to select the jurors randomly through an algorithm and have them vote anonymously and separately, why stop them from doing so? There is no doubt that BA could harness the advantages of new technological developments by broadening the roster of arbitrators and streamlining the procedure. As a matter of fact, this could offer a cost-effective way of solving disputes, especially those of smaller monetary value.

On the other hand, it is hard to deny a certain tension between BA and the notion of arbitration as it is traditionally understood. Even those authors who are stressing the contractual nature of arbitration admit that it also has an adjudicative function.<sup>22</sup> This is not merely a theoretical debate, but relevant for the scope of the NYC. Though it does not define the notion of arbitration, one can see through its scarce provisions and pithily drafted words a particular image of arbitration, which the drafters must have had in mind. It speaks of the 'appointment of the arbitrator', as if it was done regularly by the parties themselves and only rarely by an institution. It also mentions the 'arbitration proceedings', which alludes to a certain procedure modelled on or at least vaguely similar to judicial proceedings. This type of procedure offers parties the opportunity 'to present their case', to have some interaction with the court and respectively the arbitral tribunal, to engage in a rational debate. Importantly, these are also minimum requirements under international treaties for access to justice.<sup>23</sup>

Still, none of this proves that the notion of 'arbitration' could not also be fulfilled by algorithmically chosen arbitrators or jurors. Decisive are, however, the effects of arbitration. As clarified by Art II(1) NYC, a (valid) arbitration agreement excludes the jurisdiction of state courts. And as set out in Art III(1) NYC, contracting states must recognise the award and enforce it in accordance with the rules in place in their territory. This means indeed that arbitration is more than a pure contract. It discards the jurisdiction of state tribunals, and it produces awards with *res judicata* effect. To achieve this result, certain requirements are necessary. In particular, the arbitrators must render a decision they believe to be fair and just, and in accordance with the rule of law. They must be unbiased and hence cannot remain anonymous. And they must, during the course of the arbitral proceedings, converse with each other in order to find the proper solution to the case.

For these reasons, not everything that the parties agree on deserves to be called ‘arbitration’, as is known from the lengthy discussion on the delin-  
 eation from expert determination and other phenomena.<sup>24</sup> It seems obvi-  
 ous that if the parties were agreeing to solve their dispute by the toss of a  
 coin, the coin toss would not be considered an award. But nor would it be  
 if a private person were to witness it and put the result into the form of a  
 written award. Parties may authorise arbitrators to disregard the law and  
 decide *ex aequo et bono*.<sup>25</sup> But they cannot authorise them to decide in  
 accordance with a standard beyond both law and equity. This would no  
 longer be adjudication because adjudication is not merely about deciding  
 a dispute. An essential ingredient and characteristic of any form of adjudi-  
 cation is the search for a decision that is just or fair.<sup>26</sup> As will be shown  
 next, BA is not designed to achieve such a result.

#### 1.4 The Discrepancy of BA

The scheme underpinning BA, in particular the Schelling model, cannot  
 be compared to traditional models of arbitration and the concept under-  
 lying the NYC. That is because it does not incentivise jurors to search for  
 a just and fair decision. It incentivises them to think about what others  
 think is a just and fair decision. The Kleros Whitepaper is very open about  
 this point by admitting that through its system,

*“... parties are incentivized to vote what they think, other parties think,  
 other parties think. . . is honest and fair”.*<sup>27</sup>

But whether you think something is honest and fair, or whether you shall  
 estimate if others may deem it to be honest and fair, are two different  
 things entirely.

An example will illustrate why this discrepancy matters. Suppose three  
 jurors (A, B and C) are informed about a criminal accusation and are asked  
 whether the defendant is guilty. Suppose further A and B to be highly  
 intelligent and aware of their rare gift. Both conclude on the defendant’s  
 innocence, while the averagely intelligent juror C is convinced of the  
 defendant’s guilt. In any system of adjudication, A and B should be incen-  
 tivised to vote according to their true opinion. However, in the Schelling  
 system of conflict resolution, it is different. In this system, A and B have to

think about what the majority will decide. They are incentivised to vote with that imagined majority, even if they are convinced the truth was different. Not knowing each other and not being able to communicate with each other, A and B will conclude an ordinary juror is likely to find the defendant guilty. Rationally, they will vote this way, in order to gain a fee and to avoid losing their stake.

The following table illustrates the different voting behaviour:

	SYSTEM OF ADJUDICATION	BLOCKCHAIN ARBITRATION
A	not guilty	guilty
B	not guilty	guilty
C	guilty	guilty
OUTCOME	not guilty	guilty

This difference must not surprise us. It reflects the very old insight that the majority is not always right. Where jurors can deliberate with other jurors, they are able to argue, show them their mistakes, and convince them of their opinion. This is an important safeguard for any form of adjudication. A forceful example is shown in the famous movie “Twelve Angry Men”, in which a single juror disagrees with a guilty verdict, holds out and finally manages to convince the others of the accused’s innocence.<sup>28</sup> Scores of other incidents have also proven the value of jury deliberations.

In contrast, jurors in BA cannot communicate with each other and are in addition penalised for having a different opinion. As a consequence, they will not make their voices and doubts heard. Instead, they are most likely to engage in herd behaviour, voting like the majority is likely to vote. Worse still, they will not even vote like they believe the majority is voting, but what they think the majority of jurors is likely to think the majority thinks. Consider again the Kleros Whitepaper:

*“... parties are incentivized to vote what they think, other parties think, other parties think. . . is honest and fair.”<sup>29</sup>*

This amounts to a bet on the probable outcome of a vote, not the vote itself. Such bets follow a very different logic than giving one’s own opinion. They will vote not in accordance with their opinion of what is fair or

just, but in statistical or stochastic terms. The result of such an exercise is only a faint shadow of adjudication according to the proper convictions of the jurors, as it was envisaged by the NYC.

#### 1.4 Wager as Adjudication?

The question, in dry legal terms, is whether BA can be assimilated to arbitration regardless of these flaws. After all, the NYC does not prescribe a particular type of procedure. Instead, it leaves much of this to the parties and to the laws of contracting states. Also, the image underpinning the NYC is not cast in stone but may be subject to change.

An example is baseball arbitration, in which arbitrators are not free to decide as they prefer but are bound to choose between either the full petition made by the claimant or the full petition made by the defendant.<sup>30</sup> Still, there is common agreement that this form of arbitration qualifies for award recognition and enforcement under the NYC.<sup>31</sup> There are at least two crucial differences between baseball arbitration and BA. First, the incentive structure: baseball arbitrators' remuneration is not conditioned on their hitting the 'right' opinion, but independent of it. Second, the outer limit of the decision is not set by the opinion of their co-jurors, but by the claims of the parties. In this sense, baseball arbitration is just common arbitration 'with a twist'.

It is apparent that the contracting states of the NYC did have a particular concept of 'arbitration' in mind when signing the Convention in 1958. This concept was that of one or several persons' search for a just and fair decision. While this does not result from any single provision of the Convention, it clearly follows from all of them read together. Fair and just results cannot only be achieved by proceedings similar to those in a courthouse. Nevertheless, some basic procedural conditions must be met to at least enable a fair and just result (although this will not always be the result). Chief among them is – in the case of several jurors – a possibility for deliberation between the jury members about the right decision, and a proper incentive scheme.

BA – at least in its current form – does not live up to this concept. It is essentially a betting system, similar to event prediction mechanisms. It is

correct that one cannot expect arbitrators or jurors to be right 100% of the time.<sup>32</sup> Yet BA is designed in such a way that the right result is not even looked for, just the result that the majority will probably think is right. It is hard to imagine that the states of the NYC signed up to enforce the results of such a mechanism and were willing to renounce their right to exercise their own judicial power in its favour. Gaming cannot replace adjudication.

## 2 Artificial Intelligence

### 2.1 Large Language Models as the Test Case

Within the last few years, AI has developed spectacularly. This makes the replacement of human arbitrators by computers and algorithms a distinct possibility. There are many different variants of AI.<sup>33</sup>

Particularly impressive are the achievements of so-called Large Language Models (LLMs), the most prominent of which is ChatGPT.<sup>34</sup> LLMs are very good at summarizing text, answering all types of questions, and generating text. They are based on previous learning from massive amounts of pre-existing data, which they take from sources like the internet.<sup>35</sup> These data inputs are put through a so-called 'transformer'.<sup>36</sup> It consists of an encoder, which transforms patterns of words and sub-words into numerical tokens as input, and a decoder, which produces an output sequence, along with several other, hidden layers. These layers together form a complex architecture, which is designed to mimic the human nerve system (therefore also called 'neural network').<sup>37</sup> It can work on its own without any human supervision or guidance.<sup>38</sup> In contrast to previously dominant sequential methods, a transformer does not process one word at a time, but whole sentences, paying attention to the so-called 'embeddings', or specific context in which a word or sub-word is used.<sup>39</sup> This helps to achieve better quality results ('deep learning') while also speeding up the process of machine learning because several meanings and their interactions can be learned in parallel. The output sequence is generated from this pre-trained material (therefore the name 'Generative Pre-trained Transformer' – GPT). It is a prediction of the word or other output that will most probably appear after a series of other words.



LLMs are used in all sorts of areas of life, whether it is business, education, research, or just for fun.<sup>40</sup> They may also find their way into dispute resolution. Some projects have already been developed to make use of them in the field of mediation.<sup>41</sup> LLMs may also become significant for arbitration. Already now, they are employed for a variety of purposes, such as note taking, transcription, factual and legal research, or as assisting in the drafting of briefs, pleadings, and awards.<sup>42</sup> It is not beyond imagination that one day they might be honed to decide the dispute themselves.

## 2.2 Problems of AI

Yet AI models and LLMs in particular are beset by a plethora of problems.<sup>43</sup> For one, the quality of the results is highly dependent on the quality and depth of the dataset ('garbage in, garbage out').<sup>44</sup> Moreover, the variations of the syntax of the question put to the LLM (the so-called prompt) may lead to dramatic changes in output.<sup>45</sup> ChatGPT may even be biased towards specific genders, races, ethnicities, or other social groups.<sup>46</sup> Sometimes, LLMs simply produce wrong information, which may seem deceptively accurate (so-called hallucinations).<sup>47</sup>

Limitations like these have led the literature to warn against using AI for arbitration.<sup>48</sup> It was specifically fretted that an algorithm trained on precedent may be infected with human biases and even exaggerate them by holding them as 'true' for its future decisions or outcome predictions.<sup>49</sup> But computers do not suffer from human fallacies like the 'lunch break bias'.<sup>50</sup> They render predictions with stochastic exactness. If anything, they will prune out biased human decisions as outliers and focus on the majority of the case law. This makes it highly unlikely that parties will be treated worse than before a human arbitrator.

Another problem of AI is its incapacity of rendering properly motivated decisions. Although it can write text, this is not comparable to a reasoned award since it does not *explain* the real reasons why a certain decision was rendered.<sup>51</sup> As these programmes learn without supervision on their own, even their coders struggle to explain the results they produce.<sup>52</sup> Indeed, while algorithms can give reasons for their results, these are not comparable to human reasons in the sense of the *beliefs* of a human judge or arbitrator. Yet everyone who decries LLMs for the lack of giving true reasons

should take a critical look in the mirror: Are human judges and arbitrators always giving the *real* reasons for the decisions they take? Or are they, more often than not, using formal legal arguments, which hide their true motivations? One must neither be a legal realist nor a cynic to believe the latter. Any form of legal decision will undergo a complex way of formalisation before it is reached, with a view to make it acceptable and convincing for all members of the tribunal, for the parties of the proceedings, and potentially for third parties such as the arbitral institution. This formal rationale will mostly mask the previous dispositions and personal beliefs of the arbitrators as well as the discussion between the members of the tribunal and the different ideas underpinning the decision. By comparison, computers are more transparent than humans because their memory is not an internal thought process but hidden in plain sight on a computer chip.

### 2.3 Facing the NYC

But could decisions rendered by AI be considered awards in the sense of the NYC? Again, a dry look at the provisions is crucial to answer this question. Quite soon, doubts will appear. The Convention's concept of an award is a decision rendered either by arbitrators or by a permanent arbitral tribunal (see Art I(2) NYC). Even in the latter hypothesis, an arbitrator must be appointed, and the parties notified of it (see Art V(1)(b) NYC). Notions like 'arbitration proceedings' and the 'arbitral procedure' seem to imply human interaction, as these terms have so far been understood as referring to written or oral presentations, arguments and debates between human beings. An algorithm will also have difficulties to produce a 'duly authenticated award' (Art IV(1)(a)) if 'authentic' is understood as being attributable to a specific person.

Yet these are only superficial reasons for rejecting an AI decision's recognition and enforcement under the Convention. While each of them carries some weight, none of them fully explains why such a decision cannot be considered an 'award' and why the process leading up to it cannot qualify as 'arbitral proceedings'. The most important reason lies in the technology itself. AI, at least in its present form, does not work like human intelligence of a judge or arbitrator. It does not search for a fair or just decision. Instead, it is based on statistical probabilities. Models like LLMs are nothing else than 'stochastic parrots'.<sup>53</sup> Their function is to predict the next

word or sentence from prompts. In this sense, they resemble BA, the difference being that the prediction is done by algorithms and not by humans. If one refuses to consider BA as arbitration, then one must reject AI as arbitration even more emphatically. LLMs merely produce a prophecy of what human arbitrators might do based on what they have been doing in past cases. But they do not provide an opinion of what is fair and just in the specific circumstances of the new case at hand. They are at best a vague image of justice.

That does not exclude the use of AI in arbitral proceedings. It can fulfil many useful purposes, from analysing records to organising documents submitted to the tribunal and translating foreign languages. They may also be used by arbitrators in the preparation of the draft award. However, a human being must verify the draft and, crucially, form an opinion on the proper solution of the dispute. In other words: while AI may be used for assistance, it cannot replace the reasoning of the human arbitrator(s). Anything else would be incompatible with the notion of arbitration underlying the NYC. At least current models of AI, the LLMs, do not fulfil this requirement.

## 2.4 Workarounds

Since BA and AI dispute resolution do not qualify as arbitration, the question arises whether it is nevertheless possible to have their products recognised and enforced under the NYC. Ways of doing so could be imagined. One way of doing so would be to put a settlement of the parties before an arbitrator, who puts it into an award. Another would be for one or several human arbitrators to just adopt a decision rendered by BA or an AI system.

There is already one practical example for the latter approach.<sup>54</sup> In 2020, a dispute between two Mexican parties over a rental contract was submitted to the BA system Kleros. This system rendered a decision via three jurors. On 27 November 2020, a (sole) human arbitrator in Mexico then copied the BA decision into an ‘award’. While the arbitrator pretended that he reached a decision himself, it was revealed that he simply copied the BA decision. The winning party filed a motion for recognition and enforcement of the award. On 28 May 2021, the District Court of Jalisco granted this motion.

Proponents of BA and AI arbitration will cheer over this 'creative' solution. When looked at superficially, it complies with the requirements of the NYC. The procedure was in accordance with the wishes of the parties. A human being is certifying an award. Effectively, the arbitrator 'decides' that the dispute has already been resolved by the BA or AI mechanism. What could possibly be wrong with that?

The arbitrator who renders an award in this way does not actually decide the dispute. She merely certifies a result that has been reached by other means. This is not arbitration – after all no human arbitral tribunal has searched for a fair and just solution. It does not comply with the NYC, but merely circumvents its requirements. It is an avoidance of the law, a *fraus legis*, which must not be permitted. The fact that an arbitrator signs off on an award does not make the content and the genesis of the award meaningless. The latter remains essential for assessing the nature of the decision rendered.

In a similar vein, a decision rendered by an arbitrator on a BA or AI decision partakes in the legal nature of the latter. It is not an 'award' in the sense of the NYC and does not enjoy the privileges under this Convention. If it were otherwise, anything could be certified as an 'award' and create *res judicata* effect in other signatory countries. While it is true that there are settlements that can circulate as awards, these are always preceded by proper arbitral proceedings. Settlements achieved without such proceedings are not considered as 'awards'. So it is for BA and AI decisions as well.

Yet it is possible that the arbitrator or the arbitral tribunal uses AI in the arbitral proceedings, for instance to administer documents, to gather information, or even to draft the award.<sup>55</sup> Is that impermissible? This is of course a can of worms, which cannot be opened and killed one by one here. But some guiding principles can hopefully be agreed upon: First, AI can be a useful tool to facilitate many of the arbitrators' tasks, especially when large amounts of information have to be processed, provided the obligation of confidentiality is fully complied with. Second, a complete prohibition of AI would be futile as it could hardly be monitored. Third, there are no pervasive arguments against employing technology as long as a human being is supervising its use and is accountable for the result. The last point

is perhaps the most important. It is this point that sets any form of AI assistance of human arbitrators apart from AI arbitration.

### 3 Conclusion

Current models of BA and AI are incapable of producing an enforceable award under the NYC. They may be improved in the future. It is by now unforeseeable which other models will be invented. Whether they will satisfy the Convention's requirements cannot be decided at this point. One can only assess those models that presently exist, not those still to be developed.

It is possible, however, to define some key requirements. The most essential for any 'award' in conformity with the conception of the NYC will be a human arbitrator voicing his or her own personal opinion about the fair and just resolution of the case. In the case of an arbitral tribunal, a further key requirement will be that the arbitrators have the opportunity to exchange arguments with each other. Unless these requirements are met, the resulting decision does not qualify as an 'award' to be recognised and enforced under the Convention.

That must not be the end of the story for technology in dispute resolution. Quite to the contrary, technology such as AI can be a helpful tool to assist the arbitral tribunal. However, pure BA or AI arbitration are incompatible with the NYC and their products do not benefit from its recognition and enforcement rules. If the states feel the political will to change this, they need to either modify the Convention or conclude another one.

### Notes

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  - 5 See Chevalier 583 (highlighting that blockchain arbitration enjoys self-enforcement capabilities); Wiegandt 686 (noting that allowing arbitrators to implement decisions directly on-chain into the smart contract's code).
  - 6 See p. 40. See also the definition in Chapter 7.
  - 7 See the Kleros whitepaper (Lesaege, Clément, Ast, Federico & George, William. "Kleros Short Paper v1.0.7"). <https://kleros.io/whitepaper.pdf>
  - 8 See the example in Kleros whitepaper p. 6.
  - 9 Kleros whitepaper p. 6-7; Wiegandt 682.
  - 10 Kleros whitepaper p. 4; Kindt 244; Wiegandt 682.
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- 25 *See* Art 28(3) UNCITRAL Model Law.



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- 27 Kleros whitepaper, p. 8 (three dots in the original).
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## CHAPTER 4

# Metaverse Reality vs Natural Reality. The Impact of the Type of Reality on Legal Concepts

CRENGUTA LEAUA

## I The Concept of the Metaverse/the Metaverses

The formation of the word “metaverse” derives from the Greek root, “*meta*”, which has a dual meaning: (i) “after, what is beyond the physical reality” (like in Aristotle’s *Metaphysics*) or (ii) “that [which] is changed”. The presence of humans in the metaverse manifests through the use of avatars. The term *avatar*, in its original sense, derives from Hinduism, where it means “a manifestation of a deity or released soul in bodily form on earth; an incarnate divine teacher.” In Hinduism, an avatar is not just a mere appearance, an illusion; it is real<sup>1</sup>.

At the time of its first use, in the 1992 novel of Neal Stephenson *Snow Crash*, the word *metaverse* was just merely invented to designate a non-physical reality in the imagination-space of a book. There was however an anchor of such imagination in reality, as in 1992, we were already in the age of worldwide use of online gaming dominated by the products of companies like Nintendo and Sega. *Avatars* as a functionality in online gaming existed even before, since the early 1970s, on a number of multi-player games developed on the *PLATO* platform of the University of Illinois, to culminate with the 1979 game named *Avatar*. Looking at the later variety of sci-fi references when referring to metaverse, such as Stephen Spielberg’s *Ready Player One*, there is no wonder that most of the associations new-comers in the field make when thinking about the metaverse is simply concerning the massively multiplayer online games (MMO).

The use of the word “metaverse” has however evolved to much more than sci-fi literature and then gaming, it evolved into a virtual world with all the complexities that such a world entails, one not only consisting of coordinates of the physical reality for human interaction (either in a playful or in a serious manner), but also the development of digital assets, digital curren-

cies, and ultimately a specific economic ecosystem. Such metaverses are now in place, such as *Decentraland*<sup>2</sup> and *Metaworld*<sup>3</sup> for example. Even if some of the metaverses are still defining themselves as games – for example *Sandbox*<sup>4</sup> or *Roblox*<sup>5</sup>, when looking at the actual functionality of the ecosystems, a much more complex economic relationship than just a game transpires.

There are therefore two different types of platforms that use the metaverse and virtual reality-based game-like realities, one being for enjoyment or even opportunities for people to meet. The other is leveraging blockchain technology to create a crypto-economy in virtual reality. This being said, and looking at the metaverse through the lens of economic value, metaverse platforms can include several layers or components that contribute to the overall value-chain, classified in the literature as follows<sup>6</sup>:

- *Infrastructure*, referring to the value deriving from the foundational technologies and hardware that support the metaverse, including 5G, 6G, WiFi, cloud, data centers, central processing units (CPUs), and graphics processing units (GPUs).
- *Human interface*, referring to the value deriving from user interface and interaction with the metaverse, involving devices like mobile phones, smartwatches, smart glasses, wearable devices, head-mounted displays, as well as interaction methods such as gestures, voice commands, and electrode bundles.
- *Decentralization*, referring to the value deriving from decentralized technologies such as edge computing, Artificial Intelligence (AI) agents, blockchain, and microservices, which contribute to a more distributed and autonomous system.
- *Spatial computing*, referring to the value deriving from technologies that enable spatial representation and interaction within the metaverse, such as 3D engines, virtual reality (VR), augmented reality (AR), mixed reality (MR), an overall extended reality (XR)<sup>7</sup>, geospatial mapping, and multitasking.
- *Creator economy*, referring to the value deriving from content creation and commerce within the metaverse, including design tools, asset markets, e-commerce platforms, and workflow management.
- *Discovery*, referring to the value deriving from elements and processes that facilitate users to find, explore and engage with content, services and other users, such as advertising networks, virtual stores, social curation, user ratings, avatars, and chatbots.

- *Experience*, referring to the value deriving from activities and encounters that contribute to the overall enjoyment and utility of the metaverse, such as through games, social interactions, e-sports, virtual shopping, festivals, events, learning environments, and work spaces.

The modern use of the metaverse, as ingrained in the general language after being used for no less than 21 times in Mark Zuckerberg's speech at Connect 21<sup>8</sup>, no longer refers to multiple versions of such virtual worlds (metaverses) but to a unitary concept (The Metaverse) interconnecting virtual reality applications and relationships.

For the purpose of this chapter, we shall refer to the metaverse in the sense of a virtual world with full complexity. It thus encompasses a general concept that includes a diverse array of realities that can be built and populated across different instances of the virtual space, often referred to as 'metaverses'.

## 2 The Technologies Used to Create the Metaverse

The technologies that are building the fabric of the new reality in the metaverse are complex. The reflex of the gaming-originating perception on the metaverse looks only at the immersive technologies (XR). However, for the development of a complex metaverse, in the way that also includes an economic ecosystem, there are other relevant technologies to be also considered, of which the most important are: blockchain, smart contracts, automated behavior and artificial intelligence (AI).

### 2.1 The Immersive Technologies

In simple terms, "*All immersive technologies (XR) extend the reality we experience by either blending the virtual and "real" worlds or by creating a fully immersive experience.*"<sup>9</sup> We can include in the immersive technologies all extended reality (XR), including virtual reality (VR), augmented reality (AR) and mixed reality (MR).

Virtual reality refers to the simulated 3D environment, an artificial world, in which the users are fully immersed in a 360 degree perspective, allow-

ing a multi-sensorial experience, with the help of VR headsets – helmets or goggles.

Augmented reality refers to the technology that allows users in the natural world to maintain contact with it, while still being able to experience certain virtual information and/or objects overlaid on it. To access such an experience, devices such as AR glasses, tablets, smartphones or other screens may be needed. One example in this respect is the Pokémon GO game, where virtual creatures were visualized on the streets if smartphones were used as an interface for the actual streets on which the users were walking<sup>10</sup>.

Mixed Reality (MR) is a version of augmented reality blended with virtual reality, in the sense that it no longer relies on the need of a screen. For instance, mobile AR, where we use AR filters for Instagram or we see shows with the presence of holographic performers<sup>11</sup>.

Such immersion creates a very strong sense of reality: *“The more deeply users can immerse themselves in a VR environment -- and block out their physical surroundings – the more they are able to suspend their belief and accept it as real, even if it is fantastical in nature”*<sup>12</sup>.

## 2.2 Blockchain Technology, Smart Contracts and Automated Behavior

A blockchain can be defined as *“an electronic ledger (record/archive) for recording transactions and tracking assets in a business ecosystem, with the following characteristics, (i) it is encrypted (ii) it is immutable or unchangeable, (iii) the data is stored in the form of blocks connected to each other in a decentralized manner, and distributed through a network of computers, each called a node, where operations are performed on a peer-to-peer basis, validated through a consensus without the involvement of a central authority, and (iv) which may or may not require authorization from a network administrator, central authority or consortium.”*<sup>13</sup>

Based on blockchain technology, significant economic and legal developments became possible, such as:

- smart contracts, defined in general as *‘programs stored on a blockchain that run when predetermined conditions are met. They typically are used to automate the execution of an agreement so that all participants can be immediately certain of the outcome, without any intermediary’s involvement or time loss. They can also automate a workflow, triggering the next action when conditions are met.’*<sup>14</sup> Through smart contracts, the automation of the execution of the contracts in the legal meaning of the word became possible.
- digital assets in the form of non-fungible tokens (NFT), defined as *“a unique digital identifier that cannot be copied, substituted, or subdivided, that is recorded in a blockchain, and that is used to certify authenticity and ownership (as of a specific digital asset and specific rights relating to it).”*<sup>15</sup>
- cryptocurrencies, such as Bitcoin, Ethereum, Tether, etc., independent of a central state authority.

Some authors went on to name blockchain technology *“the soul of the metaverse”*, as it allows the smooth economic operation of metaverse; *“blockchain also enables the metaverse to be a public platform with a decentralized open-source ecosystem that allows users to design applications and conduct digital commerce.”*<sup>16</sup>

The blockchain enabled a number of technologies in the metaverse, allowing the development of the business ecosystem of the crypto-economy in the metaverse:

- verification of the quality of the data and data sharing; safe communication of data and interoperability between the various platforms; construction of zero-knowledge proof on the blockchain, that permits the verification of the reality of certain data or operations with data without disclosing the content of such data;
- ownership and control over access to the users’ data;
- ownership and control over access to digital assets;
- creation, ownership and transactions with cryptocurrency, that allows transactions with the digital assets in the metaverse.

### 2.3 Artificial Intelligence

Authors noted the key role of AI in the Metaverse: *“By merging AI with other technologies, such as AR/VR, blockchain, and networking, the metaverse can create secure, scalable, and realistic virtual worlds on a reliable and always-on*

*platform.[...] AI is a pivotal technology working behind the scenes to build a creative and beautiful world, thus bringing a seamless virtual-reality experience to users. [...] AI has a silent but important role in the foundation and development of the metaverse.”*

AI is fundamental for the Metaverse in a number of functions:

- in building a realistic perception, by transferring data from the real world to the metaverse, through the imaging system for visual perception and multi-sensor perception;
- in the computation of the data, using the specific computation techniques;
- in the reconstruction of the virtual world from the real world, as realistically as possible, through the various reconstruction techniques in which the digital twin is the most important one, based on deep learning;
- in enabling the remote cooperation between users in the metaverse, including facilitating communication methods for sharing information, employing blockchain for decentralized data storage, and implementing cybersecurity measures to ensure the security of these interactions;
- in promoting interaction between the users and the virtual world of the metaverse, through technologies that allow AI for brain-computer interface (BCI)<sup>17</sup> and AI for human-computer interaction (HCI).<sup>18</sup>

### 3 The Metaverse Reality vs the Natural Reality. The Impact on the Legal Concepts

In defining what a metaverse reality is, we can use as a starting point the excellent summary made by Richard Bartle in the attempt to define the virtual worlds (as opposed to a simple virtual reality or a gaming-only virtual reality): *“Although more abstract versions can, and do, exist, most virtual worlds adhere to certain conventions that distinguish them from related non-real spaces. The most important of these are:*

- *The world has underlying, automated rules that enable players to effect changes to it (although not to the rules that grant them this ability). This is the world’s physics.*



- *Players represent individuals “in” the world. They may wield partial or total influence over an army, crew or party, but there is only one game entity that represents them in the world and with which they strongly identify. This is their character. All interaction with the world and other players is channeled through characters.*
- *Interaction with the world takes place in real time. When you do something in the world, you can expect feedback almost immediately.*
- *The world is shared.*
- *The world is (at least to some degree) persistent.*

*A chat room would not be a virtual world because it has no physics; a strategic wargame doesn't map the player onto a single character through which that player acts; a play-by-email game doesn't run in real time; a single-player game is not shared; a first-person shooter isn't persistent.”<sup>19</sup>*

Developing further to this starting point towards a more legal perspective, we shall propose the following parameters of the metaverse-reality:

- the existence of a creator of the metaverse reality;
- the creation of a virtual space, with the help of specific technologies;
- the creation of a specific measurement of time in the virtual space, correlated with the real time;
- the creation of specific forms for the presence of humans in this virtual space, in the form of Avatars;
- the agreement between the creators of such a virtual reality and the users of it, as far as the rules to be applied regarding the relationships in relation to the metaverse.

There are a number of parameters of the natural reality that are the premise of the development of the rules of law, and they may fall into 3 main categories: (i) the philosophical view of the world, (ii) the relevant coordinates of defining the physical reality and (iii) the distinction between the laws of nature and legal norms. Each of these have their own specificity when it comes to metaverse reality and, as we shall further show, this is challenging the current premises of the legal notions we are currently operating in, as well as our mind frame as to the relationship between the various limitations we have and our responsibility for the actions we chose to take.

### 3.1 The Philosophical View of the World

Except for policy makers, we rarely think about the practical, direct impact our philosophy has when embedded in the law, as a premise for the rules governing human relations. However, our views on fundamental questions such as what we consider this world to be, is there a creator of this world, what is the role of man in the world and what is his relationship with the environment, are the foundation of our thinking when designing not only statutory but also contractual rules, dispute resolution methods or when we are simply deciding what our behavior would be when confronted with an unexpected event in which we need to shape an individual, unregulated behavior.

These are all issues that we must think again about when looking at the metaverse world, as it may be that the (context of the) answers are not necessarily the same. In our view, the best way to understand the relationship between the natural world and the metaverse world is through the model of the layered universe, as in the Greek mythology<sup>20</sup>.

#### *What We Consider This World to Be*

Without entering into the vast diversity of the philosophical or theological definitions of what a world is, there is one obvious criterion of distinction between the natural world and the metaverse that the majority would agree on: whether it is a serious place or just a game.

We are inclined to consider the natural world as a serious one, with serious relationships and with humans entering into game-based relationships only by exception, in confined limits. Even those that take the view that the natural world is nothing but a cosmic game, or that it would be a dream or a simulated reality, cannot escape the seriousness when talking about the actual life in the natural world. There is no “just a cosmic-game” defense for a serious crime committed in the natural reality.

The metaverse, however, originates in the game industry, and most of the metaverses were developed under this assumption. Most of the users of the metaverse are still looking at it as just a playground. The development towards its perception as an alternative reality in which relationships between humans are to be taken seriously takes much awareness and it is

not entirely shared by the users of the metaverse. That raises a very serious dilemma as to the potential “just a game” defense in the event of violations in the metaverse of natural world legal norms.

We also consider in a vast majority of philosophical currents and religious beliefs that the natural world has a certain stability, though it is not necessarily eternal and may end at some distant moment in future (see for instance the concept of end-of-the-world). However, a metaverse world is not perceived as stable, we all agree and are aware that a specific metaverse may at some point cease to exist, either definitively or perhaps only temporarily, to be restarted after a certain time.

#### *Whether There Is a Creator of the World*

We will not present here the vast number of divisive views on the concept of a creator of the natural world between the various philosophical and religious perspectives, from the complete and absolute faith in the existence of divinity as creator of the world to the concept of a self-emerging universe.

But we will simply note that the issues of the creator of the world are not such a distant issue to law as one might have the impression in the modern era. Apart of the individual inner belief of each person, the choice to express the view on the creation of the world can be seen transpiring in various legal contexts, ranging from constitutional provisions, or the persistency of religious texts as a source of law, or religious ceremonies for public positions in the state in some countries, to sworn testimony of witnesses in other courts in the world, to contracts notarized under the heading “in the name of God” in completely secularized states, to end with the mere use in contracts of the expression of “Acts of God” as the equivalent to force majeure.

However, while in the natural world the references to acts of God may be one way to avoid responsibility of a person for a certain act, and the existence of a creator of the natural reality remains a matter of faith or choice of philosophy, in the metaverse world, the existence of a creator is a certainty, and such a creator is a person who programmed the metaverse reality.

A human creator lies at the basis of the different parameters of the environment in the metaverse, and this is begging the question whether the same creator is the one to be ultimately responsible for the flaws of such a reality or perhaps a waiver of liability will become the norm, in the attempt to allow the free flow of creativity.

*What is The Position and Role of Man in Relationship with Nature*

One other important philosophical and religious distinction regards the relationship between man and nature. One can see nature as a responsibility entrusted to man, as opposed to nature being subject to man's discretion, or perhaps alternatively, as man being completely interconnected with nature, and being an integral part of it. Nature and its elements may also be seen differently, either objectified, or personified, or even of a divine nature.

These philosophical approaches have a direct impact on the development of numerous legal concepts, starting with human rights and continuing to environmental law, animal protection, etc. For example, recently, the approach of natural elements as deities allowed the development of an emerging trend in the legal practice, having elements of nature (rivers, forests) treated as persons with legal standing, allowing lawsuits to be filed on their behalf.

In the metaverse world, man may have a number of completely different roles – it can be the creator of the metaverse, a co-creator, that is a person who is allowed the possibility to create in the metaverse, under certain limits, an inhabitant (in the form of an avatar with full decisional liberty), an actor (in the form of an avatar with a predetermined role) or also a mere observer. All such roles entail different types of relationships, different obligations, different risks and different liabilities. A creator is responsible for how the environment s/he created impacts the people inhabiting that environment, under the contractual terms of access, but also under tort provisions. Flaws of creation may be attributed to the creator; in other words, it is no longer impossible to allocate responsibility to a specific person. A destructive phenomenon in the metaverse, like a tsunami in the natural reality would be, is no longer an act of God, but an act of a human being – the programmer or the designer of the metaverse, and one hence

can think about liability of the metaverse tsunami-maker. A person acting as a mere observer of some events in the natural world may sometimes be held responsible for the inaction, for example in not acting to save a person in certain circumstances, while in the metaverse the observer may be in a physical incapacity to act, according to the programming of the metaverse.

We need to be very clear on how these should be reflected in the legal concepts to be developed for such a multi-role reality, especially given that the primary regulatory framework of the metaverse is contractual.

### 3.2 The Relevant Coordinates of Defining the Reality

The main relevant coordinates of the natural reality of relevance to the law are space, time and people. That is why we look at the application of law itself from the perspective of its application in space, in time and to people.

#### *Space*

From a legal perspective, we see space as relevant in major legal notions such as the notion of territory or real estate property or location of a certain event, etc.

From the natural reality perspective, the major premise of space in the natural world is that it is confined to certain limits that would not change by the will of a person. Earth itself has a limited surface, and we cannot expand it, though we may possibly develop outer space or use more of the surface of the Earth (like deep-sea mining does nowadays). But the very idea of building new land is physically impossible.

In the metaverse, however, it is not. Virtual spaces may be extended, based on the decisions of the owners of the metaverse and the rules that the metaverse reality was built upon, like it was anticipated in fiction literature (In *Harry Potter and the Order of the Phoenix*, we can see that no.12, Grimmauld Place is “hidden” between two normal muggle houses. When you want to get in, the headquarters of the Order of Phoenix gradually appears, stretching out from between the surrounding houses.<sup>21</sup>).

Such a concept of potentially infinite space that we encounter in the metaverse context creates an economic problem, as economic value is also related to scarcity, so the need to address the concept of limited or unlimited space appears to be essential. It also creates, through its indirect impact, a very serious impact on the legal relationships, in which the parties' agreement is founded on the premise that there is a certain value allocated to the assets and its existence is part of the formation of the consent of the parties.

Moreover, as opposed to natural reality, in which the geographical elements of the location of a territory do not change except in rare, cataclysmic events, that fall out of the will of humans, the territoriality in the metaverse is conventional, a specific territorial location may be shifted to another, or its characteristics altered just by changes in the software made by the programmers having access to the platform of the metaverse.

### *Time*

Time is to be found in the foundation of the law in numerous concepts, such as deadline, duration of contractual agreements, limitation period, etc.

In natural reality, we operate on a number of assumptions, based on the current understanding of time in the scientific community, but also on the way the perception of time is included in the fabric of societal perception and reflexes. On one hand, there is a scientific element in the approach of time, reflected in the concept of the linearity of time and the unidirectional flow of it from past to present to future, in which causality between events can only take place from past to present to future. On the other hand, there is also a social contract element in the perception of time, reflected for instance in the measurement of time, in the way we divide it in years/months/days/hours/minutes/seconds. The scientific approach is also in a way conventional, as it is based on the current knowledge of nature, through the eyes of physics. However, quantum physics presents many potential developments that could significantly alter this perspective particularly by challenging the connections between causality and the unidirectional flow of time.

Each of these assumptions are potentially different in the metaverse reality. We may build a different flow of the "metaverse time", in which events behave in another order, moving from a future backwards in time. We see

this possible already in the rewind function of a video player for instance, or in the imagination of fiction authors (one example being the famous Benjamin Button character who was born old so as to live his life getting younger and younger until he died as a baby<sup>22</sup>, but there is a vast fiction literature on time travel). Software makes possible the unfolding of events taking place in a different flow of the “metaverse time”, or a different agreement as to the units of time for measurement. Conversely, we may build a metaverse time measurement, where users have events happening in completely different time units, or at completely different speeds than in the natural reality.

Also, the placement of the events in a certain linear unidirectional flow of time is the premise of law enforcement, where the whole concept of compensation for damages is based on the premise that one cannot reverse time. However, if one is to enforce decisions in a metaverse with a different flow of metaverse time, this becomes possible, as what would be modified would be the metaverse reality and not the natural reality.

The blockchain permits metaverses based on this technology to apply a natural world time stamp on the events in the metaverse, so that there is a certain “translation” of the metaverse time into natural reality time. However, the legal concepts related to time have to be anchored clearly in one or the other of the realities.

### *Persons*

People are seen from the perspective of the law as the only relevant persons in the modern law (though in the history of law there are situations in which animals were also on trial, or, as mentioned, nature elements or deities).

In the metaverse world, we can face a diversity of characters to potentially be considered persons:

- humans represented in the form of human avatars with behavioral freedom. Moreover, using different avatars in different metaverses, a person may have different identities, or be anonymous, or take the shape of a different object than that of a human. We can move between the different metaverse worlds with different identities. Moreover, an avatar may reflect a person, but also a group of persons, jointly deciding on the behavior of the avatar.

- humans represented in the form of human avatars but with a limited freedom. Smart contracts are enabling users to automate a certain future behavior, predetermining it based on the specific instructions. This creates the possibility even for the human avatars in the metaverse to have a certain pre-programmed behavior, diminishing the range of freedom of choice that a human would normally enjoy in the physical reality. A prescribed behavior in the physical reality would only be a legal obligation or a contractual commitment, from which parties may deviate in their actual behavior, bearing the consequences of liability. However, in the metaverse, one can embed certain instructions in the behavior of the avatar, that limits the manifestation of the total freedom of the behavior of the human who uses the avatar in the metaverse, and hence the embedded automated behavior of the avatar becomes a mandatory manifestation of the avatar, depriving the humans from the possibility – and hence danger – to commit a violation of such prescribed behavior. For instance, an avatar could never be able to take the possession of a digital asset of another avatar, if such behavior of respect of property rights is automated. In other cases, such embedded automated behavior could have no specific moral or legal connotation, but simply be an automated functionality, needed to ensure the specific frameworks of the interactions in a metaverse designed with specific parameters.
- humans presented in the form of non-human avatars, taking various other appearances (animals, objects, etc.) that may or may not lead to the conclusion that the form is controlled by a human being.
- automated human-like creatures: the Non-Playable Characters (NPC) known in the gaming industry as programmed entities interacting with the human avatars develop a new dimension in the metaverse, in which generative AI can autonomously generate new content (text, images, audio, and video) with the full appearance of a person. The NPCs are part of the new virtual reality and have significant autonomy, when based on AI<sup>23</sup>, developing emotion recognition, emotional intelligence and a dynamic decision-making process. In such a situation, distinction between the behavior of human avatars and the NPCs will become less obvious, adding an additional layer of complexity to the metaverse (virtual) reality.



In this context, major legal concepts of a natural/legal person and/or that of identity are in discussion. The interactions in the metaverse reality with all these types of entities is potentially generating confusions, leading to discussions on the need for disclosure of non-humanity (or of type of humanity) etc.

Anonymity and simulation are already notions that will need to be properly adapted to the new reality, as the function of the avatar may also be that of an interface that can ensure the anonymity of the person using that avatar. This may have a legitimate but also an illegitimate purpose. Also, due to the fact that avatars allow their users to separate between their real-life identity and their online personas, under the protection of anonymity, the avatar users may be more prone to antisocial or even criminal acts without the awareness that they could face legal consequences for their behavior. Such illegal behavior can escalate to identity deception or even theft, which is particularly dangerous in the context of dispute resolution, in which it could, for instance, undermine due process, as identity is a fundamental aspect of this concept.

Also, identity of the parties, but also of arbitrators, experts or of various other participants (arbitral tribunal secretaries, interpreters etc.), is supposed to be known for a number of reasons: in order to ensure the communication of all the procedural documents, as well as of the award; for reasons related to the regime of economic sanctions or in some situations anti money-laundering legislation; for verifying requirements of independence and impartiality; for ensuring the analysis on the eventual enforcement of the award, one element that under some arbitration rules may be of relevance also to the decision of the tribunals.

In view of these concerns, it is likely to be expected that dispute resolution platforms would try to protect themselves from such users' behavior, in the attempt to avoid potential liability of their own and hence implement technical tools allowing them to ensure a personal identity verification and a transparency of roles procedure (human creator/avatar/observant/or non-human etc.).

### 3.3 The Laws of Nature and the Legal Norms

The laws of nature are a silent premise in law-making, but a very important one<sup>24</sup>. We define the limits of the regulatory space by taking what is a possible human behavior from the perspective of the natural laws. We do not regulate unnecessarily. For instance, we do have laws on the interdiction for a pedestrian to cross a highway, but we have no law saying that it is forbidden for the same person to fly over it, as gravity makes that impossible. Moreover, biological reality is also a premise that we take into consideration, when for instance we have laws about the right to sell the internal organs of a person, but we do not have the same for external organs, as bodies are not by their nature in this way.

Also, during their existence, metaverses may change their laws of physics, a feature that the natural reality does not enjoy. For instance, if in a metaverse the avatars could not fly, due to the design of a reality based on gravity, at a later moment in time such design may change, and gravity being removed as an effect for avatars, who then could experience flying. These changes of the parameters of the functionality of the reality in the metaverse is challenging the very premise of reality, as we are used to defining it, that is an environment with continuous non-changeable laws of physics.

Legal concepts such as predictability, foreseeability, force majeure as well as contractual allocation of natural risks, insurance-reinsurance, certain types of bets, contracts etc., have as a starting point a certain stability of the natural reality, with a limited margin of incertitude. Nature with its behavior independent of humans is more profoundly incorporated in our premises of law than we normally perceive. Once that nature is no longer independent of humans but directly created by humans, legal concepts need to be redefined.

Legal relationships in the metaverse cannot incorporate by reflex the premise of a stable reality from the point of view of the natural laws and hence we will need to carefully assess all legal concepts, testing their resilience when confronted with a reality whose laws of physics are no longer stable.

## 4 Conclusion

Classic legal concepts are profoundly challenged by the development of the metaverse. The very parameters of natural reality are changed around the metaverse. The line between reality and imagination, as a fixed premise of the definition of the classic concepts of physicality is no longer as simple. As opposed to the natural world where there is a clear distinction between the natural laws and the behavioral rules prescribed by statutory provisions, the fabric of the metaverse reality may include not only different natural laws, but also include part of the statutory laws into the natural laws of a specific metaverse, resulting in a mixture of freedom of the metaverse builders and users in shaping both behavioral and natural rules.

Roles of humans in the metaverse reality are complex, ranging from creator to avatar to observer, and the difficulty of conceptualization of such roles is multiplied by the presence of non-playable characters, some of them AI-based, with human appearance.

We need to adapt our thinking to the new complex reality and then either adapt the old legal concepts to this reality, or build new concepts.

The simple premise we need to start from, in this adaptation, is that we no longer have only one world, with a simple natural reality. Instead we have a structure where the natural reality operates under certain laws of physics, but we also have a multitude of other sub-realities, derived from the natural one, but governed by different laws of physics. This is challenging the very distinction between the laws of physics and legal laws, with a plethora of implications in both the statutory as well as contract law levels.

Since humans are to be found both as creators of such metaverse realities, but also as inhabitants of them, or even co-creators and inhabitants at the same time, responsibility is no longer to be avoided for the way in which the laws of physics inside the metaverse are concerned.

We simply need to become multi-dimensional in our thinking, aware of the parameters of the reality that we are in, in specific situations, and assume the responsibility of multiple roles in our lives, more than ever before.

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## CHAPTER 5

# Metaverse and Private International Law: Challenges in Determining Governing Law

EKATERINA OGER GRIVNOVA

The advent of the Internet has already presented substantial challenges to the realm of Private International Law (PIL).<sup>1</sup> Those challenges have taken on a new dimension within the context of the metaverse. The metaverse's lack of physicality has significantly disrupted the conventional processes of determining applicable laws.<sup>2</sup>

To determine the governing law, it is necessary, first, to classify the issue at stake, and then to select and apply a relevant PIL rule.

As to the issue classification, legal relationships within the metaverse now predominantly mirror conventional legal constructs (1). While familiar, those constructs often collide with the digital paradigm of the metaverse, complicating the choice of the relevant PIL rules (2) and their implementation (3).

## I Main Categories

Two main categories that can affect the choice of applicable law are the type of the underlying obligation and its subject-matter.

### *Type of Obligations*

Legal relationships in the metaverse operate within the two natural-world categories of contractual and non-contractual obligations. The latter category encompasses torts (delicts) and quasi-delicts, such as unjust enrichment or *culpa in contrahendo*. For ease of reference, we will only refer to torts, contrasting them with contracts.

The distinction between obligations arising out of contracts and those arising out of torts is crucial for identifying the applicable set of PIL rules. For instance, within the EU, different PIL regulations apply to contractual

obligations (Rome I Regulation) and non-contractual obligations (Rome II Regulation). While the distinction between the two categories had already been blurred in some cases,<sup>3</sup> the metaverse has added an additional layer of complexity.

Contractual matters involve voluntary commitments between parties,<sup>4</sup> that the metaverse readily accommodates. Contractual configurations in the metaverse encompass arrangements between users (such as a loan using a metaverse land plot as collateral<sup>5</sup> or an exchange of metaverse cryptocurrencies with a sell-back option<sup>6</sup>), and between a user, on one hand, and a platform, on the other. The latter embody the platform's terms and conditions, giving rise to the platforms' obligations as to the quality of their services<sup>7</sup> and the security they provide.<sup>8</sup> It is also conceivable to imagine contracts concerning digital assets located in the metaverse involving non-users and external platforms. For instance, a non-user might acquire metaverse cryptocurrency on an external cryptocurrency exchange or a metaverse land plot on an external NFT marketplace.

Conversely, torts involve liability arising from outside of any contractual commitment. In the metaverse, tort disputes notably cover an array of personal offenses, including harassment, discrimination and defamation, misappropriation of digital assets,<sup>9</sup> and trademark infringements.<sup>10</sup>

This seemingly simple distinction between contracts and torts is not always easy to follow within the context of the metaverse.<sup>11</sup> Arguably, the metaverse relies on different crypto-networks, each of which can give rise to a multitude of seamless contractual links. It means that a contractual relationship can exist where there would be none in the natural world. For instance, the last indirect NFT's buyer can potentially bring an action against the NFT's creator for having misleadingly presented its creation or used illegal elements during its minting.<sup>12</sup> Such action could be classified as arising out of a tort, as it is currently done under EU law for the non-contractually connected members of the property-transferring contract chain.<sup>13</sup> Alternatively, it could be viewed as a contract issue, since the NFT is tied to a smart contract<sup>14</sup> that may be considered a legally binding agreement among all participants in the chain, regardless of any separate contractual arrangements they may have individually entered into. Moreover, some issues, like a cyberattack initiated by users and directed

towards the platform,<sup>15</sup> can pertain either to a breach of contract (such as terms and conditions and implied duty of loyalty) or to a tort not covered by any contract.

### *Subject-Matter*

The identification of the relevant PIL rule is impossible without a proper qualification of the subject-matter at stake.<sup>16</sup>

The convergence of contractual and non-contractual obligations within the metaverse often, but not exclusively, revolves around digital assets like cryptocurrency, metaverse land plots, avatars and wearables, which can take the form of NFTs. Naturally, the regime applicable to digital assets and to the obligations involving such assets relies on the variable legal recognition of those assets across jurisdictions.<sup>17</sup>

Different qualifications of the subject-matter can point towards different applicable laws. If one considers a digital asset as property (like in the UK, Singapore, Italy and Russia<sup>18</sup>), its regime should depend, in principle, on the law of the country in which it is located (*lex rei sitae*) – which is hard or even impossible to establish in the context of the metaverse.<sup>19</sup> The situation will be different if the digital asset at hand is perceived as a security (as in the US, under certain conditions<sup>20</sup>), foreign currency or legal relationship. Some digital assets might be simply prohibited in some jurisdictions, like cryptocurrency in China.

While the legal regime applicable to digital assets is taking shape in a more centralised fashion in some States (such as the UK<sup>21</sup>), in others, it is giving rise to a multitude of divergent positions. To illustrate the volatility of the qualification process, in 2023, while bringing their lawsuits against Binance, two different regulatory authorities in the US, the Commodity Futures Trading Commission and the Securities and Exchange Commission, qualified the same crypto-asset (BUSD) as a commodity and a security, respectively<sup>22</sup> – which, in PIL, would mean that different laws could apply.

In response to this challenge, multiple national and international authorities pushed for the creation of a distinct legal category for digital assets.<sup>23</sup> As the UK Law Commission explained in its recent Report on Digital Assets, the new category of “digital objects” does not fit neatly within the



existing classifications of things in possession or things in action (and hence within the established PIL categories).<sup>24</sup> At the same time, it seems that the capacity of the digital assets to be subject of proprietary rights is now widely uncontested.<sup>25</sup>

## 2 Selection of Applicable PIL Rules

Even if the qualification itself is not subject to doubt, the metaverse introduces a degree of ambiguity into the selection of relevant PIL rules for both contractual and non-contractual matters.<sup>26</sup> Moreover, this selection process may differ before a State judge and an arbitrator.

PIL rules include material, i.e. directly applicable, and conflict-of-laws rules. Given the scarcity of the rules specifically tailored for digital assets, when State court judges encounter a scenario involving the metaverse, its users, or assets, they are mostly compelled to select from the existing array of rules applicable to the natural world. Those include, first, material rules that apply to broader concepts, such as property or contracts,<sup>27</sup> as well as to related areas like digital services, online platform liability, and securities.<sup>28</sup> Secondly, the potentially applicable set of PIL rules also include national or regional conflict-of-laws rules, which diverge across jurisdictions<sup>29</sup> and are not adjusted to the specificities of the metaverse relations.<sup>30</sup> The results can therefore differ depending on the forum.<sup>31</sup>

Conversely, where permitted by applicable arbitration laws and rules, arbitrators may bypass national conflict-of-law rules by using the *voie directe* method.<sup>32</sup> This approach involves directly identifying the law most closely connected to the matter at hand.<sup>33</sup> When allowed, it can help determine the relevant national law without relying on potentially inappropriate conflict-of-law rules.

Another avenue lies in applying soft law such as *lex mercatoria* (including its codifications, such as UNIDROIT Principles), based on general principles of law, international trade and international arbitration, as the most appropriate set of applicable rules.<sup>34</sup> The recognition and role of soft law, along with its interaction with domestic legal systems, vary across jurisdictions. For instance, *lex mercatoria*, despite its name, usually is not con-

sidered formal “law”. While in arbitration it is generally not contested that the parties can choose such non-State rules of law as applicable to their dispute,<sup>35</sup> such a flexibility is rarely seen in State courts. Yet, within court settings, these non-state legal frameworks can still serve as contractual terms through incorporation by reference.<sup>36</sup> This means decision-makers might turn to national laws if the contract terms, implying *lex mercatoria*, are insufficient for resolving disputes and/or if they conflict with essential legal principles.

The hesitance among arbitrators to apply *lex mercatoria* without clear party consent stems from its non-binding nature, despite arbitration rules often giving them wide latitude in rule selection. Nevertheless, given the international nature of metaverse-related issues, parties and arbitrators may want to consider its application, or even consider opting for an *ex aequo et bono* mechanism. This would allow an arbitral tribunal to act as *amiable compositeur* and, in other words, base its decision on equity considerations.<sup>37</sup>

One can even think of the emergence of *lex metaversia*, i.e., substantive transnational rules, taking into account the specificities of the metaverse-related matters.<sup>38</sup>

### 3 Search for Connecting Factors

If the substantive rules, which have their own territorial scope of application, do not apply (which they potentially can if the existing definitions are stretched to include the metaverse realities), the decision-maker will consider various connecting factors to determine the applicable rules of law, i.e. links between a given situation and a specific applicable law.

The most obvious connecting factor to find an appropriate ‘applicable rule of law’ would then be the choice of the parties.<sup>39</sup> The principle of party autonomy is almost universally recognised. The parties can explicitly express their intent or, less commonly, imply it. While the principle of party autonomy often prevails, exceptions exist, notably when a weaker party is involved or when the situation falls within the scope of application of public policy provisions. It should be also noted that even though

the majority of the metaverses' terms and conditions stipulate a choice of law, this choice only applies to relationships involving the platform and does not extend to the relationships solely among the platform's users.

In scenarios where parties fail to designate the applicable law, PIL will require identifying the closest connection.<sup>40</sup> The conflict-of-laws rules provide for presumptions of this closest connection. For instance, under the Rome I Regulation, a contract for the sale of goods is governed by the law of the seller's habitual residence, while a contract for service provision falls under the law of the service provider's habitual residence.

The *voie directe* method also aims at identifying the most closely connected law. Contrary to the conflict-of-laws method, it does not rely on presumptions but on subjective appreciation of the factual matrix by the decision-maker.

In both cases, using connectors can be challenging within the context of the metaverse, mainly for two reasons.<sup>41</sup>

First, the identities of the involved parties and their respective habitual residences may or may not be known. Even in instances where one enters into a contractual relationship with a metaverse platform (such as through registration), establishing the identity of the counterpart within the metaverse can remain complex. This is because the metaverse might lack legal existence in form of a recognised legal entity and a clearly identifiable responsible individual. As an example, in *Tulip Trading Limited v. Wladimir van der Lan and Ors*, the High Court decided that developers of cryptocurrency networks cannot owe fiduciary duties to the owners of cryptocurrency used within that network (*pending appeal*).<sup>42</sup>

Furthermore, even if a contracting party knows the natural-world identity of its counterpart, difficulties can still arise in proving the connection between the natural-world person and the disputed digital asset or its digital representation, typically established via the proof of control.<sup>43</sup>

Secondly, the metaverse's inherent lack of physicality complicates the identification of the places where the digital property is situated (*lex rei sitae*), where the contract shall be performed (*lex loci contractus* or *solutio-*

*nis*) or where the damage occurred (*lex loci delicti*), all being the most common PIL connecting factors alongside the parties' habitual residence.

To address these hurdles, consideration can be given to other factors that can link the situation at hand to a particular national law, via fictitious residence of the parties. This fictitious residence can be established at the residence of entities involved in handling digital assets within the relationship (such as cryptocurrency exchanges, NFT marketplaces, wallets, and the metaverse platforms), as well as at the domicile of banks maintaining accounts used for crypto-asset transactions.<sup>44</sup> In case of a cybertort, the place of accessibility of the metaverse platform could be taken into account, sometimes coupled with other indicators allowing for the identification of the States targeted by the platform ("*méthode de focalisation*").<sup>45</sup> These indicators might include physical presence, the use of a specific language, the geographical origin of clients, and more – as it was already the case with the online platforms in general. When it comes to the infringement of intellectual property rights, the law of the country where the protection of those rights is sought (*lex loci protectionis*) may be also applicable.<sup>46</sup>

The UNIDROIT Working Group on Digital Assets and Private Law went further by suggesting a tailored approach for digital assets. This approach recommends a sequential examination of the various relevant connectors, starting with the law of the State expressly specified by the digital asset or the system on which it is recorded. If this is not determinable, as it is normally the case, then the law of the State where the issuer is statutorily based should be considered, followed by the law of the forum State or the law determined by the PIL rules of the forum State.<sup>47</sup> While such a harmonisation effort is highly commendable, it seems that the traditional connectors might be still in play for a long time.

## Notes

- 1 El Hage, Y. *Le droit international privé à l'épreuve de l'internet*. Paris: LGDJ (2022) §147; El Hage, Y. *La réglementation des NFT à la lumière du droit international privé : réglementation étatique ou extra-étatique ?* (2022) *RDBF*.4.2022.38, §2 (hereafter El Hage).
- 2 *Proposal for Joint Work: HCCH-UNIDROIT Project on Law Applicable to Cross-Border Holdings and Transfers of Digital Assets and Tokens*, January 2023, §§8-9.
- 3 For example, abrupt termination of established commercial relationship: *Granarolo v. Ambrosi Emmi France* (2016) ECJ C-196/15 (qualified as a contract issue by ECJ, contrary to French courts).
- 4 *Jakob Handte & Co. v. Traitements Mécano-chimiques des Surfaces* (1992) ECJ C-26/91, §15.
- 5 By analogy with NFT: *Janesh s/o Rajkumar v. Unknown Person* ("CHEFPIERRE") (2022) SGHC 264.
- 6 By analogy with Tezos: *Wang v. Darby* (2021) EWHC 3054 (Comm).
- 7 Fischer, T. "Crypto investor brings ICC claim against Binance" *Global Arbitration Review* (2021) <https://globalarbitrationreview-com.prx.law.columbia.edu/crypto-investor-brings-icc-claim-against-binance>; *Genesis Asia Pacific Pte. Ltd. v. Three Arrows Capital, Ltd.* (2022) ICDR Case No. 01-22-0002-5568, Procedural Order No. 1; *B2C2 Ltd v. Quoine Pte Ltd* (2019) SGHC(l) 03.
- 8 *McKimmy v. OpenSea* (cv-00545); *Tulip Trading Limited v. Bitcoin Association & Others* (2022) EWHC 667 (Ch).
- 9 *AA v. Persons Unknown* (2019) EWHC 3556; *CLM v. CLN* (2022) SGHC 46; *Fetch.AI Ltd v. Persons Unknown* (2021) EWHC 2254 (Comm); Lutzi, T. "Chapter 14 The Tort Law Applicable to the Protection of Crypto Assets" *Blockchain and Private International Law*, Leiden, The Netherlands: Brill | Nijhoff (2023) Section 2.1. (hereafter Lutzi).
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- 11 Lutzi Section 2.2.
- 12 "Minting" refers to the process of creation of an NFT.
- 13 *Jakob Handte & Co. v. Traitements Mécano-chimiques des Surfaces* (1992) ECJ C-26/91.
- 14 "Smart contract" refers to a program that runs when predetermined conditions are met. NFTs are based on smart contracts, that contain all information about the NFT and its owners. They also ensure that ownership of the NFT is transferred only according to the agreed-upon terms. While smart contracts may not always qualify as legal contracts, depending on their content and the applicable law, they can be legally binding in some cases (see, *inter alia*, UK Law Commission's Report, *Smart legal contracts: advice to Government*, November 2021, §1.2).
- 15 *Global Holding Company Ltd v. 91 Individuals* (2022) AAA.
- 16 Krysa, F. "Chapter 7 Taxonomy and Characterisation of Crypto Assets in Private International Law" *Blockchain and Private International Law*, Leiden, The Netherlands: Brill | Nijhoff, Section 2.3. (2023).
- 17 El Hage §7.

- 18 *Vorotyntseva v. MONEY-4 Ltd (t/a nebeus.com) & Ors* (2018) EWHC 2596 (Ch); *Wang v. Darby* (2021) EWHC 3054 (Comm); *CLM v. CLN* (2022) SGHC 46; Trib. Firenze, 19 December-2018, Contratti 2019, 6, 661; Trib. Firenze, 21 January 2019, Giur. It. 2020, 2657; Villata, F. C. “Chapter 11 Cryptocurrencies and Conflict of Laws” *Blockchain and Private International Law*, Leiden, The Netherlands: Brill | Nijhoff (2023) Sections 2 and 4 (hereafter Villata); Ripley, B. Y., and Heindler, F. “Chapter 9 The Law Applicable to Crypto Assets: What Policy Choices Are Ahead of Us?” *Blockchain and Private International Law*, Leiden, The Netherlands: Brill | Nijhoff (2023). Section 3.2 (hereafter Ripley & Heindler).
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- 21 UK Law Commission, *Digital assets: Final Report*, 28 June 2023, Law Com No. 412.
- 22 Zuti Giachetti, F. “The SEC Goes After Binance: A Deep Dive Into The Case That Could Shape The Future Of Crypto” *Business And Leaders* (2023) <https://businessandleaders.it/2023/07/11/sec-binance-crypto/>.
- 23 Villata Section 2.
- 24 UK Law Commission, *Digital assets: Final Report*, 28 June 2023, Law Com No. 412.
- 25 UNIDROIT Principles on Digital Assets and Private Law, Principle 3(1); UK Law Commission, *Digital assets: Final Report*, 28 June 2023, Law Com No. 412; Villata Section 4; Wendehorst, C. “Chapter 5 Proprietary Rights in Digital Assets and the Conflict of Laws” *Blockchain and Private International Law*, Leiden, The Netherlands: Brill | Nijhoff (2023) Section 3.
- 26 Lutzi Section 1.
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- 29 Torremans, P. & et al. *Cheshire, North & Fawcett: Private International Law*. OUP (2017) pp. 41-50.
- 30 El Hage §2.
- 31 Lutzi Section 2.2.
- 32 Mayer, P. *The Laws or Rules of Law Applicable to the Merits of a Dispute and the Freedom of the Arbitrator*. In *Dossier of the ICC Institute of World Business Law: Is Arbitration Only As Good as the Arbitrator? Status, Powers and Role of the Arbitrator* (2011) §10; Seraglini, Ch. & Ortscheidt, J. *Droit de l'arbitrage interne et international* LGDJ (2019) §891; Benedettelli, M. “Determining the Applicable Law in Commercial and Investment Arbitration: Two Intertwined Road Maps for Conflicts-Solving” (2022) *ICSID Review* 3. 687, §1A.
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- §§17-67; Gaillard, E. & Savage, J. *Fouchard Gaillard Goldman on International Commercial Arbitration* Kluwer Law International (1999) §1552; Derains, Y. “Chapter 21: The International Arbitrators’ Responsibilities Regarding the Conduct of the Proceedings and the Applicable Law” in Reisman, W. M. & Blackaby, N. *Arbitration Beyond Borders: Essays in Memory of Guillermo Aguilar Álvarez*, Kluwer Law International (2003) p. 440; Jones, D. “The Substantive Rights of Parties in Arbitration: Voie Directe and Voie Indirecte” in Kaplan N. & Moser, M. J. *Jurisdiction, Admissibility and Choice of Law in International Arbitration: Liber Amicorum Michael Pryles*, Kluwer Law International (2018) pp. 303-304.
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- 38 By analogy with *Proposal for Joint Work: HCCH-UNIDROIT Project on Law Applicable to Cross-Border Holdings and Transfers of Digital Assets and Tokens*, January 2023, §9, referring to “*lex cryptographica*”.
- 39 UNIDROIT Principles on Digital Assets and Private Law, Principle 5(1); Ripley & Heindler Section 5.1.
- 40 Lutzi Section 4; Held, A. “Chapter 8 Crypto Assets and Decentralised Ledgers: Does Situs Actually Matter?” *Blockchain and Private International Law* Leiden, The Netherlands: Brill | Nijhoff (2023) Section 2.2.2.
- 41 UNIDROIT Principles on Digital Assets and Private Law, Commentaries 0.14 and 5.4; Lutzi Section 3.
- 42 *Tulip Trading Limited v. van der Laan & Ors* (2022) EWHC 667 (Ch) & (2023) EWCA Civ 83.
- 43 *B2C2 Ltd v. Quoine* (2019) SGHC(1) 03.
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## CHAPTER 6

# Conflict of Jurisdiction. Criteria for Assessing Jurisdiction in the Context of Cross-Border Emerging Digital Asset Disputes

MIHAELA APOSTOL

## I Introducing Emerging Digital Assets

Before delving into the topic of jurisdictional objections, it is necessary to start by discussing the concept of “digital assets”. There are a number of definitions trying to capture the concept of digital assets. Some are very broad: “*any asset that is represented digitally or electronically*”,<sup>1</sup> or “*non-tangible assets in a digital form*”,<sup>2</sup> or “*electronic record which is capable of being subject to control*.”<sup>3</sup> and others are a bit more specific hinting at the underlying technology or the rights conferred to the owners “*digital units of data in a shared system jointly maintained and updated by multiple parties that (i) can be directly controlled by the asset holder via cryptographic keys, and (ii) may represent a set of rights*”,<sup>4</sup> or “*any representation of information tracked on a blockchain that confers ownership, access rights, representation, voting rights or utility*”.<sup>5</sup>

The majority of sources defining digital assets complement the definition with specific examples,<sup>6</sup> or give details about the technology used.<sup>7</sup> Given the difficulty in pinpointing a specific concept, the term ‘digital assets’ is perceived as encompassing ‘classical’ digital representations (such as videogames, animations, etc.), but also digital assets which are created with the help of emerging technologies such as artificial intelligence or blockchain. Without aiming to be technical and exhaustive, for the purpose of this chapter, the term ‘emerging digital assets’ will be used as an umbrella term to cover an electronic record which confers the owner a right, or which otherwise has an economic value and which was created with emerging technologies such as artificial intelligence or distributed ledger technologies (by way of example, cryptocurrencies, virtual land, or other fungible and non-fungible tokens).



Disputes involving emerging digital assets are not new anymore, they are more and more prevalent lately. The first ones started around the end of 2018,<sup>8</sup> and developed quite rapidly.<sup>9</sup> Issues on substantive questions of law, for example, whether or not cryptocurrencies can be recognised as legal property, are now more clearly settled<sup>10</sup> through case law and/or jurisprudence. On the contrary, when it comes to procedural issues, and more specifically jurisdictional issues, things are more nuanced, and they are likely to be treated differently from one jurisdiction to another.

Courts' jurisdiction is defined by whether a specific state has the power or authority to decide over a dispute involving a particular person, thing or intangible object.<sup>11</sup> Therefore, the concept of jurisdiction is, by definition, a territorial matter limited by the boundaries of a particular state. At the opposite end of the spectrum, emerging digital assets are inherently delocalised or involve multiple geographical locations.<sup>12</sup> These fundamentally different key characteristics clash and raise a series of legal questions regarding courts' jurisdictions in emerging digital assets disputes.

The topic of jurisdictional objections raises numerous challenges, especially when emerging digital assets are involved. Several issues are relevant to mention here. First, the issue of *ratione materiae* jurisdiction. In some systems of law, civil courts divide their jurisdiction based on the value in dispute. This can be problematic given the volatility of digital assets. Furthermore, jurisdiction may be based on the legal nature of the dispute and whether it involves a monetary claim or a proprietary claim; as the legal nature of emerging digital assets is still not clear, for example, cryptocurrencies can be considered property,<sup>13</sup> or a security<sup>14</sup> or a means of payment,<sup>15</sup> therefore the parties find themselves in a difficult position in choosing the right court. Second, the *ratione personae* jurisdiction issue. This is potentially challenging in the context of emerging digital assets given the frequent anonymity/pseudonymity of the persons involved in the transaction, both when it comes to the person bringing the claim (which requires proof they are entitled in fact to claim a right over a specific asset) and also when it comes to finding/identifying the defendant. Third, the *ratione loci* jurisdiction issue. In the context of emerging digital assets, the question arises whether there are sufficient elements to prove a link with a specific state, especially taking into account the decentralised or multi-jurisdictional nature thereof. Another layer of complex-

ity is brought by the legal status of emerging digital assets in the jurisdiction in question, in some countries those assets range from being unregulated, to being subject to strict requirements or even being banned.<sup>16</sup>

All these facets of jurisdictional objections involving emerging digital assets have one point in common: the connection to more than one jurisdiction and potential conflict in selecting the right court to bring the claim. The aim of the present paper is to shed some light on this area by analysing the variety of criteria taken into account by jurisdictions around the world when faced with the question of which court has jurisdiction, as many other countries (some of them potentially unknown to the parties) could be relevant in retaining jurisdiction.

To offer a broad view of the topic, the author has selected a couple of court cases from different common and civil law legal systems, involving some of the most common issues in emerging digital assets disputes: fraud giving rise to a tort action and delictual liability; tax offences giving rise to regulatory action; and contractual issues arising out of sale and purchase agreements. The author has also taken into account a variety of emerging digital assets such as virtual land, cryptocurrencies, and non-fungible tokens (NFT's).

It is important to note from the outset, that at the moment, there are no international mandatory instruments that cover the issue of jurisdiction in the context of digital assets disputes. Therefore, it is in the hands of national courts on how to assess if they have jurisdiction over a specific dispute. Nevertheless, one helpful non-binding instrument addressing this issue is the UNIDROIT Principles on Digital Assets and Private Law published in 2023.<sup>17</sup>

## 2 Tort Matters/Delictual Liability

Tort liability (in common law systems) or delictual liability (in civil law systems) is born outside a contract and gives the person who was harmed/suffered a loss the right to recover damages in compensation from the physical or legal person who caused the harm or loss.<sup>18</sup> It is important to

note here that depending on the legal system and the circumstances of the case, the same action can lead to tort liability or criminal liability. One of the areas of emerging digital assets disputes that has kept courts particularly busy have been cases involving unauthorised access to digital assets, misappropriation or fraud.

Claimants often reach out to courts seeking assistance in recovering their lost cryptocurrencies or NFT's. However, it is often that the identity of the perpetrators is not easy to track from a classical point of view. The immediacy of digital asset transactions makes it possible for people to transfer, sell, and own assets without the need to reveal their name, address, bank account, etc. – details which would be usually shared in 'traditional' transactions. The problem that arises is that current legal norms on jurisdiction are based on 'classical' elements of a traditional transaction which does not necessarily correspond to the realm of emerging digital assets. Nevertheless, there are jurisdictions, such as England and Wales that allow claimants to start a trial against a "*person unknown*", or "*John Doe*" in U.S., if the details of the defendant are not identified.

In general, in tortious claims, the court that has jurisdiction is the one where the damage has occurred or where the harmful event occurred. Finding the place of damage in an emerging digital assets dispute is not as straightforward as in traditional disputes. One example of a tortious claim case involving multiple jurisdictions is *Ion Science vs Person Unknown*.<sup>19</sup>

The background of the dispute is the following: there were two claimants (i) the first one being a company based in England & Wales (Ion Science), which specialised in gas detection products, (ii) and the second being an individual domiciled in England & Wales, Mr Johns who was Ion Science's (first claimant's) sole director and sole shareholder. There were three defendants:

- 1 The first respondent, 'person unknown', were a group of individuals connected to Neo Capital, a purported entity in which the claimants believed they invested their capital in exchange for a cryptocurrency.
- 2 The second respondent, Binance Holdings ('Binance'), was a Cayman company that the claimants believed to be the parent of the group of companies that operates the Binance Cryptocurrency Exchange;

- 3 The third respondent, Payment Ventures, was a US entity, believed to be the parent of the group of companies that operate the Kraken Cryptocurrency Exchange ('Kraken').

Based on the people involved, the dispute has ramifications in different jurisdictions, and also includes an unknown group of people who may be located anywhere.

The claimants sued a person unknown to recover the money invested in an initial coin offering (ICO) that never came to fruition. The claimants were approached by some individuals and were persuaded to invest in cryptocurrencies. They started with small amounts, and after those were successful, the stake increased. The defendants operated to convince the victim, Mr Johns, to give remote access to his computer. The route of the money was as follows: Mr Johns would transfer money from his company account, Ion Science, to his personal account, and then to his Coinbase account. The money from the Coinbase account was then converted into bitcoins and the resulting bitcoins were purportedly transferred to a wallet address held by a crypto entity which advertised the ICO. The money provided by Mr Johns and Ion Science was never invested in the ICO and ended up in the digital wallets of the fraudsters.

Mr Johns sued the group of people allegedly connected to this crypto entity to recover his money through a proprietary injunction, a worldwide freezing order; and also demanded Binance and Kraken to disclose information about the people connected to the crypto entity/wallet involved in the transactions.

The court decided that although there are several jurisdictions that can be relevant to the situation, England and Wales was the appropriate forum to decide on all the claims against the three respondents. Regarding the claims against the first respondent, whose location was unknown to the court, the English court decided that it had jurisdiction to hear the case, as the damage occurred in England and Wales. The court took into account the following criteria:

- the relevant funds were transferred from England and Wales (the bank account which funded the Coinbase account was an account based in England and Wales);

- the relevant bitcoins were located in England and Wales prior to the fraudulent transfer;
- the claimants, namely the person or company who owned the digital assets were domiciled in England and Wales;
- the documents were in English;
- the witnesses were based in England.

After analysing whether there is a serious issue to be tried and whether there is a good arguable case, the court held as follows regarding the jurisdiction over the person unknown: *“Finally in relation to the proper forum, in a case of a persons unknown claim it is obviously difficult to identify another forum, but here in addition to that simple point that the claimants are domiciled in England and Wales, the relevant funds were transferred from England and Wales, the relevant bitcoin are or certainly were located in England and Wales and also the documents are in English and the witnesses are based in England, at least on the claimants’ side. For all of those reasons, I am satisfied for the purposes of this application that it has been shown that England is the proper forum for the trial of the claimants’ claims”*.

However, even if the second and the third respondents were based outside England and Wales, the court considered it justified to grant the application for a disclosure order (Bankers’ Trust) concerning the information they held about the first respondent. The court acknowledged that such an order can be served outside the England and Wales jurisdiction in exceptional circumstances. The court applied the same rationale for establishing jurisdiction over the first respondent, and held that since the disclosure order related to property within England and Wales (where the bitcoins are or were) and that the *lex situs* was where the owner resided or was domiciled, therefore the court had jurisdiction to decide on the disclosure order.<sup>20</sup>

In a fairly similar case before the High Court of England and Wales, *Osbourne v Person Unknown and another*,<sup>21</sup> the court decided that since the claimant was located in England, English law treats the assets as being removed from that jurisdiction, and therefore the English courts were the appropriate forum to hear the claims. The dispute involved the misappropriation of NFT’s by an unknown person. The victim sought an order restraining the dissipation of the NFT’s by the unknown person, as well as

a disclosure order (Bankers' Trust) directed to Ozone Networks Incorporated, a corporation incorporated in United States of America, requiring it to provide information enabling the claimant to trace or identify the persons unknown who controlled the wallets holding the NFT's. Regarding the jurisdiction over the person unknown, the English High Court held as follows:

*"It is necessary now to turn to the third question that therefore arises, of whether England is clearly the appropriate jurisdiction for dealing with this claim. As far as that is concerned, as matters currently stand, I have no information as to where the persons unknown are located, or the jurisdictions in which they are to be found. On the other hand, what I do know is that the claimant is located in England and English law treats the assets as having been removed from her in England. In those circumstances, on balance, and at this stage in the enquiry, I am satisfied that England is the appropriate forum. I am satisfied in those circumstances that permission should be granted to serve the persons unknown out of the jurisdiction."* (emphasis added)

By contrast with the previous case, the court only relied on one simple criterion: the place where the claimant resided/had her domicile. Regarding the disclosure order against the U.S. corporation, Ozone, the court was more cautious and even hesitant in retaining jurisdiction, acknowledging the difficulties in imposing such an order on a foreign entity. But nevertheless, it granted the application, on "*the assumption that Ozone would wish to cooperate with the English Courts*".<sup>22</sup>

### 3 Regulatory Issues (Taxation, Financial Instruments, Consumer)

Another prevalent topic in the area of emerging digital assets disputes is around regulatory issues such as taxation, consumer protection or whether or not some digital assets qualify as financial products/instruments. Courts have to decide whether or not their national regulatory authorities have the power to impose obligations on emerging digital assets traders or owners, and consequently whether the respective dispute falls under their jurisdictions.

A highly debated topic in the United States is whether or not cryptocurrencies are considered securities,<sup>23</sup> and therefore falling under the regulatory powers of the Securities and Exchange Commission (SEC),<sup>24</sup> or commodities,<sup>25</sup> which are under the realm of the Commodities and Futures Trading Commission (CFTC) authority.<sup>26</sup> The criterion in establishing jurisdiction when it comes to disputes over the legal status of emerging digital assets (whether as financial instruments or not) is not necessarily the place where the digital assets provider is based, but rather the location of their potential customers.

In a dispute involving Laino Group Limited ('Pax Forex'), the Southern District of Texas held that PaxForex violated the U.S. Commodity Exchange Act regarding retail investors by offering unregistered leveraged transactions in cryptocurrencies. Pax Forex is an online trading platform, registered as a company in Saint Vincent and the Grenadines, with data centres in New York and London. The platform operated with fiat currencies but also with cryptocurrencies such as Bitcoin, Ethereum, and Litecoin. In arriving at its decision, the court took into account that the platform "*solicits or accepts orders from customers, including those in the United States*", through the following: (i) their website, which had a drop down menu with an option of selecting the United States as the customer's country of residence, as well as an American flag symbol that corresponded to the customer's area code and phone number; (ii) Pax Forex identified themselves as "*The Best Forex Broker for Beginners in the USA*" in one of their blog posts; (iii) their website contained testimonials from U.S. based customers, etc.<sup>27</sup> What is important here is not solely the actual location of their customers, but rather making the instruments available to customers in a particular jurisdiction.

Another area of focus for regulators is the taxation of digital assets. The issue was brought before the German courts, which had to decide about the tax implications of renting virtual land. By way of introduction, virtual land is real estate created in a digital form hosted on a Web3 platform (the most common ones are Metaverse, Axie Infinity, Decentraland, The Sandbox, Somnium Space, Cryptovoxels, etc.).<sup>28</sup> The concept of virtual land became popular through video game platforms such as Second Life which started to monetize the digital space by allowing users to acquire different parts of land in a specific game.

Virtual land transactions raised the question of whether they could trigger any tax liability. The German courts were seized in July 2018 with a dispute between a virtual landlord and the German tax authorities.<sup>29</sup> The landlord (the plaintiff) bought land in the virtual world of Second Life, which he then rented to other Second Life users and received a monthly rent in Linden dollars, the currency of Second Life. The German courts had to take into account the following potential jurisdictions: the place where the claimant was based (Germany), where the economic value materialised (Germany), where the payment was made (potentially in various jurisdictions, depending on where the tenants of the virtual land were based), and the place where the provider of the game was based (United States). It is important to note here that the first instance court<sup>30</sup> and the second instance court were not aligned in their approach, which shows the difficulties in identifying the relevant criteria when assessing jurisdiction over a virtual land transaction.

After exchanging the Linden dollars for us dollars, the landlord received a notice from the German tax authorities. According to the tax authorities, renting virtual land constitutes a taxable digital service. The first instance court, the Cologne Finance Court (*Finanzgericht Köln*), held that the plaintiff primarily used the online platform to generate income by “renting” virtual land, and not necessarily for gaming purposes, therefore, it found the plaintiff liable to pay tax in Germany.

In November 2021, the German Federal Fiscal Court (*Bundesfinanzhof*) overturned the decision, and held that in-game transactions that are limited to mere participation in the game do not usually represent an economic activity. The court added that a taxable exchange of services can only be assumed when leaving the virtual world and entering into a “real” commercial transaction, namely when the Linden dollars were exchanged for us dollars. However, since the gaming operator’s headquarters were located in the USA, the court found that the plaintiff’s activity was not taxable in the Federal Republic of Germany.

The German Federal Fiscal Court took into account the following criteria when deciding if they had jurisdiction over the dispute:



*“The plaintiff did not carry out the other service fictitiously provided to the gaming operator within the country.”*<sup>31</sup>

(...)

*The fate under sales tax law when determining the place of performance does not depend on the content of the service, but rather on the personal characteristics of the person providing the service or the recipient of the service.”*

(emphasis added)<sup>32</sup>

*The location of the fictitious service provided by the plaintiff to the gaming operator as an entrepreneur is therefore based on the place where the gaming operator operates its business. This is not located domestically, but in the USA, where the game operator is based and also operates the servers for [the] program.”* (emphasis added).<sup>33</sup>

We note here that the German Federal Fiscal Court relied on a criterion that can be easy to identify (compared to the option of taking into account the place of payment, or the place where the servers are located), and which has a certain degree of permanence and can be verified by checking publicly available information (such as a national companies’ registers).

#### 4 Contractual Transactions

In general, in cross-border disputes, the competent court is the one where the defendant is domiciled. However, when it comes to contractual transactions, the competent court to hear the dispute may also be the court where the contractual obligation in question should have been performed or where the breach has occurred.<sup>34</sup> When it comes to applying the same logic to contracts dealing with emerging digital assets, the courts are faced with a difficult task.

In an NFT dispute before the High Court of Singapore, *Janesh s/o Rajkumar v Unknown Person* (*Chefpierre*),<sup>35</sup> the court was asked to freeze the NFT allegedly sold by the respondent. By way of background, an NFT investor who owned various tokens from the popular NFT collection ‘Bored Ape Yacht Club’ used one of their unique NFT’s (BAYC No. 2162) as collateral to borrow Ethereum from a crypto lender, via NFTfi, a community platform functioning as an NFT-collateralised cryptocurrency lending marketplace.

According to the parties' agreement, "*at no point would the lender obtain ownership, nor any right to sell or dispose of the Bored Ape NFT*". The lender could only, at best, hold on to the Bored Ape NFT, pending repayment of the loan. However, the borrower became unable to repay its loan, and the lender decided to transfer the NFT to a personal Ethereum wallet and listed it for sale on OpenSea, a popular online NFT marketplace.

Given the risk of dissipation of the NFT, the borrower started court proceedings seeking a proprietary injunction prohibiting the defendant (the lender) from dealing in any way with the Bored Ape NFT. As in the cases mentioned above, the action was against a person unknown (acting under the pseudonym of *Chefpierre*). The claimant argued that, notwithstanding the fact that the domicile, residence and present location of the defendant was unknown, the Singapore court was the appropriate court to hear the application for the injunction on the basis that:

- A There was sufficient nexus to Singapore. The claimant was a Singaporean citizen who carried on business from Singapore and owned property in Singapore. Further, he entered the transactions concerning the Bored Ape NFT in Singapore.
- B Singapore was the forum *conveniens*. If the Singapore courts did not hear the case, there was no other appropriate forum. This was because the Bored Ape NFT existed as code stored on the Ethereum blockchain, which is essentially a decentralised network of ledgers maintained in computers around the world.

The main criterion taken into account by the Singapore court was that the claimant was located in Singapore and carried on his business there.

*"In the present case, I was satisfied that the court had the jurisdiction to hear the present application. While the decentralised nature of blockchains may pose difficulties when it comes to establishing jurisdiction, to my mind, there had to be a court which had the jurisdiction to hear the dispute. In the present case, based on the available facts before me, that court was the Singapore court. The primary connecting factor was the fact that the claimant was located in Singapore, and carried on his business here."*<sup>36</sup> (emphasis added)

This case is particularly interesting because the court acknowledged the difficulties in establishing jurisdiction given the decentralised nature of the blockchain technology used in creating and storing the NFT. At the same time, the court relied solely on the place where the claimant was based, not the legal system where the breach took place, or where the defendant was based. The most important factor was that there had to be a court which would decide over the dispute, and in lack of a better choice, the court selected the place where the claimant was based.

## 5 Soft Law

The court cases analysed above reveal various ways to deal with jurisdictional issues, depending on the state and the nature of the dispute. However, when it comes to regulations and international instruments, unfortunately, there is limited guidance at an international level on which criteria the courts should employ when dealing with issues of cross-border emerging digital assets disputes. This is an area under development. Nevertheless, one notable example is the UNIDROIT Principles on Digital Assets on Private Law 2023 ('UNIDROIT Principles'). It is important to note here, that the UNIDROIT Principles do not have a mandatory force. Rather they represent soft law (having a non-binding nature), and their focus does not cover jurisdictional issues but rather applicable law.<sup>37,38</sup> Being mindful that the issue of jurisdiction is tied to procedural law and the issue of applicable law is related to substantive law, the UNIDROIT Principles, while not directly linked to conflict of jurisdiction, may serve as guidance for the courts when deciding whether they have jurisdiction or not over a specific digital asset dispute, or which criteria to take into account when more than one state is potentially relevant to the dispute.

Principle No. 5 (Applicable law) lists the following hierarchical criteria to be taken into account by the courts when trying to determine the applicable law to digital assets disputes:

- Proprietary issues in respect of a digital asset are to be governed by:
  - A the domestic law of the State expressly specified in the digital asset, if not specified, then by

- B the domestic law of the State expressly specified in the system on which the digital asset is recorded, if not specified, then
  - C in relation to a digital asset of which there is an issuer, the domestic law of the State where the issuer has its statutory seat, provided that its statutory seat is readily ascertainable by the public; or
  - D If none of the situations applies:
- Option A:
    - Those aspects or provisions law of the forum State as specified by that State; or
    - Those principles specified by the forum State; or
    - The law applicable by virtue of the rules of private international law of the forum State.
  - Option B:
    - Those Principles as specified by the forum State;
    - The law applicable by virtue of the rules of private international law of the forum State.

Paragraph 2 of Principle No. 5 clarifies what is understood by proprietary issues, namely acquisition and disposition of digital assets (which are always considered a matter of law). Further, the Principles specify that: *“in determining whether the applicable law is specified in a digital asset, or in a system on which the digital asset is recorded, consideration should be given to records attached to, or associated with, the digital asset, or the system, if such records are readily available for review by persons dealing with the relevant digital asset.”* The UNIDROIT Principles also take into account an implied choice of applicable law, namely the applicability of the hierarchical points listed in Principle No. 5, paragraph (1) a, b, and c: when a person transfers, acquires, or has any other dealings with a digital asset.

The drafters of the UNIDROIT Principles also took into account the changes that might appear in time to the applicable law. In order to avoid potential conflict with subsequent laws, it is mentioned explicitly that proprietary rights in the digital asset that have been established before the change in law are not affected by it.

Finally, the UNIDROIT Principles also define the meaning of ‘issuer’ referred to in paragraph (1)(c) of Principle No. 5, as a legal person:

*“(i) who put the digital asset, or digital assets of the same description, in the stream of commerce for value; and (ii) who, in a way that is readily ascertainable by the public, (A) identifies itself as a named person; (B) identifies its statutory seat; and (C) identifies itself as the person who put the digital asset, or digital assets of the same description, into the stream of commerce for value.”*

Principle 5 is of particular importance for UNIDROIT which joined forces with HCCH to develop further the points discussed in Principle 5 and give more detailed guidance to policymakers regarding applicable law in cross-border holdings and transfers of digital assets and tokens. The HCCH-UNIDROIT Joint Project on Law Applicable to Cross-Border Holdings and Transfers of Digital Assets and Tokens will focus on the applicable law in the absence of an explicit choice of law by the parties; weaker party protection in transactions relating to digital assets and tokens; connecting factors that would have an impact on the law applicable to cross-border holdings and transfers of digital assets and tokens; and the law applicable to linked assets. Currently, there is no information on whether the research will extend to conflict of jurisdictions.<sup>39</sup> The guidance prepared by UNIDROIT is a very well-researched paper, accompanied by a detailed commentary on how the principles apply and what are their limitations.

On the same topic, at a national level it is worth following the work of the Law Commission of England and Wales on preparing the research paper *Digital assets: which court, which law?*<sup>40</sup> (previously, named Conflict of Laws and Emerging Technologies), which is currently in the consultation phase.<sup>40</sup> As put by the Law Commission “*Digital assets (especially when combined with distributed ledger technology) have the potential to generate multiple (and potentially inconsistent) assertions of applicable law and jurisdiction. This area of law is presently uncertain and can often be difficult to apply.*” The scope is to analyse the current rules on private international law as they may apply in the digital context and, where appropriate, make recommendations to ensure that the law in this area remains relevant and up to date.

## 6 Conclusion

As shown in the cases analysed above, the courts tend to retain jurisdiction even if the dispute does not fall into a ‘classical’ concept or a ‘traditional’ pattern, as long there is a certain link between the elements of the dispute (the plaintiff, the respondent, the place where the damage occurred etc.) with the state where the court is based. However, the criteria taken into account are tenuous and not always predictable. In some instances, the courts will retain jurisdiction in lack of a better option, as a sort of court of ‘last resort’. In order to avoid forum shopping and ensure predictability of such disputes, there is, therefore, a need to tackle at an international level the issues of conflict of jurisdictions in the context of emerging digital assets disputes.

### Notes

- 1 England & Wales Law Commission on Law, “Digital Assets: Final Report” p. ix.
- 2 <https://lawcom.gov.uk/new-recommendations-for-reform-and-development-of-the-law-on-digital-assets-to-secure-uks-position-as-global-crypto-hub/>.
- 3 UNIDROIT Principles on Digital Assets and Private Law, 2023, p. 16, <https://www.unidroit.org/wp-content/uploads/2023/04/C.D.-102-6-Principles-on-Digital-Assets-and-Private-Law.pdf>.
- 4 Allen, J.G., Rauchs, M., Blandin, A. & Bear, K. “Legal and Regulatory Considerations for Digital Assets” Cambridge Centre for Alternative Finance (2020). It is important to note that this definition comes with the following disclaimer “It should be noted that a considerable number of digital assets that are marketed or portrayed as “cryptoassets” do not meet this definition. A prominent example would be XRP, issued by Ripple Labs which, consequently, would be classified as another type of asset”, <https://www.jbs.cam.ac.uk/wp-content/uploads/2020/10/2020-ccaf-legal-regulatory-considerations-report.pdf>.
- 5 Vadgama, Nikhil. “Enterprise Digital Assets” UCL Centre for Blockchain Technologies (2022) p.7. [https://discovery.ucl.ac.uk/id/eprint/10160678/1/Enterprise\\_Digital\\_Assets\\_UCLCBT.pdf](https://discovery.ucl.ac.uk/id/eprint/10160678/1/Enterprise_Digital_Assets_UCLCBT.pdf).
- 6 England & Wales Law Commission on Law, “Digital Assets: Final Report”. The term digital asset “captures a huge variety of things including digital files, digital records, email accounts, domain names, in-game digital assets, digital carbon credits, crypto-tokens and NFTs. The technology used to create or manifest those digital assets is not the same. Nor are the characteristics or features of those digital assets”.
- 7 Typically, digital assets are referred to as tokens, which are broken down into payment (digital currencies), utility (including governance and access) and security tokens (including equity, debt and other financial assets). In the con-

text of the enterprise setting, digital asset use cases can relate to tracking of information assets, utilising tokens for payments as stablecoins and trans-  
actionally (internally), accessing products and services, paying for them,  
raising financing, and the tokenised representation of assets.

- 8 One of the first cases that became public in the UK was *Vorotyntseva v MONEY-4 Ltd (t/a nebeus.com) & Ors* [2018] EWHC 2596.
- 9 By way of example, in the USA, in September 2023, there were over 600 pending litigations and regulatory cases involving digital assets. It is estimated that, as of October 2022, more than 200 individual and class action lawsuits had been filed in the USA, which represented a growth of nearly 50% compared to 2020, see  
<https://www.yalejreg.com/bulletin/crypto-litigation-an-empirical-view/>.
- 10 See *AA v Persons Unknown* [2019] EWHC 3556 (Comm); *Vorotyntseva v MONEY-4 Ltd (t/a nebeus.com) & Ors* [2018] EWHC 2596 (Ch); *B2C2 Ltd v Quoine Pte Ltd* [2019] SGHC(I) 03; *Robertson v Persons Unknown*, [2019] EWHC unreported; *Ruscoe v Cryptopia Limited* (in liquidation), CIV-2019-409-000544 [2020] NZHC 728; Judgement of the Amsterdam court from 20 March 2018, case ECLI:NL:RBAMS:2018:869; Judgment of the Ninth Arbitrazh Court of Appeal, 15 May 2018, in case No. A40-124668/2017, UK Jurisdiction Task Force’s Legal Statement on Cryptoassets and Smart Contracts “cryptoassets have all of the indicia of property” and “the novel or distinctive features possessed by some cryptoassets – intangibility, cryptographic authentication, use of a distributed transaction ledger decentralisation, rule by consensus – do not disqualify them from being property”, [https://35z8e83miih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056\\_JO\\_Cryptocurrencies\\_Statement\\_FINAL\\_WEB\\_111119-1.pdf](https://35z8e83miih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056_JO_Cryptocurrencies_Statement_FINAL_WEB_111119-1.pdf).
- 11 Hazard Jr, Geoffrey C. “A General Theory of State-Court Jurisdiction” *The Supreme Court Review* 1965 (1965): 241-288.
- 12 Ibáñez, Luis-Daniel, Hoffman, Michał R. & Choudhry, Taufiq. “Blockchains and Digital Assets” *EU Blockchain Observatory & Forum* (2018)  
[https://blockchain-observatory.ec.europa.eu/document/download/doesd496-debe-4018-9a0f-9c6fa90b406a\\_en?filename=blockchains\\_and\\_digital\\_assets\\_june\\_version.pdf](https://blockchain-observatory.ec.europa.eu/document/download/doesd496-debe-4018-9a0f-9c6fa90b406a_en?filename=blockchains_and_digital_assets_june_version.pdf).
- 13 See footnote 8 above.
- 14 *Crypto as security under USA law: Sec. & Exch. Comm’n v. LBRY, Inc.*, 21-cv-260-PB (D.N.H. Nov. 7, 2022; *Securities and Exchange Commission v. Telegram Group Inc. et al*, No. 1:2019cv09439 – Document 227 (S.D.N.Y. 2020); *Balestra v. ATBCOIN LLC*, 380 F. Supp. 3d 340, 354 (S.D.N.Y. 2019).
- 15 *Crypto as means of payment under Estonian law:*  
<https://www.njordlaw.com/supreme-court-estonias-decision-bitcoin>.
- 16 *McMorrow, Ryan & Kinder, Tabby*. “Cryptocurrency Exchanges Start Cutting Off Chinese Users” *Financial Times* (2021)  
<https://www.ft.com/content/9c42c660-7e80-47c2-8b3b-3398c6a22eaf>.
- 17 *UNIDROIT Principles on Digital Assets and Private Law*, adopted by the UNIDROIT Governing Council at its 102nd session (10-12 May 2023)  
<https://www.unidroit.org/wp-content/uploads/2023/04/C.D.-102-6-Principles-on-Digital-Assets-and-Private-Law.pdf>.

- 18 Cane, Peter. *The Anatomy of Tort Law* Bloomsbury Publishing (1997).
- 19 *Ion Sciences Ltd v Persons Unknown and others* (unreported), 21 December 2020 (Commercial Court), <https://uk.practicallaw.thomsonreuters.com/Link/Document/Blob/15438c9dc7c3911ebbea4f0dc9fb69570.pdf>.
- 20 *Ibid.* para. 21 “(...) a Bankers Trust order might be one where there can be service out of the jurisdiction in exceptional circumstances, and that those exceptional circumstances might include cases of hot pursuit. That is this type of case. As I say, I consider that there is a good arguable case that there is a head of jurisdiction under the necessary or proper party gateway. I should also say that it seems to me that there is a good arguable case that the Bankers Trust case can be said to relate wholly or principally to property within the jurisdiction on the basis of the argument which I have already identified which is that the bitcoin are or were here and that the *lex situs* is where the owner resides or is domiciled. Accordingly, I consider that there is a basis on which jurisdiction can be established.”
- 21 *Osbourne v Person Unknown and another* [2022] EWHC 1021 (Comm).
- 22 *Ibid.* “53. In those circumstances, the only other question I have to ask myself, is whether or not England is clearly and distinctly the more appropriate place for the claim against Ozone to be resolved. This is a much more difficult point because as I have explained, Ozone has no presence in the English jurisdiction, and therefore the ability of the Court to enforce any order it makes against Ozone is, by definition, a limited one, and the Court will decline to make orders which are, by their nature, futile.  
54. I have hesitated long and hard on this basis about making the order sought, because it will be punitively expensive for the claimant to police. It is likely to generate significant litigation if Ozone engage with the process at all; and there is a real prospect that Ozone will not engage with the process, and therefore, the order will ultimately turn out to be pointless.  
55. As I have said, I have hesitated long and hard about this but consistent with the approach which had been adopted in earlier cases, and on the assumption that Ozone would wish to cooperate with the English Courts for the purposes of supplying information which enables.”
- 23 Namely, if it meets the following test (Howey Test): “(a) an investment of money (b) in a common enterprise (c) with profits (d) to come solely from the efforts of others. If that test was satisfied, it is ‘immaterial whether the enterprise is speculative or non-speculative, or whether there is a sale of property with or without intrinsic value.”
- 24 See here list of SEC enforcement actions regarding digital assets: <https://www.sec.gov/spotlight/cybersecurity-enforcement-actions>.
- 25 Namely, instruments delivering assets in the future at some predetermined price.
- 26 See here list of CFTC enforcement actions regarding digital assets: <https://www.cftc.gov/PressRoom/PressReleases/8822-23>.
- 27 *CFTC v. Laino Group Limited d/b/a Paxforex*, 20-cv-03317 (S.D. Tex. June 7, 2021)
- 28 <https://en.wikipedia.org/wiki/Metaverse>; Duan, Haihan, et al. “Metaverse for social good: A university campus prototype.” *Proceedings of the 29th ACM international conference on multimedia* (2021).



- 29 German Federal Fiscal Court (Bundesfinanzhof), VR 38/19, ECLI:DE:BFH:2021:U.181121.VR-38.19.0, <https://www.bundesfinanzhof.de/de/entscheidung/entscheidungen-online/detail/STRE202210041>.
- 30 Cologne Finance Court, 8 K 1565/18 [https://www.justiz.nrw.de/nrwe/fgs/koeln/j2019/8\\_K\\_5-65\\_18\\_Urteil\\_20190813.html](https://www.justiz.nrw.de/nrwe/fgs/koeln/j2019/8_K_5-65_18_Urteil_20190813.html).
- 31 German Federal Fiscal Court (Bundesfinanzhof), V R 38/19, ECLI:DE:BFH:2021:U.181121.VR-38.19.0, para. 55.
- 32 *Ibid.* para. 57.
- 33 *Ibid.* para. 58.
- 34 See for example, Regulation (EU) No 1215/2012 of the European Parliament and of the Council of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters (recast).
- 35 Janesh s/o Rajkumar v Unknown Person (Chefpierre) [2022] SGHC 264, [https://www.elitigation.sg/gd/s/2022\\_SGHC\\_264](https://www.elitigation.sg/gd/s/2022_SGHC_264).
- 36 *Ibid.*
- 37 “Principle 5 (Applicable law) concerns only choice-of-law issues and does not address the question of the jurisdiction of any tribunal over a party or the subject matter at issue.”
- 38 For a detailed analysis on applicable law, please see chapter 5.
- 39 <https://www.unidroit.org/wp-content/uploads/2023/05/C.D.-102-12-Proposal-for-Joint-Work-HCCH-UNIDROIT.pdf>.
- 40 <https://cloud-platform-e218f50a4812967ba1215eaecede923f.s3.amazonaws.com/uploads/sites/30/2024/02/Conflicts-full-document-FINAL-pdf-1.pdf>.

## CHAPTER 7

# Picking the Proper Technological Tool for Problem-Solving in Arbitration

AMY J. SCHMITZ<sup>1</sup>

## I Introduction

Recent years have seen new technologies disrupt many established industries and institutions, continually defying predictions and defying our expectations.<sup>2</sup> It is no surprise that technology is also disrupting the law and the practice of arbitration. Moreover, the COVID-19 pandemic generated new disputes with an accompanying need for expanded access to online means for resolving those disputes. Technology has meanwhile moved faster than imagined with generative artificial intelligence (AI) and innovative technological tools hitting the market every day. It has moved even faster than some futurists may have imagined.<sup>3</sup>

While these technological advances are exciting, it is important to approach the use of technology with deliberate thought and analysis. This chapter invites careful analysis of technology in arbitration, with a keen consideration of any technology's capacity to help or harm the process at issue. Dispute system designers should consider the analytical power of artificial intelligence, the transparency and security of blockchain, and the immersive environments of the metaverse with careful contemplation. Technology tools are not all good or bad – it is how you use it that counts. Accordingly, it is important to approach these tools from a dispute system design perspective.

Part 2 will discuss the growth of oArb and use of technology in arbitration. Part 3 will briefly outline uses of AI, blockchain and metaverse in arbitration. Part 4 adds dispute system design ideas as a framework for considering these technologies and selecting the best technology for addressing a particular issue or problem in arbitration. The conclusion will wrap up, reminding arbitrators, lawyers, and policymakers to approach technology like any other tool in an arbitral problem-solving toolbox and use caution in selecting the right technology for the context and parties in arbitration.

## 2 OArb Expansion

Consistent with technological expansion, growing use and reliance on the Internet has led to the growth of *online* arbitration (what I have termed “OArb” in prior articles and books).<sup>4</sup> Such OArb includes the use of technology and digital tools to facilitate and execute processes ending in a final determination of a dispute by a neutral third party. For example, such OArb may use asynchronous and/or synchronous communications. It also may involve text-only or virtual hearings and mixtures thereof. OArb’s use of technology allows parties to submit all documentation to support their claims and post communications related to a case at times that suit their schedules. Online hearings also save the time, cost, and stress of traveling to and attending in-person processes, which is especially important in a pandemic. Such OArb systems may also include the use of AI and data analytics, or even blockchain or metaverse elements. The universe of technological tools is growing every day.

OArb is just one example of online dispute resolution (“ODR”), which more generally encompasses the use of technology to assist in the prevention and resolution of disputes. Most ODR, however, is not OArb because it involves the facilitation of communications aimed to spark voluntary settlement.<sup>5</sup> Most ODR is thusly not binding and relies on the parties’ later agreement on a resolution. OArb is a distinct subset of ODR because it culminates in a final award rendered by a third-party neutral, an arbitrator. This binding nature makes OArb quite powerful, along with the technological tools used within an OArb program.

OArb also has potential for expanding access to justice (A2J).<sup>6</sup> When properly constructed, OArb allows individuals to resolve disputes more quickly, cheaply, and hopefully, fairly, using technology to facilitate communications and decision-making that lead to resolutions and solutions. For example, when individuals can resolve their disputes using technology as simple as a cellphone, they save significantly on the costs and hassles of travel, scheduling, time away from work, and other costs of in-person processes usually associated with traditional in-person arbitration.<sup>7</sup>

Still, the rush to use technology has hit a blistering pace, sometimes without pausing to consider whether the *particular* technology, or any technology at all, makes sense in a given case. For example, the excitement around blockchain had many rushing to put everything ‘on the blockchain’ a few years back, and now, AI is ‘all the rage’. Meta’s push into the metaverse likewise had many hoping to place all sorts of dispute resolution processes into this new medium. While these different technologies may provide benefits that outweigh the costs in certain contexts, it is important to take a step back and start with dispute system design principles in deciding whether and what technologies should be used in any given dispute resolution program. The next section 3 lays out the recently ‘hot’ technological tools – AI, blockchain, and metaverse, and section 4 will then invite consideration of these tools in light of dispute system design.

### 3 Technological Tools

With technology, we can build a whole new justice system through the internet. However, we must engage in creative deconstruction and reconstruction, and take time to brainstorm ideas to generate a cycle of creation. As I often have said, we should consider mediation, arbitration, negotiation, neutral evaluation, etc., as tools in our problem-solving toolbox and not be afraid to consider the full spectrum of these tools in concert. Moreover, technology adds another layer of creativity and promise to reimagine dispute prevention and resolution. Technology adds nuance to the process selected, making for an orchestra suited for addressing a certain dispute or type of dispute.

In an era characterized by rapid technological advancement and an ever-increasing complexity of disputes, the realm of arbitration stands at a pivotal crossroads. As an alternative means of resolving conflicts outside the traditional courtroom, arbitration has long been prized for its efficiency, confidentiality, and adaptability. However, to remain relevant and responsive to the shifting landscape of commerce and communication, arbitrators and counsel must embrace the potential of cutting-edge technologies. This part will explore how the integration of AI, blockchain, and the metaverse can benefit arbitration processes, ensuring that they remain not just functional but forward-looking and effective.

### 3.1 AI and Data Analytics

AI is the “shiny toy” in law, and every conversation seems focused on AI these days. The pace of change is incredible in this space! The key is to understand the promise and pitfalls of AI and focus on the *responsible use* of AI in arbitration. My tagline about AI in arbitration: *“It is not all good or all bad, it is how you use it!”*

To provide insights directly from AI about AI, Colin Rule and I asked ChatGPT “What are the opportunities and challenges for AI in arbitration?”

Here is what it said:

“AI presents various opportunities and challenges in the field of arbitration. Here are some of the key aspects:

Opportunities:

- 1 Efficient Case Management: AI can assist in managing arbitration cases by automating administrative tasks such as document management, scheduling, and tracking deadlines. This allows arbitrators to focus more on substantive issues and expedites the overall arbitration process.
- 2 Data Analysis and Prediction: AI tools can analyze large volumes of case data and identify patterns, precedents, and legal arguments. This assists arbitrators in making well-informed decisions and predicting case outcomes based on historical data.
- 3 Document Review and Discovery: AI-powered technologies, such as natural language processing (NLP) and machine learning, can aid in the review and categorization of documents, reducing the time and effort required for discovery and facilitating a more comprehensive analysis of evidence.
- 4 Decision Support: AI systems can provide arbitrators with relevant legal information, statutes, regulations, and precedents, thereby supporting decision-making and ensuring consistency in rulings.
- 5 Language Translation: AI-based language translation tools can help overcome language barriers in international arbitration, enabling efficient communication and understanding between parties from different linguistic backgrounds.

### Challenges:

- 1 Bias and Fairness: AI algorithms are prone to biases based on the data they are trained on, potentially leading to unfair outcomes. Ensuring that AI tools used in arbitration are unbiased and promote fairness is a significant challenge.
- 2 Interpretation and Context: AI systems may struggle with interpreting complex legal concepts, nuanced arguments, and the contextual understanding required in arbitration. The reliance on AI for decision-making needs to strike a balance between automation and human judgment.
- 3 Privacy and Confidentiality: Arbitration involves sensitive information, and the use of AI technologies introduces concerns regarding data privacy and confidentiality. Adequate measures must be in place to safeguard the privacy and security of data used in AI-based arbitration processes.
- 4 Ethical Considerations: AI raises ethical questions, such as accountability, transparency, and the ethical responsibility of decisions made by machines. Addressing these ethical considerations is crucial to ensure the integrity and legitimacy of AI-driven arbitration.
- 5 Technical Limitations: AI technologies are continuously evolving, and their effectiveness in complex legal tasks may still have limitations. Development and implementation challenges need to be addressed to ensure the reliability and accuracy of AI systems in the arbitration context.

It is important to approach the integration of AI in arbitration thoughtfully, recognizing the potential benefits while carefully managing the associated challenges to maintain fairness, transparency, and the integrity of the arbitration process.”<sup>8</sup>

This is a pretty good start! However, the opportunities are more nuanced, as are the challenges. Machine learning and Large Language Models (LLMs like GPT) are only as good as the data upon which they are trained or based, and often, more data is needed. For example, any prediction based on information from masses of documents from an earlier time is backward-looking. Furthermore, it is important in the law to use generative AI that is trained on legal data, but many mainstream LLMs like ChatGPT are not trained on all the necessary legal data. There may be some data sub-

sumed in their very large datasets, but even ChatGPT itself includes warnings that it is not meant for legal advice. Also, anything based on only published cases fails to consider private arbitration awards and settlements. The problem is that the vast majority of legal claims end in private settlements or private arbitration awards, producing no public data in most cases.<sup>9</sup> This means that any prediction using large language models that include only published cases might not be accurate because it fails to consider data from private settlements and arbitration awards.

It may be that the better use of AI in arbitration is to simply provide information or augment human decision-making. Training a ‘chat bot’, for example, to guide individuals involved in dispute resolution could be helpful. Professor Vermeys, an expert in AI and dispute resolution, described what they are working on at Cyberjustice Laboratory when interviewed for *The Arbitration Conversation*.<sup>10</sup> He explained that AI may not be best suited for providing ‘bot decisions,’ or predictions on how a case will come out. Instead, AI may be useful as an assistant to help individuals during a dispute resolution process. This could include general information to assist arguments and helping parties frame their arguments. The information would be more nuanced and aimed to assist, and not take over, the decision-making for the parties.

Arbitrators may also use AI to help them make informed decisions. Again, this is not a ‘bot’ decision. The AI is not deciding for the arbitrator. Instead, an arbitrator could look at the data provided to understand more about themselves as decision-makers. For example, looking at data analytics may help arbitrators learn about their own biases, or fill in gaps in their understanding. In essence, this is augmenting the intelligence of the arbitrator.

Still, there may come a time when ‘bot’ resolutions will make sense for certain routine disputes in areas where there are mass amounts of data and simple considerations. It may be that AI could provide an efficient answer as a first step for the parties – to quickly and cheaply resolve a dispute based on the data. The parties could then be free to appeal that decision to a human arbitrator. This type of idea may resonate in particular contexts, dependent of course on consent of the parties.

### 3.2 Blockchain Arbitration<sup>11</sup>

On the topic of blockchain and smart contracts, Professor Oladeji M. Tihamiyu, a researcher who has looked into blockchain arbitration, shared his thoughts in an interview.<sup>12</sup> Professor Tihamiyu has explained blockchains as a simple way to store data in a digital ledger, and to create more trust in a transaction or security of that data. Still, there will be disputes. As noted throughout the book, technology creates new and different types of disputes. Smart contracts will have bugs and errors in code, and technologies will fail. This opens opportunities for arbitration and ODR. Creating a dispute resolution system built into the fabric of blockchain may be more appropriate than traditional in-person arbitration or litigation in blockchain related cases. This is just one example of a different type of dispute resolution system to fit various disputes and parties. One system will not be acceptable to all parties and all disputes, making optionality important in any dispute system design.

For example, Kleros is a crowdsourced online arbitration ‘court’ built on the Ethereum public blockchain for the resolution of simple disputes.<sup>13</sup> Kleros aims to be “[a] fast, inexpensive, transparent, reliable and decentralized” ODR system built on game theory and crowdsourced justice.<sup>14</sup> Kleros enlists ‘jurors’ from around the world based on the number of ‘Pinakion’ tokens (Kleros’ native cryptocurrency) jurors deposit to show their interest in resolving a given dispute.<sup>15</sup> Parties to a dispute present their cases to the jurors based on the documents, using an online platform. The jurors then use their tokens to vote.<sup>16</sup>

After the vote is closed, the party with the most juror support wins. Additionally, jurors benefit from selecting the party with the most votes by taking the tokens of jurors who sided with the ‘losing’ party.<sup>17</sup> Kleros has done various experiments and works to combat fraud and collusion among jurors, and jurors are penalized for communicating with each other. Kleros also can fork the system to stop fraud if necessary because it controls the tokens.<sup>18</sup> This is just one example of blockchain arbitration. Other authors in this book have elaborated on additional examples.



### 3.3 Metaverse

The metaverse is no single ‘place’ – it is more of a concept: a 3D digital world where individuals use virtual avatars to interact with other users to “purchase and sell goods and services, sign and enforce contracts, recruit and train talent, and interact with customers and communities.”<sup>19</sup> Some examples include virtual reality platforms such as Decentraland, The Sandbox, and Meta, where users can interact in complex and immersive ways. Individuals can create avatars and meet, discuss, make purchases, and even open law firms in the metaverse. At least one major law firm has opened an office in the metaverse,<sup>20</sup> and it would not be surprising to see arbitrations conducted through avatars in the metaverse (if that is not already happening, especially by the time of this book’s publication).

Indeed, one of the most straightforward applications of the metaverse in arbitration is conducting virtual arbitration hearings. This may save party time and travel costs and may be more comfortable for some individuals to gather in virtual hearing rooms, replicating the formality and structure of traditional arbitration settings. This allows parties from different parts of the world to participate without the need for extensive travel, which is costly from financial and environmental perspectives. Travel also takes time away from family and work and can be particularly difficult for care-takers. It also can help reduce logistical challenges associated with in-person hearings, such as booking physical venues and ensuring security.

In international arbitration cases, language barriers also can be a significant obstacle. The metaverse can facilitate real-time interpretation and translation services, enabling parties to communicate and understand one another seamlessly. Avatars could be programmed to speak multiple languages, making multilingual proceedings more manageable. Language technologies continue to improve at a rate that is quite remarkable.

Additionally, the metaverse offers the potential for a more interactive and immersive presentation of evidence. For example, 3D models, animations, and virtual reconstructions could be used to clarify complex technical or visual aspects of a case. This immersive evidence presentation can enhance arbitrators’ understanding of the issues and help them make more informed decisions. Furthermore, virtual environments can be tailored to provide a

neutral ground for parties to meet, negotiate, and reach settlements. These immersive settings can create a unique atmosphere for conflict resolution, potentially making negotiations more productive and satisfying.

Regarding Arbitration in the Metaverse, Paul Cohen shared ideas when interviewed for *The Arbitration Conversation*.<sup>21</sup> Mr. Cohen commented on the vision for metaverse arbitration, and noted some challenges to the seriousness of the arbitration if all parties and the arbitrator were to appear as glorified cartoons. Nonetheless, this may become ‘normal’ due to the speed of change with technologies. Metaverse for arbitration could be an equalizer, having all parties appear as avatars and not able to use their appearance to gain power.

Currently, such metaverse arbitration is in the conception stages, with more musings by commentators than actual arbitration proceedings with binding authority. The ideas around metaverse arbitration raise numerous questions about how the structure of arbitration can be adapted to a metaverse environment.<sup>22</sup> It is unclear what law would apply or how this will be enforced. Many also ask what restrictions will be in place to verify humanity, especially if parties can stay anonymous and operate only through avatars.<sup>23</sup> Still, metaverse arbitration seems especially promising for disputes arising in the metaverse, such as disputes within a game set in the metaverse, as it allows parties to resolve their disputes using the medium in which that dispute will have originated.

Nonetheless, all these technological tools must be considered with a methodical approach. The next section will introduce a framework for dispute system design – which can be a helpful way to approach the selection of technology in arbitration to address a particular problem and given parties. Context matters.

## 4 Dispute System Design

These technologies are all very exciting and invite our imaginations as to how they could be used in arbitration. However, it is essential to get back to basic principles and think about how best to use these exciting tools. This section lays out an approach to dispute system design, using the

structure set forth by dispute system design experts, Amsler, Martinez, and Smith. It includes six elements: goals, stakeholders, context and culture, structures and processes, resources, and accountability.<sup>24</sup> These elements offer a comprehensive framework for designing effective and efficient dispute resolution systems and should remain top of mind when selecting and using technology in arbitration.

#### 4.1 Goals

Setting clear goals is the cornerstone for any dispute resolution system and certainly for designing an arbitration process or program. In the realm of technology-driven arbitration, goals can vary widely, depending on the specific context and stakeholders involved. For example, when considering AI-driven decisions in arbitration, efficiency and accessibility might be paramount goals, aiming to provide quick and affordable resolutions for small dollar disputes in which the parties just want a fast and cheap resolution. AI algorithms also may be used to identify potential disputes before they escalate, promoting early intervention and resolution. In contrast, blockchain-based arbitration may prioritize cybersecurity, transparency, and immutability, seeking to ensure safety of information and automatic enforcement with smart contracts. With respect to the metaverse, goals could encompass creating a virtual dispute resolution ecosystem that fosters full participation without revealing one's identity or facing the costs and difficulties of travel.

At the same time, there may be countervailing goals that overtake any benefits of technology. For example, even a party seeking efficiency may have an acute interest in "being heard" and venting their grievances. In that case, an AI-driven decision would not be beneficial. Cybersecurity in some cases may drive individuals away from using any technology, even blockchain, that boasts value for maintaining the security of information. Some fear that using any technology in arbitration or exchanging information electronically opens one up to threats. Some parties also worry about the commodification of data. Accordingly, it is important to take a hard look at the goals of any arbitration and be sure that the use of a certain technology advances goals in totality – weighing benefits, risks and costs.

## 4.2 Stakeholders

Identifying stakeholders in arbitration systems is crucial. Stakeholders include the people and organizations that create, host, use, and are affected by a system; ideally, they will be involved in the design from the start and share experiences as users. For example, with eBay and its development of ODR many years ago, stakeholders included eBay management, the buyer and seller “users”, and the broader e-commerce community in thinking through the design for eBay’s ODR system for resolving disputes among buyers and sellers on eBay.<sup>25</sup>

In AI-driven arbitration, stakeholders may include the developers of the AI system, arbitrators, arbitration providers using such systems, the disputing parties, and regulatory authorities who oversee the fairness of any AI in legal systems. In blockchain-based arbitration, stakeholders extend to participants in the blockchain network, smart contract developers, and decentralized arbitration providers. Within the metaverse, stakeholders could encompass virtual world creators, users, disputants, arbitrators, and any other players in the virtual process.

Understanding the interests, relationships, and relative power of these stakeholders is vital for designing equitable and effective dispute resolution processes. Involving stakeholders in the design phase can lead to more user-centric and inclusive systems, fostering trust and buy-in from all parties involved. This means that all stakeholders in any given arbitration should be consulted before using any technological tool that could impact the process. Consent and agency are essential.

## 4.3 Context and Culture

Context and culture comprise the third element, meaning the circumstance or situation in which a system is deployed and designed. ‘Culture’ here means the implicit assumptions and values held by the surrounding community that help define the dispute. In the eBay example, the culture was one in which technology and innovation were welcome, plus the parties were generally not interested in venting or sharing thoughts in person. The disputes were less emotional in most cases, and parties generally valued fast and efficient resolutions.

eBay's dispute resolution system is an example of oarb in that the final determinations used online communication to end disputes. Technology-driven arbitration systems do not exist in a vacuum; they are embedded in specific contexts and cultures. The context could range from the global nature of online commerce (as seen in platforms like Amazon) to the decentralized and borderless nature of blockchain networks (as seen with some cryptocurrency exchanges). Cultural factors may include the acceptance of technology as a dispute resolution tool and the willingness of participants to engage in oarb.

Recognizing and adapting to the context and culture is essential. For instance, blockchain-based arbitration systems must accommodate the decentralized ethos of blockchain communities, while metaverse arbitration may need to consider the norms and behaviors prevalent in virtual worlds. Context and culture inform the design of procedures, the selection of technologies in any arbitration, and the framing of rules and norms for a given arbitration process. It is easy to jump into the use of technology without considering context and culture, but that can result in disaster.

#### 4.4 Structures and Processes

Structures and processes include examining how the processes are related to each other and the formal legal system, and include the range of process types: direct negotiation to third-party facilitation, mediation, or arbitration, and court adjudication. As a process option, even if the first thought was to rush towards oarb in a certain case for the ease of access in an international case, for example, it might make sense to take a step back and consider other processes and structures, in conjunction with considerations of technology.

When considering technology, and whether and what technologies to use in any process, AI arbitration may involve automated decision-making algorithms, while blockchain arbitration could employ smart contracts to settle disputes. In the metaverse, virtual courts and virtual dispute resolution platforms may be the primary structures. The combination of technology and process should be top of mind.

These processes must be carefully tailored to meet the identified goals and accommodate the characteristics of the stakeholders, context, and culture. The choice of process, be it direct negotiation, mediation, or arbitration, must align with the desired outcomes, whether they are swift resolution, consensus building, or precedent-setting.

#### 4.5 Resources

Resources matter in any system design in order to get it off the ground. What financial, human, data, technological, information, and training resources are needed and available to support a system? Leadership from the top combined with an understanding of the users' perspective, is both critical to understanding motives and building scale capacity. The success of technology-driven arbitration hinges on the availability and allocation of resources, including financial resources to develop and maintain the technology, human resources to oversee and manage the system, data, and technological resources to support decision-making algorithms, and training resources to educate users and administrators.

For instance, in AI-based arbitration, continuous refinement of algorithms requires ongoing investment and continual training of the algorithm. It will use immense resources and electricity when running supercomputers in the training phases. There could be biases baked into the algorithm or missing data that has not become part of the system. This requires further resources to test and perfect a system. Similarly, blockchain arbitration necessitates robust infrastructure and technical expertise. All too often, there is a sense that all this technology is free in terms of cost and environmental impacts, but that is not true. All of this has significant impacts!

#### 4.6 Accountability

Lastly, a system's accountability and success will depend on the degree of transparency around its operation and whether the system includes monitoring, learning, and evaluation components. Evaluation enables the organization to establish metrics on whether the system is functioning effectively in terms of participation, cost-benefit, quality neutrals, and user satisfaction. This is the linchpin that ensures the integrity and credibility

of technology-driven arbitration systems. Transparency in operation is vital, as it fosters trust among users and stakeholders. Monitoring and evaluation mechanisms track system performance, participation rates, cost-effectiveness, the quality of neutrals, and user satisfaction. Researchers and policymakers can then analyze that data to craft system improvements.

Incorporating feedback loops and adaptive processes enables continuous improvement. Learning from past cases and user experiences can lead to better algorithms, smarter contracts, and more effective virtual dispute resolution platforms. Moreover, clear accountability mechanisms, including avenues for appeal and redress, instill confidence in the fairness of the system.

In sum, the application of dispute system design principles to the selection of whether and when to use technology in arbitration is essential for the intelligent use of technology. By rigorously considering the goals, stakeholders, context and culture, structures and processes, resources, and accountability, designers can craft dispute resolution systems that are not only efficient but also equitable and responsive to the unique challenges and opportunities presented by emerging technologies. As society continues to evolve in the digital realm, the integration of these design principles is essential to foster trust, fairness, and innovation in the arbitration landscape.<sup>26</sup>

## 5 Conclusion

In sum, the pace of change is great when it comes to technology in arbitration. AI, blockchain, and even the metaverse may be used in arbitration. Technology is a powerful tool in dispute resolution that keeps getting more robust, and perhaps scarier. This chapter has provided a brief snapshot of the potential applications of AI, the metaverse, and blockchain in enhancing the efficiency and effectiveness of arbitration and this book has offered additional insights related to these technologies. These cutting-edge tools offer the promise of streamlining processes, ensuring transparency, and providing innovative solutions to complex problems.

However, all use of technology is not wise or beneficial, and there is danger in quickly adopting technologies simply due to the surge in interest or excitement. It is vital to emphasize that the integration of AI, the meta-verse, and blockchain into arbitration should be approached with caution and careful consideration. While these technologies hold tremendous potential, they are not universal solutions suitable for every dispute or issue. Arbitrators and parties must exercise a discerning approach, employing the principles of dispute system design to critically evaluate what technology is best suited for the specific problems and issues at stake.

Dispute system design reminds us that the selection of technology in arbitration should be guided by a thorough understanding of the dispute's nature, the parties involved, and the desired outcomes. Furthermore, arbitrators and parties must be mindful of the ethical, legal, and procedural implications that advanced technologies bring. These considerations include issues related to data privacy, cybersecurity, algorithmic bias, and the human element that technology cannot replace in the arbitration process. Technology should enhance, not overshadow, the essence of arbitration and a problem-solving perspective.

## Notes

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- 12 Tiamiyu, Oladeji & Schmitz, Amy J. “Arbitration Conversation No. 85: Oladeji Tiamiyu, Clinical Fellow, HNMCP at Harvard Law School” *Arbitrate.com* (June 22, 2021), <https://www.youtube.com/watch?v=FS7HYrJzw9c>.
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- 15 *Ibid.* 4.
- 16 *Ibid.* 7.
- 17 *Ibid.* 8. Under its proposed governance, Kleros will create subcourts and update and adapt the program as necessary.
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## CHAPTER 8

# Developing Legal Frameworks for Dispute Resolution in the Digital Age

TAKASHI TAKASHIMA<sup>1</sup>

## I Introduction

The United Nations Commission on International Trade Law (UNCITRAL or Commission) is the core legislative body of the United Nations (UN) system in the field of international trade law established by the UN General Assembly in 1966.<sup>2</sup> Its mandate is to further the progressive harmonization and modernization of the law of international trade. In the area of dispute resolution, UNCITRAL is known for instruments such as the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (New York Convention), which is broadly acknowledged to be the foundation of international arbitration, the UNCITRAL Model Law on International Commercial Arbitration (MAL) and the UNCITRAL Arbitration Rules (UARS). In line with its mandate, UNCITRAL continues to update or develop rules and norms, so as to address evolving circumstances.

The impact of digitalization is seen across the board and dispute resolution is obviously not immune. Resolving technology-related disputes demands a thorough understanding of technical matters by arbitrators, as technologies may be at the centre of such disputes, involving intricate technical details. At the same time, due to the nature of the transactions from which such disputes arise, there are persistent calls for further expediency in their resolution, despite efforts having been made to expedite dispute resolution proceedings in general.

Digitalization has not only made the subject matter of disputes to be technologically sophisticated. It has also brought a more direct impact on dispute resolution proceedings themselves, as digital technologies and technology-enabled services have become integrated in the conduct of proceedings. While digital technologies may bring efficiencies to proceedings, they are considered to have associated risks that may result in undermining the prin-

ciples of due process and fairness and, thus, require legal responses. There is also debate about advantages of digital technologies not being taken to the fullest extent possible due to obsolete laws and rules remaining as obstacles.

This chapter provides an overview of two of UNCITRAL's ongoing projects in the area of dispute resolution, namely the legislative work undertaken by Working Group II (WGII) on technology-related dispute resolution and adjudication and the project on the stocktaking of developments in dispute resolution in the digital economy, and concludes with an observation as to the overarching objective by which UNCITRAL's work in this area is guided.<sup>3</sup>

## 2 Technology-Related Dispute Resolution and Adjudication<sup>4</sup>

As mentioned above, the UARS are a key UNCITRAL text in dispute resolution. As noted by the General Assembly, these rules “*are recognized as a very successful text and are used in a wide variety of circumstances covering a broad range of disputes, including disputes between private commercial parties, investor-State disputes, State-to-State disputes and commercial disputes administered by arbitral institutions, in all parts of the world*”.<sup>5</sup> The UARS were first adopted in 1976 as a comprehensive set of procedural rules upon which parties may agree for the conduct of arbitral proceedings arising out of their contractual relationship and are widely used in *ad hoc* arbitrations as well as institution-administered arbitrations, covering all aspects of the arbitration process. In 2010, the UARS were revised to reflect arbitral practice that had evolved in the course of the previous thirty years, as seen, for example, in the inclusion of provisions on multi-party arbitration, joinder, liability, a cost review mechanism as well as the updating of procedures for the replacement of an arbitrator. In 2013, article 1(4) was added to incorporate the UNCITRAL Rules on Transparency in Treaty-based Investor-State Arbitration, designed to provide for transparency and making treaty-based investor-State arbitration more accessible to the general public.<sup>6</sup> In 2021, article 1(5) was added to incorporate the UNCITRAL Expedited Arbitration Rules (EARS) as an appendix to the UARS.

The EARS have been developed to cater for the needs of parties for a quicker resolution of their disputes, for instance, when the amount disputed is relatively small and the case is relatively straightforward.<sup>7</sup> The EARS provide in principle for a completion of the arbitral proceedings within 6 months after the constitution of the tribunal.

Notwithstanding the EARS, in times marked by rapid technological advancements in pursuit of increased speed and efficiency, it has become evident that parties seek to find ways and means to resolve disputes even more expeditiously but with the competing desire to preserve the overall quality of dispute resolution. Against this backdrop, at its fifty-fifth session in 2022,<sup>8</sup> the Commission discussed suggestions regarding work on technology-related dispute resolution and adjudication and decided to entrust WGII on dispute resolution to prepare model clauses and other legislative or non-legislative texts to be built on the foundation of the EARS, focusing on shorter time frames, streamlined procedures, appointment of experts or neutrals, guidelines on evidence, and confidentiality. When finalized and adopted, UNCITRAL's expectation is that such model clauses and texts will enable parties to customize the process to their specific needs by incorporating model clauses into contracts or to seek guidance from the texts.

At the time this chapter is drafted, deliberations in WGII to carry out work on technology-related dispute resolution and adjudication have been held in October 2022, February and September 2023. After three working group sessions, WGII is headed towards developing four model clauses and two guidance texts. The four draft model clauses are the Model Clause on Highly Expedited Arbitration, the Model Clause on Adjudication, the Model Clause on Technical Advisors and the Model Clause on Confidentiality. The two guidance texts are the Guidance on Confidentiality and the Guidance on Evidence. The gist of the draft model clauses and guidance texts are discussed below. It is expected that the draft model clauses and guidance texts will be finalized by WGII at its session in February 2024 and adopted by the Commission at its session in June/July 2024.

## **2.1 Draft Model Clause on Highly Expedited Arbitration**

The draft Model Clause on Highly Expedited Arbitration provides an option to enable parties to have their disputes settled through proceed-

ings in which time frames are shortened and procedures are further simplified from those provided in the EARS. Notably, while the specific time frame has yet to be decided by WGII, the model clause will provide for a shortened time frame for making the award from the six-month provided in article 16 of the EARS.

## **2.2 Draft Model Clause on Adjudication**

Recognizing that, aside from arbitration and mediation, there are certain mechanisms that are designed to settle differences that arise over the course of long-term contracts, the draft Model Clause on Adjudication enables parties willing to enter into such contracts to incorporate a dispute resolution process that ensures prompt decisions to prevent projects from stalling. While the mechanism derives from adjudication used commonly in construction cases, the aim of the draft model clause is to provide for a mechanism not only suitable for construction contracts but all types of long-term and complex contracts such as software development contracts. The clause foresees arbitral proceedings limited in their jurisdiction to make enforceable the decision by the adjudicator through a procedure identical to that of the draft Model Clause on Highly Expedited Arbitration.

## **2.3 Draft Model Clause on Technical Advisors**

The draft Model Clause on Technical Advisors provides for the appointment of independent technical advisors accompanying arbitral tribunals in disputes involving complex technical matters such as those on software programming. Whereas tribunal appointed experts, appointed pursuant to article 29 of the UARS, report on specific issues in writing, the model clause enables the arbitral tribunal to appoint technical advisors to accompany it and provide explanations orally or in writing on technical matters as the need arises. This is aimed at assisting the arbitral tribunal to comprehend the technical issues at stake and, thereby, make more informed decisions. The draft model clause also provides safeguards to maintain the principles of transparency, impartiality, fairness and due process.

## **2.4 Draft Model Clause and Guidance Text on Confidentiality**

Neither the MAL nor the UARS provide for the confidentiality of the proceedings. The possibility of the parties agreeing to maintain the confidentiality of the proceedings may nonetheless be an important feature factored into when parties opt for arbitration as the method of dispute resolution. The draft Model Clause on Confidentiality is intended to provide, in principle, that information in the proceedings should be kept confidential but also to clearly set forth the exceptional circumstances in which disclosure may be justified. The draft Guidance Text on Confidentiality is intended to provide useful guidance to the parties and the arbitral tribunal in situations where disclosure of confidential information of intrinsic value is necessary for a party to present its case but the risk of the value of the information being undermined by disclosure to the other party needs to be minimized.

## **2.5 Draft Guidance Text on Evidence**

The Guidance Text on Evidence is intended to provide guidance to the parties and the arbitral tribunal in the handling of electronic evidence. It provides a basic acknowledgement that the references to evidence in the provisions of the UARS does not preclude electronic versions of evidence as they are in medium-neutral terms and that an electronic communication or data message can serve an equivalent function to a paper-based equivalent. Additionally, it refers to the need for the arbitral tribunal to prescribe the form in which electronic evidence should be submitted but also cautions that migrating the data format may risk undermining the evidential weight of the information. Reference is also made to various digital technologies and technology-enabled services, including artificial intelligence and distributed ledger technology systems, that may be deployed to process electronic evidence but alongside their associated risks.

# **3 Stocktaking of Developments in Dispute Resolution in the Digital Economy<sup>9</sup>**

The project on the stocktaking of developments of dispute resolution in the digital economy, known as the DRDE project, was launched in December 2021. It mandated the UNCITRAL Secretariat to explore the impact of

digital technologies and technology-enabled services on dispute resolution by compiling, analyzing and sharing relevant information. Such activities are carried out with a view to identifying normative gaps and updating existing UNCITRAL instruments or developing new ones, if necessary.

As it is work carried out by a UN body, ensuring comprehensiveness in terms of reflecting views and interests of various geographical regions in the project's implementation is essential. To this end, the UNCITRAL Secretariat embarked on an initiative called the "World Tour" in December 2022, in which it holds discussions in different parts of the world to seek inputs from experts on the ground and ensuring that perspectives of different regions are properly reflected. At the time this chapter is drafted, discussions have been held in Tokyo, New York, Guatemala City, Paris, Vienna, Abidjan, Singapore and Hong Kong.

Meanwhile, the UNCITRAL Secretariat issued two documents on the preliminary findings of the DRDE project for the Commission's consideration at its session in July 2023.<sup>10</sup> Having considered those findings, the Commission expressed its appreciation to the work carried out and requested the Secretariat to continue to implement the project to put forward proposals for possible legislative work with a focus on the topics on the recognition and enforcement of electronic arbitral awards and electronic notices of arbitration and their delivery for consideration at its session in 2024.<sup>11</sup> Diverging views were expressed as to the need for further work on legal issues concerning more advanced technologies such as artificial intelligence and distributed ledger technology systems. Nevertheless, there was support expressed for further exploratory work on dispute resolution on online platforms and distributed ledger technology systems (DLT), including blockchain systems, to be carried out. There was also acknowledgement that services enabled by artificial intelligence were rapidly evolving and reference was made to the need for further monitoring and development.

### 3.1 Electronic Arbitral Awards<sup>12</sup>

In the two documents mentioned above, the UNCITRAL Secretariat suggested that work on the topic of recognition and enforcement of electronic arbitral awards could take the form of an additional recommendation on or an international instrument supplementing the New York Convention



and amendments to the MAL. In response, the Commission, at the same session, requested that the Secretariat present legislative options in putting forward that topic as future work at the next Commission session in 2024. The UNCITRAL Secretariat will be presenting legislative options as requested based on its concluding findings through the implementation of the DRDE project, and the Commission is expected to decide whether to mandate one of its Working Groups to take on the work proposal.

During normal times, the process of making and delivering a paper-based award by an arbitral tribunal will likely not take more than a month. As such, one might consider that the time and cost saved by digitizing arbitral awards may not be very significant. However, the impact of digitizing arbitral awards should not be underestimated. The topic comes at a time when work is underway in response to calls for a further shortened time frame for making the award from the six months provided in the EARS, as discussed above, and when unnecessary delays are becoming increasingly intolerable. Digitizing the phase of making, delivering and enforcing arbitral awards may also contribute to enabling uninterrupted administration of dispute resolution in the event of a future crisis in which physical mail services may be disrupted, as experienced during the recent pandemic.<sup>13</sup>

The acknowledgement that there are advantages in digitizing arbitral awards seems to be shared. At the same time, it is also felt that those advantages can only be fully taken, if the obstacles, i.e., the legal uncertainties on the enforceability of such awards, were removed. As a rules-making body, UNCITRAL may play a role in removing those obstacles and the Commission's decision in this regard awaits to be seen.

### 3.2 Use of Artificial Intelligence<sup>14</sup>

Discussions on the use of artificial intelligence (AI) in dispute resolution have been met with a mix of enthusiasm on the significant benefits that the use of AI may potentially bring to dispute resolution on the one hand but also doubts and caution regarding the use of AI in dispute resolution on the other. One point regarding AI that is not called into question is that the technology is rapidly evolving. In the not-so-distant past, while AI was finding its way into dispute resolution as a useful tool in extracting information or making outcome predictions, one of the weaknesses of AI was

considered to be its inability to provide reasons.<sup>15</sup> However, as generative AI appeared on stage, such a weakness seems to have been overcome to a considerable degree. Issues on the use of AI in dispute resolution appear to have since converged on the question as to how to ensure human oversight. For example, a U.S. district court judge is reported to have incorporated a section titled “Mandatory Certification Regarding Generative Artificial Intelligence” into his judge-specific requirements. This additional requirement mandated all attorneys appearing before the court to submit a certificate affirming either: (1) no portion of any filing will be drafted by generative artificial intelligence; or (2) that any language drafted by generative artificial intelligence will be checked for accuracy by a human being.<sup>16</sup> The rationale of this requirement was highlighted to be the susceptibility of these platforms to hallucinations or tendency to “make stuff up” as well as the challenge of reliability and potential bias when relying on generative AI. While this requirement intended to address the concerns when generative AI was used by legal counsels, the need to ensure that generative AI is not used, or human oversight is properly exercised if used, will likely be more pressing in the context of decisions-makers, as judgements and arbitral awards, unlike written submissions, are not subject to review by other players involved in proceedings.<sup>17</sup> Human oversight is, of course, not the only remaining issue with respect to the use of AI in dispute resolution. The possible imbalance of resources between the parties on reflection that equality being a component of due process as well as confidentiality and data security concerns are also issues that cannot be overlooked. All together, these issues suggest that the use of AI in dispute resolution is an area that needs to be closely monitored.

### 3.3 Blockchain and Dispute Resolution<sup>18</sup>

DLT 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.

The use of blockchain systems has brought new issues into the realm of dispute resolution, especially when disputes arise from permissionless and public systems. On permissionless and public blockchain systems, as a result of users maintaining anonymity or pseudonymity, specialized mechanisms to settle disputes have emerged and the outcomes of such mechanisms are automatically materialized within the systems.

In conventional dispute resolution, identifying the parties to the dispute and the claim is considered fundamental. However, on permissionless and public blockchain systems, users maintain pseudonymity rendering disputes arising from transactions on such blockchain systems unsuitable for resolution through conventional dispute resolution such as arbitration. Presumably, it is for this reason that the specialized mechanisms for dispute resolution have emerged, as discussed in other chapters of this book.<sup>19</sup>

Disputes arising from transactions on permissionless and public blockchain systems may be high value. In addition, 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 may have on the parties, it is evident that 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.<sup>20</sup>

To ensure that dispute resolution through emerging mechanisms is legitimate, it thus seems that the basic parameters of dispute resolution may need to be identified with a view to measuring such mechanisms against those parameters.

## 4 Conclusions

For dispute resolution, the use of digital technologies and technology-enabled services is acknowledged to be a double-edged sword.<sup>21</sup> Despite this common acknowledgement, some mention that the drawbacks of using technologies in dispute resolution are often overblown, whereas others

point out that there is good reason to take a measured approach in embracing digital technologies as they may risk undermining the principles of due process and fairness, the very principles on which dispute resolution is based. In this context, UNCITRAL is expected to play an essential role in evaluating which of the traditional norms are unnecessary obstacles and which are necessary safeguards and, furthermore, in harmoniously removing unnecessary obstacles and developing safeguards to address new challenges. This, in turn, will contribute to establishing an enabling environment to take full advantage of technological advancement.

### **Addendum on further progress made as of October 2024**

The fifty-seventh session of the Commission was held from 24 June 2024 to 12 July 2024. On 1 July 2024, the Commission considered the two projects in the area of dispute resolution discussed above – the work carried out by WGII on technology-related dispute resolution and adjudication, and the exploratory work carried out through the DRDE project – to mark the completion of a legislative project and the commencement of a new one.

Regarding the legislative work on technology-related dispute resolution and adjudication, based on the work carried out by WGII up to its session held during 12-16 February 2024,<sup>22</sup> the Commission adopted a set of four model clauses entitled the “UNCITRAL Model Clauses on Specialized Express Dispute Resolution (SPEDR)”, comprising the Model Clause on Highly Expedited Arbitration; the Model Clause on Adjudication; the Model Clause on Technical Advisors; and the Model Clause on Confidentiality. Acknowledging the need for and usefulness of providing guidance to promote their best possible use, the Commission also approved in substance the explanatory notes, which would accompany the Model Clauses, to provide a detailed description on the objectives of the specific Model Clause as well as their associated risks, if any, and alternative approaches, where applicable, and tasked WGII to finalize the explanatory notes at its upcoming session. Considering that its description was too generic to provide effective guidance, the Commission concluded that the guidance text on evidence should not be included in the explanatory notes.<sup>23</sup> At its eightieth session held from 30 September 2024 to 4 October 2024, dedicating the first day of that session, WGII finalized the explanatory notes.<sup>24</sup>

As for the DRDE project, considering the notes prepared by the Secretariat on progress report and future work proposals,<sup>25</sup> the Commission mandated WGII to work on the recognition and enforcement of electronic arbitral awards and, subsequently, on electronic notices. The Commission provided WGII with a broad mandate to identify the issues and explore appropriate solutions to those issues without prejudice to the final form of the outcome, and requested the Secretariat to organize a two-day colloquium during the eightieth session of WGII with the aim of obtaining perspectives in order to further assess the issues with respect to electronic awards and further contemplate possible solutions for electronic notices of arbitration.<sup>26</sup> The Commission also requested the Secretariat to continue to implement the DRDE project to further monitor and explore relevant topics such as those on artificial intelligence and platform-based dispute resolution.<sup>27</sup>

Following the decision by the Commission to entrust WGII with a new mandate, a colloquium entitled “UNCITRAL Colloquium on the Recognition and Enforcement of Electronic Arbitral Awards”, to which 20 experts from different regions were invited to contribute, was held on 1-2 October 2024 as part of the abovementioned WGII session. Considering the note on future work proposals prepared by the Secretariat, in which the possible forms of the legislative work identified were: (i) an international instrument such as a protocol to the New York Convention; (ii) amendment to the MAL; and (iii) a recommendation on the interpretation of the New York Convention,<sup>28</sup> as well as the inputs received at the colloquium, WGII heard diverging views on the approach to be taken in contemplating the form of the work. One view cautioned that any exercise to amend or supplement the New York Convention would send a negative signal that the Convention did not accommodate a liberal interpretation enabling the enforcement of electronic awards and risked undermining the role it played in international arbitration. Another view was that, as the form would be guided by the issues identified and the solutions to be provided, none of the legislative options under consideration, including the preparation of a protocol to the New York Convention, should be ruled out without considering the specifics.<sup>29</sup> Notwithstanding the difference of views, it is expected that WGII will make progress towards the common goal of providing certainty for and enhancing reliance on the recognition and enforcement of electronic arbitral awards.

## Notes

- 1 The views expressed in this article are those of the author and do not reflect the official opinion of the United Nations.
- 2 See United Nations General Assembly resolution 2205 (XXI), [https://uncitral.un.org/en/about/faq/mandate\\_composition](https://uncitral.un.org/en/about/faq/mandate_composition).
- 3 This chapter was drafted in December 2023 and does not reflect the developments thereafter. Relevant updates on UNCITRAL's work up to October 2024 are briefly discussed in the addendum at the end of this chapter.
- 4 Knieper, Judith & Ngai, Wing Nga (Karen). "Introducing New Model Clauses for Specialized Express Dispute Resolution under the UNCITRAL Arbitration Framework" *Austrian Yearbook on International Arbitration* (2024).
- 5 See resolution 65/22 adopted by the General Assembly on 6 December 2010 on the adoption of the UNCITRAL Arbitration Rules as revised in 2010.
- 6 The Transparency Registry (<https://www.uncitral.org/transparency-registry/registry/index.aspx>) is kept by the UNCITRAL Secretariat and operates thanks to donor funding from the European Union and the German Federal Ministry for Economic Cooperation and Development (BMZ).
- 7 See A/CN.9/959, Proposal by the Governments of Italy, Norway and Spain: future work for Working Group II, in particular paras. 27-28.
- 8 Official Records of the General Assembly, Seventy-seventh Session, Supplement No. 17 (A/77/17), para. 225.
- 9 Takashima, Takashi & Pollero, Marianela Bruno. "UNCITRAL's Dispute Resolution in the Digital Economy Project" *Austrian Yearbook on International Arbitration* (2024).
- 10 See documents A/CN.9/1154 and A/CN.9/1155, Notes by the Secretariat on taxonomy and preliminary findings of the stocktaking of developments in dispute resolution in the digital economy. These documents are available at <https://uncitral.un.org/en/commission>.
- 11 See Official Records of the United Nations General Assembly, Seventy-Eight Session, Supplement No.17 (A/78/17), para. 215.
- 12 The author wishes to thank Professor Pietro Ortolani of Radboud University for his valuable contributions to the DRDE project on this topic.
- 13 At its fifty-sixth session, the Commission authorized the Secretariat to finalize and publish the document entitled "COVID-19 and international trade law instruments: a legal toolkit by the UNCITRAL Secretariat", which analyzed how UNCITRAL instruments can be used to minimize or prevent the impact of the consequences of future global crises.
- 14 The author wishes to thank Professor Maud Piers of Ghent University for her valuable contributions to the DRDE project on this topic.
- 15 Scherer, Maxi. "International Arbitration 3.0 – How Artificial Intelligence Will Change Dispute Resolution" *Austrian Yearbook on International Arbitration* (2019) p. 503.
- 16 See <https://www.mcguirewoods.com/client-resources/alerts/2023/6/texas-judges-mandate-generative-artificial-intelligence-provides-lawyers-job-security-for-now/>.

- 17 Strong, S.I. “Rage against the machine: Who is responsible for regulating generative artificial intelligence in domestic and cross-border litigation?” *University of Illinois Law Review* (2023) p. 165.
- 18 See document A/CN.9/1155 paras. 22-43.
- 19 See Chapters 1 & 2 of this book, amongst others, for further examples. This has also been discussed extensively by Working Group II. See e.g. 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. <https://uncitral.un.org/en/disputesettlementcolloquium2022>.
- 20 See Professor Matthias Lehmann’s discussion of this subject in Chapter 3 of this book.
- 21 *supra* at 8.
- 22 A/CN.9/1181.
- 23 Official Records of the United Nations General Assembly, Seventy-ninth Session, Supplement No.17 (A/79/17), paras. 90-92.
- 24 A/CN.9/1193, paras. 13-42.
- 25 A/CN.9/1189 and A/CN.9/1190.
- 26 Official Records of the United Nations General Assembly, Seventy-ninth Session, Supplement No.17 (A/79/17), para. 285.
- 27 *Ibid.* para. 284.
- 28 A/CN.9/1190, paras. 15-62.
- 29 A/CN.9/1193, paras. 68 and 72.

**CHAPTER 9****The Lawyer's Profession in a Digital World****DIRK VAN GERVEN****1 Introduction**

The law profession is a people's business. It is about assisting people in solving their legal issues, advising on contracts they enter into and settling disputes they are involved in. Even if a lot of clients are legal entities, their representatives are human beings who interact on behalf of the legal entity. Today, lawyers assist human beings regardless of whether the client is a legal entity. It is possible, but not really happening, that a lawyer is being consulted by a software program asking legal questions. It may be the case soon, when software programs, such as a virtual singer or a virtual accountant, can take decisions, manage their own bank accounts and are, by law, recognized as legal entities.

Today the feeling among most of the lawyers is that the digital world, with robots and software programs, is not really part of the legal world or at least not important to the law profession.

This may change soon. Larger law firms already invest in digital tools to assist them in their work, including ChatGPT. But also in that case, the question is to what extent can legal advice or a contract rely on software programming? In both cases, automatically generated advice or contracts must be verified by humans.

**2 Software as a Legal Tool**

Today firms use software programs to automate some of their work. For example: contracts can be generated digitally, by inserting information in the program relating to the parties and to what is agreed, and, as a result, a standard contract that is ready to be signed. Of course, from the moment special arrangements have to be reflected in the contract, human lawyers will start drafting these provisions after having consulted their client or after long negotiations to understand what is intended and agreed. The



same is true for the automated process of drafting legal briefs: standardized language pertaining to specific legal arguments or personal information about the involved parties can be incorporated into briefs through automatization. For more complicated matters that require a specifically adapted argumentation taking into account all the circumstances of the matter, human lawyers will initiate and manage the drafting process.

Lawyers could be tempted to rely on more sophisticated programs, such as ChatGPT, and ask the model to write an advice, a contract or a brief. However, the first experiences are not satisfying. Indeed, lawyers who have relied on the program to write a brief found out that ChatGPT would invent case law to justify its reasoning<sup>1</sup>. This means that any lawyer using ChatGPT has to verify the result and should not rely on what is produced without verification. Furthermore, it already has happened that ChatGPT ignores case law which does not help its reasoning<sup>2</sup>. The result is therefore a highly flawed advice or brief.

Lawyers have been sanctioned for producing briefs which are composed by ChatGPT with case law that does not exist.<sup>3</sup> In general, lawyers and law firms rendering advice or filing briefs which contain faulty reasoning by ChatGPT will be held liable for not verifying the work produced by the AI program. Some US courts have issued standing orders following the misuse of ChatGPT and require lawyers to file a certificate attesting that either they would not use generative AI to draft any portion of any filing, or that language drafted using generative AI would be checked for accuracy by a human being using print reporters and traditional legal databases.<sup>4</sup> Some courts have prohibited the use of generative AI outside search engines. Also, bar associations are stepping in or will step in to at least ensure that lawyers are aware of the risks of using artificial intelligence.<sup>5</sup>

From a professional liability point of view, the use of software remains within the liability of the lawyer, who will be accountable for the answer produced by the applied software. The software is purchased by the law firm and used by it in its work. Mistakes because of such software will be on the account of the lawyer (and law firm). Aija Lejniece, in the proceeding chapter, explores this further through the lens of good governance principles to be introduced within law firms.<sup>6</sup> Of course, the lawyer could turn against the software manufacturer if the mistake is embedded in the soft-

ware. But generally, that will not be the case. The software manufacturer is not liable for the use of the software program to produce an advice or other legal document, specifically in the case of general Large Language Models like ChatGPT, whose use is not designed for legal professionals. Furthermore, the software manufacturer will exclude its liability for the use of the software as a source of factual accuracy. In this respect it is important to carefully read the liability limitation clauses which are included in the contract with the software company. In addition, law firms should verify their professional liability insurance policy to ensure that it covers wrongful legal advice generated (partly) by the software programs they use.

Most probably it is in litigation that artificial intelligence will first change fundamentally the lawyers' practice with the use of tools to analyze case law which is available on digital databases, in order to predict the outcome of a specific court case.<sup>7</sup> The decisions of several courts, such as the European Court of Justice (ECJ) and the European Court of Human Rights (ECtHR) are digitally available. As soon as all case law is digitally available and accessible to the public, lawyers will use artificial intelligence to predict the outcome of a specific matter. The lawyer is the first judge, i.e., s/he is ethically bound to assess in an objective manner the possible chances of success of his or her client's claim, advise the client accordingly and dissuade the client from starting a court proceeding if the possible outcome is not in the client's favor. If technological tools are available to make a more informed assessment, a lawyer should use such tools. Lawyers who fail to make such assessments and acquire the software programs to conduct such analysis may in the future be held liable for professional misconduct.

### 3 Professional Code of Conduct

The law profession is a regulated profession. The running of a law practice must comply with the professional rules laid down in the ethical code approved by the local bar. These codes generally include rules on how to interact with other lawyers and with clients. Few codes deal with digital communication. In general, bar associations consider that the rules on written communication apply to any form of digital communication. This is, for example, important in relation to the confidentiality of the communication between lawyers themselves.

In certain countries, such as Belgium,<sup>8</sup> the communication between lawyers is, with a few exceptions, confidential. This is intended to facilitate a mediated solution to conflicts. Lawyers can speak freely between themselves and test several solutions which may be acceptable to their respective clients. Any exchange in this respect cannot be used in court. If a party would do so, the bar leader can prohibit the counsel to go ahead with the case. Of course, the obligation to keep the exchange between lawyers confidential does not apply to clients, who could themselves use the exchange in court, but no lawyer will be able to represent such party. It is for these reasons important to explain to clients that the information which is exchanged between lawyers is confidential, and to have the client agree to such confidentiality or take other precautions to ensure confidential use. It is furthermore important in order to maintain this confidentiality that no third parties are involved. If the communication would also be addressed by a lawyer to the opposing lawyer's client, it would by definition be non-confidential.

With the new means of communication by text (sms), WhatsApp or email, the lines of communication between lawyers and clients became blurred. Typically, in negotiations, emails are sent to the lawyer and the client for efficiency purposes. In such cases, the communication is not confidential, unless parties agreed expressly to keep the exchange confidential. The agreement creates a contractual obligation on the parties to treat the information as confidential.

With respect to communication between lawyers from different EU and EEA Member States, the confidentiality will depend on the rules applicable to the lawyers involved. The CCBE<sup>9</sup> Charter of Core Principles of the European Legal Profession and Code of Conduct for European Lawyers (Clause 5.3) provide in this respect that *“if a lawyer intends to send communications to a lawyer in another Member State, which the sender wishes to remain confidential or without prejudice he or she should clearly express this intention prior to communicating the first of the documents”* and that *“if the prospective recipient of the communications is unable to ensure their status as confidential or without prejudice he or she should inform the sender accordingly without delay”*. These rules also apply to digital communications.

As Aija Lejniece mentions in her chapter, numerous professional codes of conduct in jurisdictions around the world require human oversight and approval mechanisms to be implemented where AI-generated legal work product is involved, and one would expect these principles to be respected in the same way when it comes to the decision-making authority of arbitrators absent fundamental shifts in international practice.<sup>10</sup>

## 4 Attorney-Client Privilege

The attorney-client privilege is essential to the law profession. It makes sure that the client can tell his/her entire story without risk that parts leak out and are used against him or her. The lawyer has a duty to safeguard any privileged information. This implies that a law firm organizes its files in such manner that unauthorized people have no access. Most information today is exchanged between client and lawyer through emails or documents attached thereto. A law firm must ensure that it has the necessary security protocols in place and acquires software which is sufficiently protected against hackers.

Attorney-client privilege is attached to the information, which entails that when the information is stolen through hacking or otherwise against the will of the lawyer and made public, it continues to enjoy the protection offered by the law. This means that it is inadmissible in court, and a judge should refuse to look at the information or to take it into account. Of course, it is difficult to keep information secret when it is in the hands of third parties. Hence, it is the obligation of any law firm to take the necessary precautions to keep secret information gathered in handling matters and received from the client. This is an issue for smaller law firms who do not have the financial means to acquire the required software to keep their information sufficiently secure. Bar associations and other professional associations could step in and acquire software and make it available to their members.

Protection against hackers is not only important for ensuring that all information in the law firm is protected but also to make sure that the software programs continue to function properly. Today, law firms rely heavily on software programs for all of their work, including producing

and storing legal documents, sending emails and recording billable hours and invoicing. Any interruption of its software program could result in the law firm not being able to comply with legal and other deadlines. Internal security protocols will require shutting down the entire system if there is a hack, to avoid the entire system being compromised. Before starting up the system again each part of it will have to be verified, which will take time.

The requirement to ensure that the attorney-client privilege is secured also means that lawyers should restrain from giving legal advice through social media, such as Facebook, or discuss matters on social media which are easily accessible by third parties. If the lawyer or his/her client chooses to exchange confidential information through a public platform, they will not be able to rely on attorney-client privilege when this information is made public. They indeed choose willingly to make the information available to third parties.

Even if the information obtained by a public prosecutor's office or a court is protected by attorney-client privilege and must not be used in court, it will be difficult for the public prosecutor or the court to ignore the information when it can be used against the client. As explained, law firms should take all measures required to prevent information from being made public. In this respect, the first obligation is to always choose a secure communication tool to exchange information. This applies not only to emails with software which protects them against hacking, but also to verbal communication. Since the COVID-19 pandemic, most meetings between lawyers and their clients are conducted digitally, by using modern conferencing tools, such as Microsoft Teams, Zoom, Webex and the like. It is important to make sure that the tools used are sufficiently protected and when starting a meeting to have verified who is in the meeting, so that all persons participating are known and invited to it.

In the following chapter, Aija Lejniece writes further about client confidentiality, this time in the context of communications or other client information that may be fed into AI programs, and how critical it is to have transparent and robust internal policies in place to ensure that confidentiality at all times.<sup>11</sup>

## 5 Digital Legal Entities

To act in law, i.e., to acquire rights, enter into contracts, own property, buy goods, etc., one has to be recognized by the law as having legal personality. Legal personality involves the capacity to acquire rights that can be enforced in the entity's name. Conversely, obligations assumed by the entity are subject to enforcement against it. Legal capacity is only granted automatically to human beings by birth, at least in countries based on the rule of law. Other beings, whether in the physical world or in the digital world do not benefit from legal personality unless they choose a (legal) form which is recognized by law as a legal person. In other words, it will only acquire legal personality if the entity is set up or incorporated in the framework of a law granting legal personality or receives legal personality by a specific law. In this respect, legal provisions can vary from one country to another, and a legal entity recognized in one jurisdiction may not enjoy the same status in another. In general, countries recognize legal entities established within their own borders.

Only legal entities recognized by law benefit from this legal capacity.

In general, granting legal personality is justified (1) if the qualifying entity has an interest distinguished from the interest of other legal persons and consequently should be able to acquire assets, rights, liabilities and obligations to secure this interest, and (2) when this interest has a permanent nature, i.e., it justifies a permanent organization to manage this interest and the acquired assets.<sup>12</sup> Legal personality entitles the legal person to act in court and appoint a lawyer to represent its interests in court.

In the future, software programs which are able to acquire assets and take decisions independently from human beings could be recognized as legal persons. In general, it will be required that they can acquire assets and undertake obligations. The test will be whether they independently can take decisions to defend their interests and their assets.

For a legal person to act in the current physical world, it requires the intervention of human beings which represent the legal person and acts on its behalf. In the digital realm, that may no longer always be necessary. A software program could, in the future, have an algorithm which permits it to

take decisions and dispose of a bank account which is being accessed digitally. This is already technically possible today through smart contracts.

But in the future, software programs could act in the physical world through robots which they instruct to act on their behalf. These software programs would, as legal persons, own the robot and other assets both in the physical and digital world. From the moment that these software programs can take decisions and own assets without intervention of human beings being required, the law will have to consider recognizing them. The alternative is to require that the founder or the beneficiary of the software program remains liable. But this will not be possible if the program cannot be traced back to a specific human being who should be considered responsible for, or benefit from, the decisions of the software program.

At that time, law firms will be consulted by digital clients and may have to consider whether they are best represented in relation with such digital clients by digital lawyers, acting as part of the firm. The AI possibilities will likely have evolved considerably and software programs will give lawyers the opportunity to prepare legal documents by largely relying on these programs.

## **6 Artificial Intelligence as a Tool of Justice**

Artificial intelligence to facilitate or even replace human judges is being tried in several countries.

In China, certain criminal matters are initiated by software that supports the role of public prosecutor using an algorithm to analyze case files and recommend charges.<sup>13</sup> This country has also initiated smart courts, which utilize digital court hearings and technological applications to assist in resolving commercial and civil disputes.<sup>14</sup>

This is only the beginning and we may expect two trends. First, judges will be assisted by artificial intelligence which will analyze facts and case law to propose solutions for the disputes the courts are handling. Second, dispute resolution, especially small matters, may be decided by digital state courts. Basically, an algorithm, which, on the basis of facts fed to it, comes

to a decision. In most countries this will require a modification of the judicial code.

However, it is already possible to automate pre-court decisions, subject to appeal to a state court with human judges. Examples are the automation of traffic fines, generated and sent by software programs to the traffic offenders, and the automatic calculation of taxes on basis of information which is digitally available in the different programs accessible by the tax administration, and the sending of the tax claims to the taxpayers.

Court systems around the world are slowly integrating these new legal tools. The COVID-19 pandemic has accelerated the use of digital communication. In numerous countries, hearings can be held virtually. This is, by the way, also common practice in arbitration and especially international arbitration.

Soon, it will also be generally accepted that briefs and other documents are solely filed electronically. This would allow for a court system equipped with software for analyzing the submitted briefs and supporting documents before human judges review them. The new digital tools will also accelerate the court decision-making process. If software were able, on the basis of specific questions for the judges, to give a first response, which the judges must verify and/or confirm on basis of the facts of the case, court decisions will require less time. In not so complicated matters, the judge could come to a decision at the end of the hearing or soon thereafter.

## 7 Arbitration

Arbitrators are subject to the secrecy of deliberation.<sup>15</sup> They cannot share with third parties the content of their discussions with the other arbitrators or the tribunal's secretary.

It is, however, generally admitted that an arbitrator relies on an associate within his or her firm to perform research on specific legal topics that are required to come to a decision. However, in such a case it is required that the arbitrator reads the facts and the legal argumentation and comes to his or her own conclusions, without relying on the reasoning or conclu-



sions of an associate. The associate who assists him or her will be bound by the same secrecy obligation as the arbitrators.

The parties are entitled to a hearing before the arbitrator and to consideration of all of their factual and legal arguments; both, in writing and orally. The right to a fair trial implies the right to a fair hearing, and the right to defend oneself in person or through legal assistance (Art. 6 European Convention on Human Rights). This means that the party may expect that the arbitrators listen to all the presented arguments to take them into account in their decision.

Parties can freely renounce dispute resolution by a state court and choose for arbitration. Furthermore, when choosing for arbitration, parties can waive certain conditions of a fair trial guaranteed by the European Convention of Human Rights provided that the waiver is freely given, valid, unequivocal and the arbitration proceeding is conducted with the minimal guarantees for a fair trial, taking into consideration its importance, which includes among others, the fact that each party can present its factual and legal arguments to the tribunal, and the tribunal award is duly motivated.<sup>16</sup>

It cannot be avoided that arbitrators will in the future use artificial intelligence to analyze documents presented to them by the parties and to find and analyze case law. Using software tools to find and analyze case law and other legal sources more efficiently is not really different from researching the law by consulting legal scholars. Artificial intelligence will permit arbitrators to find case law faster. Similarly, the use of artificial intelligence to process the facts more efficiently if limited to the facts presented by the parties and apply legal rules to these facts is not an issue, provided that this work is reviewed by the arbitrator. When, however, artificial intelligence is used to come to a decision without review by the arbitrator, the award is rendered without the arbitrator being able to assess the factual and legal arguments and thus is in violation of the right to a fair trial and due process.

Parties could however validly waive their right to a human arbitrator and agree with a decision rendered by an AI arbitrator, provided that the latter has the capacities to listen and process the factual and legal arguments of the parties, analyze the law and render an award which is duly motivated.

## 8 Conclusion

It is impossible to predict the (near) future and especially how artificial intelligence will affect the lawyers' profession and legal system. However, two things are clear compared with the last 50 years. The changes will be fundamental, and the development of artificial intelligence will accelerate exponentially. Law firms which do not foresee this evolution by following up and readying themselves to adapt and provide for sufficient financing to acquire the new tools, will very quickly be outpaced by the legal market. In this respect, lawyers should not forget that other players will look at invading the legal market and offer similar services as audit firms did in the past with respect to (international) tax law, due diligence, and labor law.

The modernization of the court system is an obligation of the state towards its citizens. It guarantees the right to a fair trial embedded in the European Convention on Human Rights. The new tools will make work for the courts much easier provided that the state is willing to invest the required funds in new software tools and the digitalization of court proceedings.

In the end, lawyers, whether they are working in law firms, as in-house counsel or in the court system, will all be required to become digitally literate. It is in the first place up to the universities to educate the law students in the use of digital tools. Continued education offered by bar associations and other institutions will ensure that lawyers be informed about the newest tools and how to use them throughout their career. It may soon become an ethical duty. It is recommended to read on as the following chapter clearly illustrates the myriad ethical and good governance considerations when it comes to the impending wave of AI tools that will be deployed by lawyers in their everyday work.

## Notes

- 1 See Weiser, B. “Here’s what happens when your lawyer uses ChatGPT” *The New York Times* (27 May 2023).
- 2 *Ibid.*
- 3 *Ibid.*
- 4 Justia “Generative AI Rules for Lawyers” (December 2023); Borella, M. “Judges Issue Standing Orders Regarding the Use of Artificial Intelligence” *JDSUPRA* August 2023.
- 5 E.g. the CCBE (Council of Bars and Law Societies of Europe) Guide on the Use of Artificial Intelligence-based Tools by Lawyers and Law Firms in the EU; the Generative AI Practical Guidance of the State Bar of California. <https://www.calbar.ca.gov/Portals/o/documents/ethics/Generative-AI-Practical-Guidance.pdf>; the Guidelines for the Use of Generative Artificial Intelligence in the Practice of Law of the Law Society of Saskatchewan. <https://www.lawsociety.sk.ca/wp-content/uploads/Law-Society-of-Saskatchewan-Generative-Artificial-Intelligence-Guidelines.pdf>.
- 6 See Chapter 10.
- 7 Heffernan, B. “Predictive data analysis for litigation” *Lawvu* <https://inview.lawvu.com/blog/predictive-data-analysis-for-litigation>; Law Crossing “Harnessing the Power of Predictive Analytics in Legal Decision Making” <https://www.lawcrossing.com/article/900054549/Harnessing-the-Power-of-Predictive-Analytics-in-Legal-Decision-Making>.
- 8 Art. 113 of the Codex Deontologie voor Advocaten; Art. 6.1 of the Code de déontologie de l’avocat.
- 9 The Conseils des barreaux européens/Council of Bars and Law Societies of Europe.
- 10 See Chapter 10, p. 189.
- 11 See Chapter 10, p. 184.
- 12 Michoud, L. *La théorie de la personnalité morale et son application en droit français*, Paris, LGDI, 1906, I, 113; Van Gerven, W. *Algemeen deel*, Antwerp, SWU, 1969, nr. 94.
- 13 Zhabina, A. “How China’s AI is automating the legal system” *DW* (20 January 2023).
- 14 Zou, C. “Achievements and Prospects of Artificial Intelligence Judicature in China” *Chinese Studies*, Vol. 11, (November 2022) 197; Vasdani, T. “Robot justice: China’s use of Internet courts” *The Lawyer’s Daily*, LexisNexis; Papagiannneas, S. & Junius, N. “Fairness and justice through automation in China’s smart courts” *Computer Law & Security Review*, 2023/51, 1.
- 15 Keutgen, G. & Dal, G.A. *L’arbitrage en droit belge et international*, Brussels, Bruylant, 2006, I, 226-227.
- 16 *Tabbane c. Switzerland* ECtHR (1 March 2016) nr. 41069/12.

## CHAPTER 10

# Good Governance Principles for Law Firms Using Artificial Intelligence

AIJA LEJNIECE

## Introduction

Long before Artificial Intelligence (AI) became ubiquitous in our daily lives, people were both transfixed by and wary of it. A Greek myth tells the story of Talos, a giant bronze automaton created by Hephaestus at the request of Zeus to protect Crete from invaders by circling the island's shores three times a day. Jewish folklore has the Golem, a creature formed of clay. While the Golem's purpose is to help humans, in many tales, the artificial creature veers off its pre-destined path and turns on its creator. Starting from the 1940s, robots and AI became a fixture in science fiction, depicted both as humanity's saviors and harbingers of its destruction.

In his 1942 collection of short stories, *I, Robot*, science fiction writer Isaac Asimov proposed the Three Laws of Robotics:

- The First Law: A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- The Second Law: A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
- The Third Law: A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.<sup>1</sup>

These laws were intended to ensure that AI is used for the benefit of humankind, preventing it from turning against its human creators and averting a tech-apocalypse.

While, nowadays, almost all of us use AI on a regular basis to some extent with no imminent dystopia in sight, AI wariness persists.<sup>2</sup> In March 2023, the Future of Life Institute published an open letter calling for a six-month moratorium on the development of the most advanced forms of AI.<sup>3</sup> Signatories included Elon Musk of Tesla and SpaceX, as well as Apple Computers co-founder Steve Wozniak. The open letter asked:<sup>4</sup>

*Should we let machines flood our information channels with propaganda and untruth? Should we automate away all the jobs, including the fulfilling ones? Should we develop nonhuman minds that might eventually outnumber, outsmart, obsolete and replace us? Should we risk loss of control of our civilization?*

According to the signatories, “[p]owerful AI systems should be developed only once we are confident that their effects will be positive and their risks will be manageable [and t]his confidence must be well justified and increase with the magnitude of a system’s potential effects.”<sup>5</sup> The letter further urged AI labs and independent experts to “jointly develop and implement a set of shared safety protocols for advanced AI design and development that are rigorously audited and overseen by independent outside experts.”<sup>6</sup>

Although a global AI regulatory or oversight body has yet to emerge, various jurisdictions, institutions and tech actors have proactively implemented self-regulation through the adoption of AI development and usage standards and guidelines.

The most prominent development in this regard has come from the European Union – after almost three years of extensive negotiations, the European Parliament adopted Regulation 1689 on harmonized rules on artificial intelligence (EU AI Act).<sup>7</sup> The EU AI Act adopts a risk-based approach to AI regulation, essentially creating four risk categories for AI systems: unacceptable risk (prohibited),<sup>8</sup> high risk (regulated),<sup>9</sup> limited risk (regulated *lite*),<sup>10</sup> and minimal risk (unregulated).<sup>11</sup> The EU AI Act applies to: (a) providers putting AI systems on to the EU market or putting AI systems into service in the EU, (b) deployers of AI systems located or established in the EU, (c) AI system providers and deployers established or located outside the EU, where the output of the AI system is to be used in the EU, (d) AI system importers and distributors, (e) product manufacturers who place on the market or put into service AI systems together with their product, (f) authorized representatives of non-EU AI system providers, and (g) affected persons that are located in the EU.<sup>12</sup> Breaches may result in fines of up to EUR 35 million or 7 % of annual worldwide turnover.<sup>13</sup>

On March 2024, the United Nations adopted Resolution A/78/L.49 on Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development, which aims to create a unified international approach to AI governance among UN Member States.<sup>14</sup> The OECD first published its Principles on Artificial Intelligence in 2019; an amendment followed in May 2024.<sup>15</sup> In September 2018, the State of California endorsed the 23 Asilomar AI Principles on the ethical development and use of AI.<sup>16</sup> Other notable private sector examples of AI principles and guidelines include the Google AI Principles<sup>17</sup> and the Microsoft Responsible AI Standard.<sup>18</sup>

The legal sector will not be exempt from adopting reasonable standards of practice with respect to AI. Law firms are increasingly utilizing AI in fulfilling their day-to-day tasks, including electronic discovery and predictive coding, litigation analysis and predictive analysis, contract management, due diligence reviews, “wrongdoing” detection, legal research, and deception detection.<sup>19</sup> Some service providers even offer full-blown AI-based legal assistants, such as Harvey, which has partnered with OpenAI “to build a custom-trained model for legal professionals,”<sup>20</sup> and Jus Mundi’s AI Assistant, which offers services such as case summaries, information retrieval, focused legal analysis, case application simulation and case precedent extraction.<sup>21</sup> Given its broad scope, the EU AI Act will impact law firms that use or develop AI both within and outside the EU if their activities affect the EU market or its citizens. Establishing effective frameworks for compliance and governance will be crucial to navigating this increasingly regulated sector successfully.

While it currently seems unlikely that the legal world is edging towards a technological dystopia or wide-spread breaches of applicable regulations, professional organizations are becoming conscious of the need to establish rules surrounding the use of AI in a legal context. In 2019, the American Bar Association adopted Resolution No. 112 urging courts and lawyers to address the emerging ethical and legal issues related to the use of AI in the practice of law.<sup>22</sup> In September 2024, the IBA’s Artificial Intelligence Working Group published a comprehensive multi-jurisdictional and organizational overview of the guidelines and regulations on the use of AI as a professional tool.<sup>23</sup> Other recent efforts include the England and Wales Bar Council’s guidance on the use of large language models (LLMs)

to barristers and chambers,<sup>24</sup> the UK Legal Services Board statutory guidance on the regulation of AI,<sup>25</sup> the California Bar Association's Guidelines for the use of Generative AI in the practice of law,<sup>26</sup> and the recently published Silicon Valley Arbitration & Mediation Center guidelines on the use of AI in arbitration.<sup>27</sup> In the evolving landscape of legal technology, the integration of AI into law firm operations introduces both unparalleled opportunities and significant ethical considerations. The intrinsic challenge is accommodating rapid technological advances within a relatively stagnant profession.

The discussion on how law firms should use AI has barely begun, and there is no industry-wide consensus on best practices. In this chapter, I propose nine good governance principles for the use of AI by law firms:

- 1 Legal & Ethics Standards: Law Firms Should Comply with Applicable Legal & Ethical Standards
- 2 Client Confidentiality & Privacy: Law Firms Should Ensure that AI is Used in Line with Client Confidentiality & Privacy Standards
- 3 Client Awareness & Consent: Law Firms Should Ensure Client Awareness of & Consent to the Use of AI in the Provision of Legal Services
- 4 Human Oversight & Approval: Law Firms Should Ensure Human Oversight & Approval Mechanisms for AI-Generated Work Product
- 5 Transparency & Explainability: Law Firms Should Ensure that the AI they Use is Transparent and its Generated Work Explainable
- 6 Ultimate Responsibility: Law Firms Bear Ultimate Responsibility for any AI-Generated Work Product
- 7 AI Training: Law Firms Should Provide Mandatory AI Training & Commit to Continuous Learning
- 8 Minimizing Bias and Maximizing Diversity: Law Firms Should Use AI in Accordance with the Principles of Non-Bias, Fairness & the Promotion of Diversity & Inclusivity
- 9 Managerial & Human Resources Decisions: Law Firms Should Use AI in Management and Human Resources Contexts in Good Faith

Several of these proposed principles are intimately intertwined and overlap in some respects. They are neither stringent nor exhaustive, but rather an overview of themes that should form the basis of the AI good governance discussion in law firms.

## **1 Legal & Ethics Standards: Law Firms Should Comply with Applicable Legal & Ethical Standards when Using AI**

Compliance with applicable laws and ethics standards is the backbone and the absolute minimum standard of any legal practice. If a law firm chooses to follow a ‘bare bones’ policy in its deployment of AI, the firm should ensure that its use of these technologies complies with any applicable legal and ethical standards governing the practice of law.

The legal standards that come into play when using AI in a law firm context can be divided into four broad categories: (1) laws governing the practice of law and unauthorized practice of law (UPL) regulations, (2) ethics rules and rules of professional conduct, (3) data protection laws, and (4) anti-discrimination and fairness laws.<sup>28</sup>

First and foremost, law firms should ensure that their use of AI does not amount to the unauthorized practice of law. This is a critical concern for firms since AI applications, ranging from document review to legal research and prediction of case outcomes, could potentially automate tasks traditionally performed by licensed legal professionals. Firms should carefully delineate the role of AI in supporting legal decision-making, ensuring that final judgments remain the purview of qualified human lawyers (*see* Principle 4 on human oversight and Principle 6 on ultimate responsibility). This involves setting clear guidelines on the limitations of the role of AI in the legal analysis, advice, and client representation, ensuring that AI tools are used to augment, not replace, the expertise of licensed attorneys.

Ethical standards also play a crucial role in this basic governance principle. This includes maintaining the integrity of the legal profession, upholding duties to clients, and avoiding conflicts of interest. Law firms should ensure that the use of AI aligns with the ethical obligations to act in the best interests of their clients, including maintaining confidentiality (*see* Principle 2 on confidentiality and privacy) and providing competent representation and informing clients about the extent to which AI tools are employed in handling their cases (*see* Principle 7 on AI training). Ethical considerations also extend to transparency about the use of AI in legal work (*see* Principle 3 on client awareness, and Principle 5 on transparency



and explainability), and may likewise play a role in how law firms interact and treat their employees (*see* Principle 9 on using AI in human resources and management).

Data security and protection goes hand in hand with confidentiality. As Principle 2 will discuss in more detail, data protection laws such as the General Data Protection Regulation (GDPR) may apply to AI-processed client information and may require law firms to take additional steps in ensuring data security.

Law firms may likewise be subject to legal requirements relating to anti-discrimination. Because AI outputs are only as good as the data the AI program has been trained on, AI-generated work product may be at odds with anti-discrimination requirements that are generally adopted to correct the historical biases that are likely to be reflected in the datasets (*see* Principle 8 on minimizing bias).

Finally, and perhaps most importantly, law firms must ensure they understand how AI operates, a responsibility increasingly mandated by many professional organizations (*see* Principle 7 on AI training).

## **2 Client Confidentiality & Privacy: Law Firms Should Ensure that AI is Used in Line with Client Confidentiality & Privacy Standards**

Attorney-client privilege is the cornerstone of the legal profession,<sup>29</sup> making confidentiality and privacy the most important aspect of any AI use by law firms.<sup>30</sup> As AI systems process vast amounts of data, some of which may be highly sensitive, law firms should implement robust safeguards to prevent unauthorized access or breaches, aligning with legal requirements such as the GDPR<sup>31</sup> in Europe or similar regulations elsewhere.<sup>32</sup>

For example, the GDPR provides that personal data has to be: “processed lawfully, fairly and in a transparent manner”,<sup>33</sup> “collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes”,<sup>34</sup> “adequate, relevant and limited to what is necessary in relation to the purposes for which they are pro-

cessed”,<sup>35</sup> and “accurate and, where necessary, kept up to date”.<sup>36</sup> Other countries likewise have data privacy laws similar to the GDPR that may also apply depending on the jurisdiction the law firm operates in.<sup>37</sup>

Accordingly, any AI used by a firm must be designed and operated to uphold the highest standards of client confidentiality and privacy: client data should be encrypted, and access to it, as well as the use of AI to handle that data, must be tracked and closely controlled. Firms should also regularly audit their AI systems for potential vulnerabilities and invest in appropriate internal or external technical support and expertise.

Firms should likewise be proactive in staying informed about the evolving legal and ethical implications of AI technologies. This may involve continuous education for legal professionals, regular reviews of AI use policies in light of new legal and technological developments, and active engagement with debates and policy-making processes regarding the future regulation of AI in the legal sector.

Finally, in addition to ensuring its own data protection policies, law firms should carefully consider which third party AI service-providers to use and review their data protection policies and standards, as well as how they handle and encrypt data, and inform clients of data breaches.

### **3 Client Awareness & Consent: Law Firms Should Ensure Client Awareness of & Consent to the Use of AI in the Provision of Legal Services**

Clients should be aware that a firm uses AI, and consent to it. This principle can be inferred from ABA Model Rule 1.6, which provides that “[a] lawyer shall not reveal information relating to the representation of a client unless the client gives informed consent” and allows implicit disclosure only in certain circumstances.<sup>38</sup> In addition, the same rule requires lawyers to “make reasonable efforts to prevent the inadvertent or unauthorized disclosure of, or unauthorized access to, information relating to the representation of a client”.<sup>39</sup>

Firms could obtain client consent on an *ad hoc* basis for specific purposes or generally. Ensuring client awareness and obtaining explicit consent before deploying AI-driven processes are foundational to maintaining a transparent and trust-based relationship between law firms and their clients and ensuring that the firm's attorneys comply with any applicable ethics obligations. Disclosure of the use of generative AI by companies is an ongoing debate across many sectors,<sup>40</sup> including legal services.<sup>41</sup> In a law firm context, disclosing too much may unduly overburden clients with details of a firm's day-to-day practices that may have little impact on the quality of the clients' experience. Some suggest that firms should wait for clients to request such disclosures, while others opt for a more "prudent" approach of disclosure across the board.<sup>42</sup> While there currently does not seem to be a hard and fast rule on how firms should handle AI from the perspective of client consent, existing ethics rules and guidelines could be read in a manner that requires at least some disclosure.

For example, the ABA Model Rules (which many US states have adopted verbatim, or with modifications) provide that lawyers must "reasonably consult with the client about the means by which the client's objectives are to be accomplished" and "explain a matter to the extent reasonably necessary to permit the client to make informed decisions regarding the representation."<sup>43</sup> The California Bar's Standing Committee's on Professional Responsibility and Conduct Guidelines specifically recommends that "[a] lawyer should consider disclosure to their client that they intend to use generative AI in the representation, including how the technology will be used, and the benefits and risks of such use."<sup>44</sup> Disclosure would also align with data protection laws, such as the GDPR, which mandates clear consent for processing personal data.<sup>45</sup>

The rationale behind requiring client awareness and consent is manyfold. Primarily, it safeguards the client's privacy and ensures their data is handled in a manner they have approved. Given the potential of AI technologies to access, analyze, and derive insights from vast datasets, clients must fully understand and agree to these capabilities being applied to their information. Furthermore, the principle of client awareness and consent also mitigates the risk of reputational damage to the firm. In instances where AI might inadvertently breach confidentiality or privacy

without clear client consent, the fallout could be severe, not just in legal terms but also in client trust erosion.

Should the law firm seek to develop its own AI analytics tool (either in-house or by collaborating with third party developer) based on the confidential client information it holds, obtaining client consent may involve additional steps, and the consideration of additional issues such as conflicts of interest.<sup>46</sup>

In keeping with the more “prudent” approach, firms should obtain client consent *before* using or developing AI, and such consent should be informed. The requirement for *informed* consent will later tie in with Principle 6 requiring mandatory AI training and continuous learning for attorneys. Principle 3 likewise ties in with Principle 2 on confidentiality and privacy – obtaining prior consent from the client would define the boundaries within which the AI that a firm uses may analyze, learn from and use clients’ data.

To effectively implement this principle, law firms may consider the following steps:

#### *Disclosure of AI use and written consent*

Firms could disclose their use of AI to clients via the law firm’s website,<sup>47</sup> the engagement letter for the whole matter,<sup>48</sup> via an annex to the engagement letter detailing the firm’s use of AI, or on an *ad hoc* basis if client consent is necessary for the use of a specific AI or an AI for a specific purpose (e.g. document management, document production, damages calculation, etc.). A firm’s disclosure could cover what types of AI are used, the purposes of such use, and any data processing that AI will perform. Ideally, to hedge against the risk of potential client complaints, firms should ensure that the client consents to the use of AI in writing, whether it be by signing a written agreement or via written communication. To appease any fears or concerns, law firms should likewise clearly outline the measures in place to protect client data in AI applications, including data encryption, access controls, and any third-party audits of AI systems for security vulnerabilities.

*Giving clients the option to opt-out*

Law firms should consider providing clients with the option to opt-out of AI-driven processes if they prefer traditional legal services. This respects client autonomy and provides an alternative for those uncomfortable with AI, especially when the matter in question is highly sensitive. Such an opt-out may ultimately increase costs of representation and this should also be spelled out to the client so that they may consider this factor when making the decision on AI use.

*Client Education*

Firms should aim to offer educational resources or sessions for clients to understand the benefits and risks associated with the use of AI. Clear communication about how AI can improve legal outcomes, as well as its limitations, helps clients make informed decisions.

*Continuous Dialogue*

Law firms should maintain an open line of communication with clients about AI use, addressing any concerns or questions they may have promptly. As AI technologies evolve, firms should keep clients informed about new developments or changes in how AI is or could be used within the firm.

Ultimately, when deciding on the extent and form of disclosure, a law firm's guiding principles should be the client's best interest and the confidentiality of their data, coupled with the firm's own interest in abiding by ethics norms and minimizing the risk of malpractice.

#### **4 Human Oversight & Approval: Law Firms Should Ensure Human Oversight & Approval Mechanisms for AI-Generated Work Product**

When employing AI tools, law firms should ensure the prioritization of human autonomy as it is the attorney, not the AI, who is licensed to practice law. The integration of AI into legal practices necessitates a careful balance between leveraging technology and ensuring an ethical, accurate, and responsible work product. A cornerstone principle in achieving this balance will be ensuring that all AI used by law firms has human oversight

and approval mechanisms. This principle underscores the importance of human judgment in internal decision-making processes, ensuring that AI tools serve as aids rather than replacements for the nuanced and complex variety of tasks performed by attorneys. Attorney sign-off on AI-generated work product should therefore be mandatory.<sup>49</sup>

This requirement could be considered akin to requiring lawyer oversight over non-lawyers employed by the firm. The ABA Model Rules of Professional conduct provide that supervising attorneys must make “reasonable efforts to ensure that the firm has in effect measures giving reasonable assurance that the person’s conduct is compatible with the professional obligations of the lawyer” and may be held responsible “for conduct of such a person that would be a violation of the Rules of Professional Conduct”.<sup>50</sup> A recent law firm report on professional responsibility likewise notes that “[AI may] introduce significant risks to the profession, particularly whilst AI tools remain in their infancy” and that “[t]hose risks are magnified when lawyers seek to rely upon open AI platforms that have extracted data from multiple unverified sources”.<sup>51</sup> The report underlines that “[f]irms that fail to introduce appropriate safeguards that include human oversight to authenticate the AI-generated content can expect an increased exposure to [personal injury] claims.”<sup>52</sup>

Human oversight in AI utilization involves regular monitoring and evaluation of AI systems and/or their outputs by legal professionals to ensure their outputs are accurate, relevant, and free of biases. Such oversight is critical in maintaining the integrity of legal proceedings and the protection of client interests. AI systems, while powerful, can still generate errors, misunderstand context, or produce biased results based on their training data. Legal professionals must therefore be involved in reviewing and approving AI-generated outputs, ensuring they meet corresponding human standards of work product and relevant ethical guidelines.

“Human oversight and approval mechanisms” will have different meanings depending on whether it applies to AI development or AI use. In the context AI system development, “human oversight and approval mechanisms” refers to the processes and safeguards put in place to ensure that human judgment plays a central role in the operation, decision-making, and outcomes of AI systems. These mechanisms are designed to maintain

human control over AI, allowing for the intervention, evaluation, and correction of AI actions when necessary (for example, when the AI's output is incorrect, biased, etc.). Since AI outcomes are dependent on the data it has been trained on—garbage in, garbage out—human oversight ensures that less garbage gets into the AI data training set.<sup>53</sup>

In the context of *using* AI programs, “human oversight and approval mechanisms” refers to the strategies and processes a company implements to monitor, evaluate, and validate the actual decisions and outputs of AI systems created by external developers.<sup>54</sup> This ensures that AI-generated outputs are consistently correct and in line with a law firm's values and policies, as well as any applicable laws and ethics rules. For example, in a law firm using a third-party AI for predictive analytics in litigation outcomes, each case prediction made by the AI should be reviewed by an attorney who assesses the AI's analysis against the firm's historical case outcomes and their own legal expertise. If the attorney approves, the AI's insights can then be used to inform the client's legal strategy. This ensures that while the firm benefits from AI's ability to analyze vast amounts of data and predict outcomes, the legal advice remains grounded in human judgment and experience. AI should not undermine human autonomy or decision-making, and attorneys retain the final say in legal decisions. Any AI-generated recommendations or conclusions must be presented as options, with clear opportunities for human review and modification.

These mechanisms should include protocols for the validation of AI technology before its deployment in sensitive legal tasks. Additionally, procedures should be established for the ongoing review of AI outputs, with clear criteria for what constitutes acceptable performance and guidelines for addressing any discrepancies or errors identified during human oversight. By ensuring that AI tools are always under the watchful eye of legal professionals, law firms can harness the benefits of technology while upholding the highest standards of legal practice and ethical responsibility.

## 5 Transparency & Explainability: Law Firms Should Ensure that the AI They Use is Transparent and the Work It Generates Explainable

AI operations and decision-making processes must be transparent and understandable to clients and legal professionals, providing clear explanations for all steps involved in arriving at their outputs. Firms must also ensure that clients and lawyers can readily access this information to be able to more fully understand the context of those outputs. This commitment to openness is fundamental in maintaining trust and accountability in the use of AI within the framework of legal practice.

This type of transparency of course involves several layers, starting from the disclosure of the types of AI technologies used by the firm, down to the more specific methodologies underlying their application to the tasks at hand. Law firms arguably should clearly communicate the capabilities and limitations of AI systems to clients to prevent unrealistic expectations and ensure that all parties understand the extent of the role of AI in the provision of legal services.

An example to illustrate the point is the increasing use of AI-driven document analysis tools that help law firms quickly review and categorize large volumes of documents. Transparency in this context would involve the law firm openly communicating several key aspects of the AI tool to its clients and attorneys, such as:

### *AI Tool Capabilities and Limitations*

Firms should explain that the AI tool can quickly process and categorize documents based on keywords, phrases, and contextual similarity; they should also disclose that the tool may not perfectly interpret documents with complex legal jargon or nuanced language and that manual review would still be necessary for critical documents.

### *Data Usage and Security*

Information on what types of data the AI tool accesses, how the data is used, and the measures in place to protect client confidentiality and data security.



### *Decision-Making Influence*

Firms should clarify that the AI tool is used to aid in the preliminary stages of document review to expedite the discovery process but that final decisions on the relevance and use of documents in legal proceedings are made solely by human lawyers.

### *Developer and Vendor Information*

Firms should provide details about the AI tool's developer, the vendor, and any third-party evaluations of the tool to assure clients of its credibility and reliability.

### *Compliance and Ethical Considerations*

Firms should outline how the use of the AI tool complies with their professional standards and ethical guidelines, and the ways in which they ensure that its use does not compromise the integrity of their work or on any adjudicative processes they engage in on behalf of clients.

These types of clear messaging both to internal and external stakeholders promotes trust and confidence among clients and ensures that the use of AI tools is understood and accepted by all parties involved.

Explainability complements transparency by requiring that AI systems do not just produce outcomes but also offer detailed insights into the reasoning behind these outcomes. This is particularly important in the legal context where certain decisions can significantly impact case strategies and outcomes. Explainable AI helps ensure that automated decisions can be interpreted and justified in legal terms. This principle likewise complements Principle 4 on human oversight, ensuring that both clients and firm AI-users are aware of how AI work product is generated and ultimately used by the firm.

An example of explainability could involve the law firm using an AI tool to predict the likely outcome of a case based on historical data from similar cases. This tool might analyze factors such as the underlying facts of the case, relevant legal precedents, the judges or arbitrators involved, and previous rulings in similar situations. It then might provide a percentage likelihood of winning or losing the case. Explainability in this context means that the AI tool would not simply spit out a prediction like "65%

chance of winning the case” but also provide a breakdown of how it arrived at this conclusion. For instance, the tool could explain that:

- The prediction is based on a dataset of 500 similar cases from the past five years.
- Cases with similar facts had a 70%-win rate when presided over by Arbitrator X, who is assigned to this case.
- However, recent changes in relevant laws have decreased the win probability by 5%.
- This outcome also considers the performance of the appointed legal representative, who has a historical win rate of 60% in similar cases.

By providing these details, the AI tool essentially explains *how* it arrives at a certain conclusion. Lawyers and clients can see not only the predicted outcome but also the rationale behind the prediction. This level of explainability allows lawyers to better assess the tool’s reliability and to decide whether to trust its guidance in formulating their legal strategy. Furthermore, it enables clients to understand the factors influencing their case, fostering greater trust and making the legal process more participatory.

## **6 Ultimate Responsibility: Law Firms Bear Ultimate Responsibility for any AI-Generated Work Product**

Law firms necessarily take full responsibility for the actions and decisions made by its AI. This principle underscores the essential understanding that it is the attorney, not the AI, who is licensed to practice law. In this vein, the responsibility for ensuring the accuracy, legality, and ethical compliance of AI-assisted work squarely rests on their shoulders. Assuming ultimate responsibility over work product is therefore a fundamental aspect of good AI governance in law firms and is a natural complement to Principle 4 requiring human oversight and approval mechanisms for AI-generated work product.

Firms should put in place internal accountability structures to ensure that senior stakeholders within the firms (i.e., partners, counsel and/or senior associates) are aware of and can oversee (and therefore be accountable for) how AI is used on specific client matters.

Certain exceptions to this principle could potentially be made when firms, in agreement with a client, employ a third-party AI-service provider who has assumed full responsibility and liability for the resulting work product.

Law firms should likewise revise their insurance policies, to ensure that they cover any potential AI-generated errors in work product. As Reuters points out, “AI-related claims can take many forms, including, for example, alleged violations of employment law, breaches of data privacy statutes, breaches of fiduciary duties or professional obligations, violations of securities laws, intellectual property infringement, or any other number of events, acts or omissions.”<sup>55</sup> Firms will typically take out professional liability, general liability and cyber security insurance, however, as AI technology continues advancing rapidly, new types of insurance may become available.<sup>56</sup> Securing insurance that specifically covers AI-generated errors is a pragmatic step toward mitigating risks associated with the use of emerging technologies. It would protect law firms financially and signal to clients that firms take their professional responsibilities seriously, even in the face of innovative legal tech applications.

## **7 AI Training: Law Firms Should Provide Mandatory AI Training & Commit to Continuous Learning**

The ethical duty of competence required of attorneys must adapt and evolve in response to the development and integration of new technologies within the practice of law. While we mostly think of AI as a monolith, the term encompasses a multitude of techniques and approaches. For example, machine learning encompasses supervised learning (further divided into classification and regression), unsupervised learning (that includes clustering), and reinforcement learning. The most complex form of AI is deep learning that utilizes deep neural networks. Each method has its own capabilities and shortcomings and lawyers should have the requisite knowledge to understand how the AI they are using works. Firms should foster an environment where continuous education on AI technologies and their use in legal practice becomes an integral part of professional development.

According to the 2012 revised ABA Model Rules, lawyers must “provide competent representation to a client [which] requires the legal knowledge, skill, thoroughness and preparation reasonably necessary for the representation.”<sup>57</sup> This includes the requirement to stay abreast of technological developments.<sup>58</sup> Since 2012, many states have “either adopted the amended comment or otherwise advised attorneys to stay abreast of technology as it relates to the practice of law.”<sup>59</sup> According to the American Bar Association, so far 39 jurisdictions have adopted a statement on tech competence.<sup>60</sup> The bar associations of some states now likewise require that lawyers complete technology training as part of their ongoing continuing legal education (CLE) requirements.<sup>61</sup> At the end of 2020, the Quebecois Lawyers’ Code of Ethics likewise added an explicit requirement that lawyers develop tech skills and keep them up to date.<sup>62</sup>

It is worth noting the duty of competence extends not just to counsel, but also to arbitrators, many of whom work in law firms or have their own independent legal practices. In addition to the professional rules of conduct examples mentioned above, the new UNCITRAL Code of Conduct for Arbitrators in International Investment Dispute Resolution likewise requires that “an arbitrator [...] [p]ossess the necessary competence and skills and make all reasonable efforts to maintain and enhance the knowledge, skills and qualities necessary to perform [their] duties.”<sup>63</sup> While the commentary focuses on “professional knowledge and experience in investment law and public international law as well as linguistic skills,” the term “necessary competence” should be understood in the broad sense, so it could potentially include technological competence as well.<sup>64</sup> Requiring technological (and specifically AI) competency of arbitrators may not yet have become hard law; however it is undeniable that as technology advances further and becomes more ubiquitous, there will be more pressure on arbitrators to become tech-literate.<sup>65</sup>

Implementing Principle 7 would require law firms to invest in training their professionals not just in the use of AI but also in understanding its limitations and potential pitfalls. Training should include not just the use of specific AI models (e.g., document review programs, AI-powered research tools, etc.) but also general training on AI, so that attorneys are better able to recognize potential AI blind spots and address them.

Despite AI's remarkable capabilities and widespread applications, it is not infallible. A significant limitation of AI systems, particularly (LLMs), is their propensity for generating "hallucinations" or outputs that are factually incorrect or nonsensical. These errors can arise from biases in the training data or the inability of the model to fully understand complex contexts. AI models are fundamentally limited by the data they are trained on; they lack the ability to think abstractly or engage in deep reasoning. Consequently, they can make mistakes when presented with scenarios or questions that deviate from their training experiences. These limitations underscore the necessity for careful oversight and validation of AI outputs, especially when employed in critical decision-making roles.

A very simple example of why training for lawyers using AI is both necessary and helpful is understanding how LLMs such as the ones relied on by ChatGPT respond to prompts.

LLMs are advanced artificial intelligence systems, specifically designed to digest and interpret extensive volumes of natural language data. Essentially, LLMs are artificial neural networks that use complex machine learning algorithms and undergo training on expansive data sets, enabling them to decipher the complexities and nuances of human language. LLMs can produce responses that closely mimic human conversational patterns in reaction to a broad spectrum of textual prompts by analyzing the linguistic information they are fed, constructing an intricate internal framework that mirrors the language structures they learn from. With this framework in place, they can then process any given natural language input and generate remarkably human-like text, making them invaluable tools in bridging the communication gap between humans and machines.<sup>66</sup>

The way prompts are worded significantly shapes the responses from LLMs. Precise and clear prompts lead to more relevant, focused, and accurate answers, as the model generates responses based on the instructions given. When prompts are vague, they can result in generalized or off-target responses because the model tries to interpret the intent and fill in the gaps with assumptions.<sup>67</sup> The specificity of a prompt helps the model understand the desired depth of information, the context and the particular angle of a topic. The structure of the command within the prompt also

dictates the format of the response; for example, asking to “list the steps” will produce a bullet-point format, while “discuss in detail” indicates a need for a narrative format. Precise wording is crucial for reducing ambiguities that could lead to misinterpretation, and, in turn, mistakes in LLM-generated replies. If law firms are equipped with the knowledge to question and critically assess AI recommendations and outputs, they can ensure better results and minimize potential errors when advising clients.

Educating lawyers on AI and its uses is likewise indispensable in helping identify and mitigate the risks associated with scams such as deepfakes and voice cloning.<sup>68</sup> This may be crucial when examining potentially doctored evidence<sup>69</sup> and to recognize when scammers may be impersonating clients or members of the firm.<sup>70</sup> As these technologies become more sophisticated, the potential for their misuse in fraudulent activities increases, posing significant threats to business integrity, security, and trust. Understanding the mechanics, capabilities, and weaknesses of AI-generated content will allow firms to implement effective strategies for scam detection and prevention.<sup>71</sup>

## **8 Minimizing Bias and Maximizing Diversity: Law Firms Should Use AI in Accordance with the Principles of Non-Bias, Fairness & the Promotion of Diversity & Inclusivity**

Firms should ensure that their AI is free from biases that could lead to unfair treatment of clients, attorneys, and staff or influence legal outcomes based on race, gender, age, or other personal characteristics. How could AI-generated work product be biased? A fundamental concept and concern of machine learning (which all predictive and generative AI is based on) is the garbage in, garbage out principle. It essentially means that the quality of output is determined by the quality of the input. If biased, flawed, incorrect, or low-quality data is fed into an AI system, the output will also be flawed or inaccurate. This principle underscores the importance of data quality in obtaining reliable and valid results from AI systems.<sup>72</sup>

Before we delve into the legal sphere, let us look at a practical experiment conducted by quantitative futurist Amy Webb. Webb asked AI image generator MidJourney to produce an image of a CEO of a large hospital sys-

tem.<sup>73</sup> Note that MidJourney produces images in fours. On her first try, Webb got an image of four “mature” white men standing in front of imposing modern hospital buildings. Webb was not surprised as “overwhelmingly, the largest percentage of the Fortune 500 CEOs [...] are mature white men.” She tried again, this time asking MidJourney to generate an image of a CEO of a mid-sized hospital system. MidJourney generated images of four “shockingly attractive” men that were slightly younger and pictured standing in office spaces. Webb then tried asking for the CEO of a hospital system in a very small rural village. Again, four pictures of white men, two of them young, two middle-aged, this time standing in front of smaller hospitals. Webb got frustrated, asking herself, “what the hell is it going to take for the system to produce a woman?” She changed strategies and asked the program to generate the image of a CEO of a hospital system in Jackson Mississippi (which, according to the US Census Bureau has the most women in its population). Once again, the result was four images of middle-aged and senior white men. At last, she asked MidJourney to generate an image of a CEO of a company that makes tampons. And even this prompt produced images of four white men.

One example of how data-driven bias could affect AI used by law firms is arbitrator selection. While currently platforms such as JusConnect (tagline “Select the perfect arbitration professional”)<sup>74</sup> are more akin to databases, in the future, they may evolve into more sophisticated AI-backed arbitrator selection services where you could add details of the case, such as industry, amount in dispute, what party you are representing, the characteristics you are looking for, and the system would generate the name of your “perfect” arbitrator. One data point that this hypothetical arbitrator selection tool would most certainly look at is experience and previous appointments. In 2018, researchers from the University of Oslo determined the top 25 investment treaty arbitrators by appointment based on a dataset of 1039 cases.<sup>75</sup> Out of the 25, only two were women, and not a single person was, for example, Black.<sup>76</sup> It would not be extreme to speculate that the hypothetical AI tool would likely select a white male investment treaty arbitrator when prompted.

Of course, a good AI arbitrator selection tool would look at more than just the number of appointments of any given person, but the underrepresentation of certain groups as arbitrators will undoubtedly influence the AI’s

algorithm, and this is not something that can or should be ignored. As Webb concludes, bias in AI is not going to disappear because people talk about it or acknowledge it as a problem – AI only reproduces the information it has been fed.<sup>77</sup> As long as this dataset is not improved – either expanded or manually tweaked by human oversight – biased results will persist.

Avoiding biased results in AI when the underlying datasets reflect existing biases is a complex but essential challenge. Some of the strategies that could help mitigate bias and promote fairness in AI systems are:<sup>78</sup>

#### *Diverse Data Collection*

AI programs should be trained on expanded datasets that include a wide range of sources to capture a more comprehensive and diverse representation of individuals, and AI providers and developers should actively seek data from underrepresented groups to ensure their inclusion in the dataset, helping to balance the representation across different demographics.

#### *Bias Detection and Remediation*

Legal AI providers and developers should regularly audit datasets for biases by analyzing the representation and outcomes of different demographic groups, as well as apply statistical techniques or machine learning algorithms designed to identify and reduce bias (e.g., re-weighting the data, altering the algorithms' objectives to promote fairness, or using techniques like adversarial de-biasing).

#### *Algorithmic Transparency*

Firms and providers should develop and use AI systems that can explain their decisions and the “thought” process behind them. This transparency can help identify when and how biases might influence outcomes. Where possible, providers and developers could make the algorithms accessible for audit and review by external parties, which could enhance accountability and facilitate independent checks for bias.

#### *Ongoing Monitoring and Evaluation*

Providers and developers should regularly monitor AI systems to ensure they continue to operate fairly as they evolve over time. Law firms using AI should be aware of the potential for biased results and intervene when



appropriate. Providers and developers should likewise implement feedback mechanisms to collect feedback from users about potential biases, using this information to continuously improve the AI system.

### *Stakeholder Engagement*

AI providers and developers, as well as firms should include team members from diverse backgrounds to provide multiple perspectives on potential biases.

By implementing these strategies, organizations can better address and reduce the biases inherent in AI systems, leading to fairer and more equitable outcomes. As Amy Webb's practical experiment demonstrates, neglecting issues such as historical bias or injustice in AI training datasets can result in sub-optimal results that may conflict with law firms' internal policies aimed at promoting diversity and comprehensive representation, as well as the broader legal profession's commitment to these principles.

## **9 Managerial & Human Resources Decisions: Law Firms Should Use AI in Management and Human Resources Contexts in Good Faith and in Accordance with Applicable Regulations**

To conclude our discussion on what principles should govern the use of AI in law firms, let us consider a topic that has not yet been widely discussed in this context – the use of AI in management and human resources.

According to Harvard Business Review, “AI will help humans do better human work, namely by helping us improve our emotional intelligence, soft skills, and interpersonal communication skills.”<sup>79</sup> Emotional intelligence (or EQ) is “a type of social intelligence that involves the ability to monitor one’s own and others’ emotions, to discriminate among them, and to use this information to guide one’s thinking and actions.”<sup>80</sup>

I would argue that EQ is incredibly important (and currently lacking) in many law firm environments. AI has the potential of improving the situation. By adding an EQ component to AI, we enter the realm of “affective computing” – a multidisciplinary field that studies how computers “can recognize, interpret, process, and simulate human affects – it is an inter-

disciplinary field spanning computer science, psychology, and cognitive science.”<sup>81</sup> Affective computing-based AI is already used in different sectors such as customer service,<sup>82</sup> (including healthcare, insurance and financial services),<sup>83</sup> education<sup>84</sup> and entertainment and gaming.<sup>85</sup> Affective computing is not without its challenges and ethical problems – the accurate interpretation of nuanced and subjective human emotions across diverse contexts and cultures, as well as ethical concerns related to privacy, consent, and the potential misuse of emotional data.

The EU AI Act could severely limit or altogether prohibit the use of affective AI in relevant jurisdictions – Article 5(1)(f) prohibits “the placing on the market, the putting into service for this specific purpose, or the use of AI systems to infer emotions of a natural person in the areas of workplace and education institutions”, except for medical or safety reasons.<sup>86</sup> The use of other types of AI in the workplace could likewise be highly restricted if the AI in question qualifies as high-risk pursuant to Article 6 of the EU AI Act.<sup>87</sup> In addition to requiring workplaces that use high-risk AI systems to ensure trained human oversight, monitoring, record keeping and transparency, Article 26(7) explicitly requires employers to inform workers that they will be subject to the use of a high-risk AI system before deploying it.<sup>88</sup>

A detailed analysis of the use of affective AI in the workplace is beyond the scope of the present chapter but let us consider some of the two most evident internal ways in which legal organizations could use affective AI: in management and hiring decisions.

Law firms could leverage affective AI in management through innovative approaches that focus on enhancing employee engagement, well-being, and as a result, productivity. By using affective computing tools, firms could monitor the emotional well-being of their employees in real-time, allowing for early identification of stress or burnout. This would enable management to offer targeted support, adjust workloads, or provide resources for mental health, leading to a healthier work environment. Affective emotional intelligence could also be integrated into training programs to develop soft skills among lawyers and staff, such as improving negotiation, client interaction, and teamwork skills through feedback on emotional responses during mock sessions. In situations of internal conflict or disagreement, affective AI could provide objective data on partici-

pants' emotional states to guide mediation processes, ensuring resolutions address underlying emotional concerns. Emotion recognition AI already exists, albeit not in a legal context. For example, tech company Affectiva uses AI to analyze human emotions by interpreting facial expressions, vocal tones, and physiological responses.<sup>89</sup> It is currently used in market research and advertising, i.e., in ad and entertainment content testing, as well as other fields.<sup>90</sup>

Management could use insights from affective computing to provide personalized feedback to employees, tailored to encourage positive behaviors and address areas of stress or challenge. Furthermore, insights from affective emotional intelligence can help law firms build stronger, more cohesive teams by understanding the emotional undercurrents within teams, making informed decisions about team composition, leadership styles, and conflict management strategies. Affective AI can also augment decision-making processes by providing an additional layer of emotional data, helping to understand how decisions might impact employee morale or client satisfaction, leading to more informed and empathetic choices. Implementing these strategies requires careful consideration of privacy, consent, and ethical use of emotional data.

The use of affective AI in a law firm context would in all likelihood interfere with the privacy of lawyers and staff working at the firm, and it is at present difficult to imagine that lawyers would consent to continuous emotional monitoring, especially considering that law firms are not known for the best of working environments.<sup>91</sup> Firms could abuse emotional monitoring and use the collected data against attorneys working there, so in-depth use of affective AI in law firms may be a discussion for another day. But let us see how currently widely available AI could (or couldn't) help human resources-related situations in firms.

A few years ago, someone told me a story about a male junior partner at a large firm whose wife had a particularly difficult delivery. She was hospitalized and in critical condition in one hospital, while the baby was in critical but stable condition in another. This unfortunate situation resulted in the junior partner not being able to work his usual hours and lead to the senior partnership having concerns about his ability to handle his cases.

To test whether and how AI could have been useful in this particular situation, I asked ChatGPT-4 how it would handle this situation as a senior partner.<sup>92</sup>

ChatGPT-4 replied as follows:

“In a situation as sensitive as this, it’s crucial to approach the conversation with empathy and understanding, recognizing the immense personal strain the junior partner is under. Your role as a senior partner involves balancing the firm’s needs with support for your team members during their personal crises. Here’s a suggested approach for the conversation:

#### **Initial Acknowledgement and Empathy**

‘Firstly, I want to express my deepest concern and support for what you’re going through right now. I cannot begin to imagine the stress and worry you must be feeling with your wife and newborn in the hospital. Your family’s health and well-being are the most important things at this moment.’

#### **Expressing Concern**

‘I’ve noticed that you’ve been understandably stretched between your commitments to your family and work. It’s clear that managing both in these exceptionally challenging times is not sustainable, and it’s important to us that you take the time you need to be with your family.’

#### **Offering Support and Solutions**

‘We value you greatly, not just as a junior partner but as a member of our firm’s family. I want to discuss how we can best support you during this period. We can explore flexible working arrangements, delegate some of your current responsibilities to others in the team, or even discuss taking some extended leave.’

#### **Encouraging Open Communication**

‘Please let us know how you’re feeling and what you need from us. It’s crucial that we maintain open lines of communication,

so we can adjust support as your situation changes. We're here to support you, and we want to make sure that you don't feel pressured to return to your usual pace of work until you're ready.'

### **Reiterating Support**

'Your health and your family's health are the priority right now. Please take the time you need, and know that we are here to support you in any way we can. Let's keep in touch about how things are going and how we can assist.'

This approach underscores empathy, support, and flexibility, acknowledging the junior partner's current inability to fully engage with work due to his critical personal situation. It also emphasizes the importance of open communication, allowing for adjustments based on the evolving needs of the junior partner and his family."

In reality, two weeks into his predicament, the junior partner was summoned to a partnership meeting and asked to confirm "his commitment to the firm". A response lacking in emotional intelligence in more ways than one.

As for hiring and promotion decisions, AI could potentially be a double-edged sword. On the one hand, AI offers the promise of reducing human bias and increasing efficiency in the recruitment and promotion processes. By analyzing vast amounts of data and identifying patterns or competencies linked to success in specific roles, AI could help law firms make more objective decisions. AI technology could streamline the screening process, identify candidates with the desired skill sets and potential for growth, and ensure a diverse pool of candidates is considered.

On the other hand, the use of AI in these processes raises significant ethical concerns and challenges. One of the main issues is that AI systems are only as unbiased as the data they are trained on ("garbage in, garbage out", as discussed in Principle 8). If historical data reflects past biases or inequalities, there is a risk that AI could perpetuate or even exacerbate these issues, rather than eliminate them. This is particularly relevant in

law firms, where diversity and inclusion are major industry concerns.<sup>93</sup> Moreover, relying solely on AI for hiring and promotion decisions could overlook the nuanced understanding of a candidate's soft skills, such as empathy, judgment, and the ability to build relationships – qualities that are paramount in the legal profession but may not be easily quantifiable by AI algorithms.

## Conclusions

The currently widely available AI is the worst it will ever be – as technology continues to advance and improve, more law firms will inevitably incorporate AI into their activities to save time, reduce costs and bolster efficiency. As AI adoption increases across the legal sector, more challenges – and hopefully, solutions – will emerge. While we are still at the inception of AI use by law firms, it seems logical that firms proactive in learning about and utilizing these technologies will have an advantage in the future. As stated in the introduction, the above good governance principles are not a rigid roadmap, but rather a starting point for a conversation about how law firms use AI. Many of the proposed principles overlap, and it is for each firm to decide what points they wish (and feel able) to put an emphasis on.

Beyond adopting their own AI good governance principles, how can firms put them into practice?

While it may not be feasible for every organization, law firms should strive to establish a partner or other senior stakeholder-led department responsible for the use of AI within the firm. This department would oversee the deployment, management, and evaluation of AI technologies to ensure they meet the required standards of transparency and explainability. Additionally, this leadership will be crucial in aligning AI use with the strategic goals of the firm and ensuring adherence to legal and ethical standards. A partner-led approach ensures that senior members of the firm are directly involved in key decisions regarding AI, reinforcing the importance of ethical AI use and aligning it with the firm's values and ethical commitments. This department should also oversee the ongoing education and training for legal professionals within the firm to help them

understand and effectively leverage AI tools in their practice. Some firms are already taking this route: for example, A&O Shearman has a LegalTech Executive Director position. This director “heads [A&O Shearman’s] LegalTech team and provides strategic and operational leadership within the firm [and] is responsible for implementing technology solutions”.<sup>94</sup> Not every firm will need a fully-fledged AI position or department, however, it would be wise to establish at least some sort of tech-centered internal structure.

Whatever approach any particular law firm decides to adopt with respect to AI, it is good to remember another quote from Isaac Asimov regarding his Three Laws of Robotics: “[t]he Laws apply, as a matter of course, to every tool that human beings use” and can be summed up as “safety”, “effectiveness” and “durability.”<sup>95</sup>

## Notes

- 1 Asimov, Isaac. “Runaround” in *I, Robot* (The Isaac Asimov Collection ed.) New York City: Doubleday (1950) p. 40.
- 2 See, e.g. “How to worry wisely about artificial intelligence” *The Economist* (20 April 2023) <https://www.economist.com/leaders/2023/04/20/how-to-worry-wisely-about-artificial-intelligence>.
- 3 “Pause Giant AI Experiments: An Open Letter” *Future of Life Institute* (22 March 2023) <https://futureoflife.org/open-letter/pause-giant-ai-experiments/>.
- 4 *Ibid.*
- 5 *Ibid.*
- 6 *Ibid.*
- 7 Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) (Text with EEA relevance), PE/24/2024/REV/1 (hereafter EU AI Act).
- 8 EU AI Act, Article 5: Prohibited AI practices.
- 9 EU AI Act, Article 6: Classification rules for high-risk AI systems, paragraphs (1),(2) and the last subparagraph of (3), and Annex III.
- 10 EU AI Act, Article 6: Classification rules for high-risk AI systems, paragraph (3).
- 11 For a user-friendly exploration of the EU AI Act, see the Future of Life (FLI) website on the EU AI Act by Risot U UK (EU Research Lead at FLI), Annemieke Brouwer (EU Policy Research Fellow at FLI) and Taylor Jones (Design and Web Manager at FLI), <https://artificialintelligenceact.eu/>.
- 12 EU AI Act, Article 2: Scope, paragraph (1).

- 13 EU AI Act, Article 99: Penalties.
- 14 United Nations General Assembly (UNGA), Resolution on Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development, 1 April 2024, UN Doc A/RES/78/265.
- 15 OECD, Recommendation of the Council on Artificial Intelligence, OECD/LEGAL/0449, <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449>. For a user-friendly overview of the OECD AI Principles, see OECD.AI, OECD AI Principles Overview, <https://oecd.ai/en/ai-principles>.
- 16 Asilomar AI Principles, *Digital Democracy Calmatters*, ACR 215: 23, [https://digitaldemocracy.calmatters.org/bills/ca\\_20172018oacr215](https://digitaldemocracy.calmatters.org/bills/ca_20172018oacr215).
- 17 Google AI, Our Principles, <https://AI.google/responsibility/principles/>.
- 18 Microsoft Responsible AI Standard, v2, June 2022, <https://www.microsoft.com/en-us/AI/principles-and-approach>.
- 19 See Report to ABA Resolution No. 112, 13 December 2019, Section II(B),
- 20 See Harvey Website, <https://www.harvey.ai/> and OpenAI, Harvey, <https://openai.com/index/harvey/>.
- 21 Jus Mundi Help Center, “Jus AI Assistant – Alpha Program” <https://help.jus-mundi.com/en/articles/8926887-jus-AI-assistant-alpha-program>.
- 22 ABA Resolution No. 112, 13 December 2019.
- 23 International Bar Association, Artificial Intelligence Working Group of the IBA Alternative and New Law Business Structures (ANLBS) Committee, “Guidelines and Regulations to Provide Insights on Public Policies to Ensure AI’s Beneficial Use as a Professional Tool” (18 September 2024) [https://www.ibanet.org/PPID/Constituent/Multi-disply\\_Pract/anlbs-AI-report](https://www.ibanet.org/PPID/Constituent/Multi-disply_Pract/anlbs-AI-report).
- 24 The General Council of the Bar, Considerations when using ChatGPT and generative artificial intelligence software based on large language models (30 January 2024) <https://www.barcouncilethics.co.uk/documents/considerations-when-using-chatgpt-and-generative-AI-software-based-on-large-language-models/>.
- 25 See Legal Services Board, “Guidance on promoting technology and innovation to improve access to legal services” (23 April 2024) and “Email from the Legal Services Board to the Secretary of State for Science, Innovation and Technology and the Lord Chancellor and Secretary of State for Justice, outlining the Legal Services Board’s pro-innovation approach to AI regulation” (29 April 2024) both available at <https://legalservicesboard.org.uk/news/lsb-publishes-update-on-approach-to-regulating-AI-use>.  
 Issued in response to a ministerial request from the UK’s Department of Science, Innovation and Technology and the Ministry of Justice, see “Letter from DSIT and MoJ Secretaries of State to the Legal Services Board” (15 February 2024) <https://www.gov.uk/government/publications/request-for-regulators-to-publish-an-update-on-their-strategic-approach-to-AI-secretary-of-state-letters/letter-from-dsit-and-moj-secretaries-of-state-to-the-legal-services-board.html>.
- 26 The State Bar of California “Standing Committee on Professional Responsibility and Conduct, Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law” (16 November 2023) <https://www.calbar.ca.gov/Attorneys/Conduct-Discipline/Ethics/Ethics-Technology-Resources>.



- 27 Silicon Valley Arbitration & Mediation Center, Guidelines on the Use of Artificial Intelligence in Arbitration, 1st edition (2024) <https://svamc.org/svamc-publishes-guidelines-on-the-use-of-artificial-intelligence-in-arbitration/>.
- 28 Note that consumer protection and IP laws may likewise play an important role in a law firm's use of AI.
- 29 See, e.g., American Bar Association, Model Rules of Professional Conduct, Rule 1.6.
- 30 See e.g., Cerny, J., Delchin, S. & Nguyen, H., *Legal Ethics in the Use of Artificial Intelligence* (February 2019). <https://www.squirepattonboggs.com/en/insights/publications/2019/02/legal-ethics-in-the-use-of-artificial-intelligence> p. 4 (hereafter Cerny, Delchin & Others).
- 31 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (hereafter GDPR).
- 32 It is interesting to note that Allen & Overy, a firm that has been a proponent of AI use, has associated itself with Aosphere, a UK-registered limited liability company that provides "online legal risk management products", including analysis of global data privacy laws. <https://www.aosphere.com/aos/Home>.
- 33 GDPR, Article 5(a)
- 34 GDPR, Article 5(b).
- 35 GDPR, Article 5(c).
- 36 GDPR, Article 5(d).
- 37 E.g., Australia, Brazil, Canada, Chile, China, Egypt, India, Israel, Japan, New Zealand, Nigeria, South Africa, South Korea, Switzerland, Thailand, Turkey, and some US States. For a broad overview of the data privacy laws in these jurisdictions, see Simmons, Dan. "17 Countries with GDPR-like Data Privacy Laws" *Comforte* (13 January 2022) <https://insights.comforte.com/countries-with-GDPR-like-data-privacy-laws>; Woodward, M. "16 Countries with GDPR-like Data Privacy Laws" *Security Scorecard* (8 July 2021) <https://securityscorecard.com/blog/countries-with-GDPR-like-data-privacy-laws/>.
- 38 American Bar Association, Model Rules of Professional Conduct, Rule 1.6 (a) & (b).
- 39 American Bar Association, Model Rules of Professional Conduct, Rule 1.6 (c).
- 40 See, e.g., Bousquette, Isabelle. "Companies Will Use Generative AI. But Will They Tell You About It?" *Wall Street Journal* (31 August 2023) <https://www.wsj.com/articles/companies-will-use-generative-AI-but-will-they-tell-you-about-it-a4cab6b9>.
- 41 See, e.g., Gottlieb, Isabel. "Law Firms Wrestle With How Much to Tell Clients About AI Use" *Bloomberg Law* (29 November 2023) <https://news.bloomberglaw.com/business-and-practice/law-firms-wrestle-with-how-much-to-tell-clients-about-AI-use>.
- 42 *Ibid.*
- 43 See, e.g., American Bar Association, Model Rules of Professional Conduct, Rules 1.4: Communications: Client-Lawyer Relationship. For a comparison of how different US States have adopted or incorporated Model Rule 1.4, see

- American Bar Association, Jurisdictional Rules and Comparison Charts, [https://www.americanbar.org/groups/professional\\_responsibility/policy/rule\\_charts/](https://www.americanbar.org/groups/professional_responsibility/policy/rule_charts/).
- 44 The State Bar of California Standing Committee on Professional Responsibility and Conduct, Practical Guidance for the Use of Generative Artificial Intelligence in the Practice of Law.
  - 45 GDPR, *e.g.*, Articles 6(1)(a) and 7.
  - 46 For a discussion on such a scenario, *see* Linna Jr., Daniel W. & Muchman, Wendy J. “Ethical Obligations to Protect Client Data when Building Artificial Intelligence Tools: Wigmore Meets AI” *The Professional Lawyer* (2 October 2020) [https://www.americanbar.org/groups/professional\\_responsibility/publications/professional\\_lawyer/27/1/ethical-obligations-protect-client-data-when-building-artificial-intelligence-tools-wigmore-meets-AI/#8](https://www.americanbar.org/groups/professional_responsibility/publications/professional_lawyer/27/1/ethical-obligations-protect-client-data-when-building-artificial-intelligence-tools-wigmore-meets-AI/#8).
  - 47 *See, e.g.*, Clifford Chance LLP website, “About Us” [https://www.cliffordchance.com/about\\_us/who-we-are-and-how-we-work/policies/AI-Principles.html](https://www.cliffordchance.com/about_us/who-we-are-and-how-we-work/policies/AI-Principles.html).
  - 48 For example, the use of generative AI is included in Paul, Weiss, Rifkind, Wharton & Garrison LLP’s standard engagement letter as explained to Bloomberg Law. *See* Gottlieb, Isabel. “Law Firms Wrestle With How Much to Tell Clients About AI Use” *Bloomberg Law* (29 November 2023) <https://news.bloomberglaw.com/business-and-practice/law-firms-wrestle-with-how-much-to-tell-clients-about-ai-use>.
  - 49 Exceptions could be made for tasks that do not involve judgment, *e.g.*, manual tasks such as filing and naming documents, or other tasks that could be accomplished by paralegals or secretaries and do not directly relate to the practice of law.
  - 50 American Bar Association, Model Rules of Professional Conduct, Rule 5.3, *see also* Rule 5.1. *See also* Cerny, Delchin & Others pp. 4-5.
  - 51 Kennedys Law LLP, *Professional liability report 2023: trends and future risks* p. 9, <https://kennedyslaw.com/en/thought-leadership/reports/2023/professional-liability-report-2023-trends-and-future-risks/>.
  - 52 *Ibid.*
  - 53 Different mechanisms may be employed:
    - \* Human-in-the-Loop (“HITL”): this approach involves human intervention in the AI decision-making process, where humans are needed to approve or modify AI suggestions before final outcomes are determined.
    - \* Human-on-the-Loop (“HOTL”): in this model, AI systems mostly operate independently, but humans monitor and can intervene in the process if the AI’s actions deviate from expected or desired outcomes.
    - \* Human-in-Command (“HIC”): this principle ensures that, regardless of AI autonomy, humans have ultimate control over the AI system, including the ability to deactivate or override the system if necessary. This is the approach favored by the European Economic and Social Committee.
- See* Fischer, Joel E., Greenhalgh, Chris, Jiang, Wenchao, Ramchurn, Sarvapali D., Wu, Feng & Rodden, Tom, “In-the-loop or on-the-loop? Interactional arrangements to support team coordination with a planning agent” *Concurrency and Computation: Practice and Experience* Special Issue: 2018, Vol. 33, Issue 8, <https://onlinelibrary.wiley.com/doi/full/10.1002/cpe.4082>; Wang, Ge.

“Humans in the Loop: The Design of Interactive AI Systems” *Stanford University* (20 October 2019) <https://hai.stanford.edu/news/humans-loop-design-interactive-ai-systems>; “Artificial Intelligence: Europe needs to take a human-in-command approach, says EESC” *European Economic and Social Committee* Press Release No. 27/2017 (31 May 2017) <https://www.eesc.europa.eu/en/news-media/press-releases/artificial-intelligence-europe-needs-take-human-command-approach-says-eesc#downloads>. See also EU AI Act, Article 14: Human oversight.

- 54 At present, law firms are much more likely to use AI developed by a third party, as opposed to developing their own AI programs.
- 55 Rosenberg, Carolyn H. & Cummings, David M. “Let’s “chat” about A.I. and insurance” *Reuters* (24 October 2023) <https://www.reuters.com/legal/legalindustry/lets-chat-about-AI-insurance-2023-10-24/>.
- 56 See discussion in Siva Kumar, Ram Shankar & Nagle, Frank. “The Case for AI Insurance” *Harvard Business Review* (29 April 2020) <https://hbr.org/2020/04/the-case-for-ai-insurance>.
- 57 American Bar Association, Model Rules of Professional Conduct, Rule 1.1: Competence. See also EU AI Act, Article 4: AI literacy.
- 58 American Bar Association, Model Rules of Professional Conduct, Comment to Rule 1.1: Competence. See also Cerny, Delchin & Others p. 4; Hedda Litwin, The Ethical Duty of Technology Competence: What Does it Mean for You?, National Association of Attorneys General, <https://www.naag.org/attorney-general-journal/the-ethical-duty-of-technology-competence-what-does-it-mean-for-you/>.
- 59 Litwin, Hedda. “The Ethical Duty of Technology Competence: What Does it Mean for You?” *National Association of Attorneys General* <https://www.naag.org/attorney-general-journal/the-ethical-duty-of-technology-competence-what-does-it-mean-for-you/>. According to Litwin, who is the Former Cyberspace Law Chief Counsel and NAGTRI Program Counsel National Association of Attorneys General, in 2017, twenty-eight states had “adopted the amendment verbatim, while other states have adopted a modified, and in some cases, less stringent version”.
- 60 These jurisdictions are: Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming (see American Bar Association, Jurisdictional Rules and Comparison Charts, [https://www.americanbar.org/groups/professional\\_responsibility/policy/rule\\_charts/](https://www.americanbar.org/groups/professional_responsibility/policy/rule_charts/)).
- 61 *E.g.*, Florida and North Carolina. Since 1 July 2023, newly admitted New York attorneys must complete at least one CLE hour in Cybersecurity, Privacy and Data Protection.  
See Southern University Law Center, State by State CLE Credits Requirements, <https://www.sulc.edu/page/5104>; New York State Bar Association, New York CLE Requirements,

- <https://nysba.org/new-york-cle-requirements/>; Ambrogi, Robert. “Florida Becomes First State To Mandate Tech CLE” *LawSites* (3 October 2016) <https://www.lawnext.com/2016/10/florida-becomes-first-state-mandate-tech-cle.html>; Ambrogi, Robert. “North Carolina Becomes Second State to Mandate Technology Training for Lawyers” *LawSites* (5 December 2018) <https://www.lawnext.com/2018/12/north-carolina-becomes-second-state-mandate-technology-training-lawyers.html>; Ambrogi, Robert. “New York Becomes First State to Mandate CLE in Cybersecurity, Privacy and Data Protection” *LawSites* (4 August 2022) <https://www.lawnext.com/2022/08/new-york-becomes-first-state-to-mandate-cle-in-cybersecurity-privacy-and-data-protection.html>.
- 62 Québec Bar, Code of Professional Conduct of Lawyers, Rule 21, <https://www.legisquebec.gouv.qc.ca/en/document/cr/b-1,%20r.%203.1>; Gril, Emanuelle. “Technologies de l’information : de nouvelles obligations déontologiques” *Barreau du Québec* (15 June 2021) <https://www.barreau.qc.ca/fr/nouvelle/dossier/pratique-droit-ere-nouvelles-technologies/technologies-information-nouvelles-obligations-deontologiques/>.
- 63 UNCITRAL Code of Conduct for Arbitrators in International Investment Dispute Resolution (2024), Article 6(b).
- 64 Commentary to the UNCITRAL Code of Conduct for Arbitrators in International Investment Dispute Resolution (2024), Comment to Article 6, para. 46.
- 65 As evidenced by, for example, by Katia Fach Gómez’s recent comprehensive study on the technological competence of arbitrators. See Fach Gómez, Katia. *The Technological Competence of Arbitrators: A Comparative and International Legal Study* (Springer 2023).
- 66 See e.g., Databricks, *A Compact Guide to Large Language Models*, Sections 1 & 2. <https://www.databricks.com/resources/ebook/tap-full-potential-LLM/>.
- 67 For example, consider ChatGPT 3.5’s different answers to questions about rock climbing in the Netherlands.

Query 1: “Where is the best place to go outdoor rock climbing in the Netherlands?”

ChatGPT 3.5: “One of the popular places for outdoor rock climbing in the Netherlands is in the South Limburg region, particularly around the town of Maas-tricht. There are several limestone quarries in this area that offer climbing opportunities, such as the Cauberg and the Sint Pietersberg.

Additionally, there are some indoor climbing gyms in the Netherlands that offer outdoor climbing excursions and courses, which can be a great option for those looking to explore outdoor climbing in a safe and guided environment.

Keep in mind that outdoor climbing areas may have specific regulations or access requirements, so it’s essential to research and plan your visit accordingly. Additionally, always prioritize safety and consider partnering with experienced climbers or guides if you’re new to outdoor climbing.”

Query 2: “Can one go outdoor rock climbing in the Netherlands?”

ChatGPT 3.5: “Yes, one can go rock climbing in the Netherlands. Despite the country’s flat geography, the Netherlands offers a variety of indoor and some outdoor artificial climbing facilities that cater to climbers of all skill levels. Indoor climbing gyms are widespread, providing opportunities for bouldering, top-rope, and lead climbing. Facilities like Monte Cervino in Bergschenhoek offer an outdoor artificial rock experience, while indoor centers like Klimmuur, Neoliet, and Bjoeks Klimcentrum feature extensive climbing walls and courses. These venues are equipped with routes for both beginners and experienced climbers, making rock climbing a popular and accessible sport throughout the country.” [emphasis added]

The wording of the first query *a priori* assumed that the Netherlands is a place to go rock-climbing, leading to a response that did put emphasis on the country’s flat terrain, while the second prompt was not embedded with such an assumption, leading to a more helpful answer.

Note that I used ChatGPT 3.5, not ChatGPT 4 to demonstrate this point – the latter, more advanced program of the AI, has had more extensive training, making its answers to both queries less blatantly different.

- 68 ‘Deepfakes’ are a form of synthetic media, which “use a form of artificial intelligence called deep learning” to create fake images, videos and/or audios, often used to mimic real persons. Deepfake audios are called ‘voice skins’ or ‘voice clones’. See Sample, I. “What Are Deepfakes and How Can You Spot Them?” *The Guardian* (13 January 2020) <https://www.theguardian.com/technology/2020/jan/13/what-are-deepfakes-and-how-can-you-spot-them>; Somers, Meredith. “Deepfakes, explained” *Massachusetts Institute of Technology, Sloan School* (21 July 2020) <https://mitsloan.mit.edu/ideas-made-to-matter/deepfakes-explained>.
- 69 See, e.g., Broger-Bareham, Kitty and Ball, Kieran. “Deepfaked evidence – are lawyers ready?” *The Law Society Gazette* (24 November 2023) <https://www.law-gazette.co.uk/practice-points/deepfaked-evidence-are-lawyers-ready/5118017>. article.
- 70 See, e.g., “Scammers trick firm out of \$26 million by impersonating senior executives using deepfakes” *The Journal* (4 February 2024) <https://www.thejournal.ie/deepfake-scam-hong-kong-6290706-Feb2024/>; Brewster, Thomas. “Fraudsters Cloned Company Director’s Voice In \$35 Million Heist, Police Find” *Forbes* (14 October 2021) <https://www.forbes.com/sites/thomasbrewster/2021/10/14/huge-bank-fraud-uses-deep-fake-voice-tech-to-steal-millions/>; Chen, Heather & Magramo, Kathleen. “Finance worker pays out \$25 million after video call with deepfake ‘chief financial officer’” *CNN* (4 February 2024) <https://edition.cnn.com/2024/02/04/asia/deepfake-cfo-scam-hong-kong-intl-hnk/index.html>.
- 71 If you want to learn more about how to formulate prompts to LLMS, see, e.g., Damji, Jules S. “Best Prompt Techniques for Best LLM Responses” *The Modern Scientist* (12 February 2024) <https://medium.com/the-modern-scientist/best->

- prompt-techniques-for-best-LLM-responses-24d2ff4f6bca; Dhamani, Numa & Engler, Maggie. “Maximizing the Utility of Large Language Models (LLMs) through Prompting” *InfoQ* (19 January 2024) <https://www.infoq.com/articles/large-language-models-LLMs-prompting/>; “LLM Prompting Guide” *Hugging Face* <https://huggingface.co/docs/transformers/main/en/tasks/prompting>; Nguyen, Isabelle. “The Beginner’s Guide to LLM Prompting” *Deepset* (15 June 2023) <https://haystack.deepset.ai/blog/beginners-guide-to-llm-prompting>.
- 72 For a general discussion, see, e.g., Jelly, Simon. “Garbage In, Garbage Out: The Role Of Data Management In Effective AI” *Forbes* (16 November 2023) <https://www.forbes.com/sites/forbesbusinesscouncil/2023/11/16/garbage-in-garbage-out-the-role-of-data-management-in-effective-ai/>. For more detailed discussions see machine learning researcher and engineer Hillary Sanders presentation at 2023 Black Hat USA <https://www.youtube.com/watch?v=7Dd41QDwmLY>.
- 73 See Amy Webb’s presentation at the 2023 sxsw Conference, [https://youtu.be/vMUpzxZB3-Y?si=XDz3Ntsf8vK\\_4AIW&t=3216](https://youtu.be/vMUpzxZB3-Y?si=XDz3Ntsf8vK_4AIW&t=3216). See also Webb, Amy. *The Big Nine: How the Tech Titans and Their Thinking Machines Could Warp Humanity* (Hachette USA, 2019).
- 74 See JusConnect, <https://jusconnect.com/en/directory/arbitrators/all>.
- 75 Langford, Malcolm, Behn, Daniel & Liepp, Runar Hilleren. “The Revolving Door in International Investment Arbitration” *Journal of International Economic Law* (2017) pp. 9-10.
- 76 See LinkedIn post regarding an updated version of the Top 25 list by Bordeaux University researcher Jeff Dorce, April 2024, <https://www.linkedin.com/feed/update/urn:li:activity:7184871862525399040/>.
- 77 Amy Webb’s presentation at the 2023 sxsw Conference, [https://youtu.be/vMUpzxZB3-Y?si=\\_Q4-KDGqWVCShid&t=3371](https://youtu.be/vMUpzxZB3-Y?si=_Q4-KDGqWVCShid&t=3371).
- 78 See, e.g., Dhaliya, D., Singh Dari, S., Dhaliya, A., Akhila, N., Kachhoriya, R. & Khetani, V. “Addressing Bias in Machine Learning Algorithms: Promoting Fairness and Ethical Design” *E3S Web of Conferences* 491 (February 2024) [https://www.researchgate.net/publication/378366879\\_Addressing\\_Bias\\_in\\_Machine\\_Learning\\_Algorithms\\_Promoting\\_Fairness\\_and\\_Ethical\\_Design](https://www.researchgate.net/publication/378366879_Addressing_Bias_in_Machine_Learning_Algorithms_Promoting_Fairness_and_Ethical_Design); Chandra, R., Sanjaya, K., Aravind, A.R., Abbas, A.R., Gulr ukh, R. & Kumar, S. “Algorithmic Fairness and Bias in Machine Learning Systems” *E3S Web of Conferences* 399 (July 2023) [https://www.researchgate.net/publication/372339319\\_Algorithmic\\_Fairness\\_and\\_Bias\\_in\\_Machine\\_Learning\\_Systems](https://www.researchgate.net/publication/372339319_Algorithmic_Fairness_and_Bias_in_Machine_Learning_Systems).
- 79 <https://hbr.org/2022/01/can-AI-teach-us-how-to-become-more-emotionally-intelligent>.
- 80 Mayer J.D., Salovey P. “The intelligence of emotional intelligence” *Intelligence* 1993;17:432-42.
- 81 Tao, Jianhua & Tan, Tieniu. “Affective Computing: A Review” *Affective Computing and Intelligent Interaction*. Vol. LNCS 3784. Springer (2005) pp. 981-995; Picard, R.W. “Affective Computing” *MIT Media Laboratory, Perceptual Computing Section Technical Report* 321, Revised 26 November 1995; <https://www.datacamp.com/blog/what-is-affective-computing>.

- 82 <https://www.linkedin.com/pulse/humans-more-emotional-intelligence-role-ai-vinayak-singh-shekhawat/>.
- 83 E.g.: Affectiva – a technology company that specializes in emotion measurement software, which uses artificial intelligence to analyze facial expressions and emotions in videos and real-time interactions with customers.  
<https://www.affectiva.com/>.  
Cogito – a technology company that develops AI software designed to enhance emotional intelligence in phone conversations, offering real-time guidance to improve customer engagement for enterprise clients.  
<https://cogitocorp.com/>.
- 84 See Affective Tutoring Systems as discussed in Fwa, Hua Leong. “An architectural design and evaluation of an affective tutoring system for novice programmers” *International Journal of Educational Technology in Higher Education* Volume 15, Article number: 38 (2018).
- 85 E.g., Nevermind – an adventure video game that incorporates biofeedback to adjust its difficulty based on the player’s level of stress and fear, encouraging players to learn stress management techniques.  
<https://nevermindgame.com/about>.
- 86 EU AI Act, Article 5: Prohibited AI practices, paragraph (1)(f), Annex III, paragraphs 1(c), 4.
- 87 EU AI Act, Article 6: Classification rules for high-risk AI systems, paragraphs (1), (2) and the last subparagraph of paragraph (3).
- 88 EU AI Act, Article 26: Obligations of deployers of high-risk AI systems, *see* paragraph (7) specifically regarding the obligation to inform employees.
- 89 See Affectiva website, <https://www.affectiva.com/>.
- 90 See Affectiva website, Solutions, <https://www.affectiva.com/solutions/>.
- 91 See, e.g., Rubino, Kathryn. “Law Firm Life Is Terrible For Your Health” *Above The Law* (24 November 2015) <https://abovethelaw.com/2015/11/law-firm-life-is-terrible-for-your-health/>; Edwards, Ben. “Undervalued lawyers more likely to suffer well-being issues, study finds” *Global Legal Post* (7 June 2022) <https://www.globallegalpost.com/news/undervalued-lawyers-more-likely-to-suffer-well-being-issues-study-finds-410901776>; Patrice, Joe. “You Didn’t See Your Kids Before The Pandemic, You Shouldn’t Expect To See Them Now,’ Says Elite Law Firm Partner” *Above The Law* (25 May 2023) <https://abovethelaw.com/2023/05/you-didnt-see-your-kids-before-the-pandemic-you-shouldnt-expect-to-see-them-now-says-elite-law-firm-partner/>; Mawardi, Adam & Burton, Lucy. “The City lawyers working themselves to death” *The Telegraph* (10 March 2024) <https://www.telegraph.co.uk/business/2024/03/10/city-of-london-lawyers-working-themselves-to-death/>.
- 92 The exact prompt to ChatGPT 4 was as follows:

“Imagine that you are a senior partner at a large international law firm. A male junior partner on your team just welcomed a baby. His wife had serious complications during the delivery, and both her and the baby remain in hospital. His wife is in critical condition in one hospital, while the baby is in critical but stable condition in another hospital. During the past few weeks, the junior partner has been going from one hospital to the other to visit his wife and new



baby. As a result of this, the junior partner has not been as present at work as usual. You are concerned about the junior partner neglecting his work because of this situation. What do you say to him?"

- 93 Axelrod, Sheryl L. "The Underrepresentation of Women at the Highest Levels of the Legal Profession" *Law Practice Today* (5 October 2022) <https://www.lawpracticetoday.org/article/despite-all-the-profession-has-to-gain-from-our-greater-inclusion-the-under-representation-of-women-at-the-highest-levels-of-the-legal-profession/>; Zaretsky, Staci. "The 2023 Biglaw Diversity Scorecard: More Progress Amid A War On DEI" *Above The Law* (31 May 2023) <https://abovethelaw.com/2023/05/biglaw-diversity-scorecard/>; Roe, Dan. "Diversity Improving at Law Firms, but Forces Are Working Against Those Efforts" *Law.com* (31 May 2023) <https://www.law.com/americanlawyer/2023/05/31/diversity-improving-at-law-firms-but-forces-are-working-against-those-efforts/>; Monnay, Tatyana. "Affirmative Action's Demise Threatens Big Law Diversity Pipeline" *Bloomberg Law* (30 June 2023) <https://news.bloomberglaw.com/business-and-practice/affirmative-actions-demise-threatens-big-law-diversity-pipeline/>; Packel, Dan. "The Law Firm Disrupted: A Fresh Take on Big Law's Diversity Problem" *Law.com* (25 January 2024) <https://www.law.com/2024/01/25/the-law-firm-disrupted-a-fresh-take-on-big-laws-diversity-problem/>, discussing book by sociologist and former Wilmer associate Kevin Woodson, see Woodson, Kevin. *The Black Ceiling: How Race Still Matters in the Elite Workplace* (University of Chicago Press 2023).
- 94 A&O Shearman Website, Profile of Kevin Oliver, <https://www.aoshearman.com/en/people/kevin-oliver>.
- 95 Asimov, Isaac. "The Three Laws" *Compute!* (November 1981) p. 18, <https://archive.org/details/1981-11-compute-magazine/page/18/mode/2up?view=theater>.





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Matthias Lehmann is a professor at the University of Vienna, as well as at Radboud University Nijmegen. His main interests lie in private international law, comparative law, and dispute resolution. He has taught courses on comparative law and a special course on the crypto economy at the Hague Academy of International Law. Matthias is a member of the Council of the European Law Institute (ELI), of the American Law Institute (ALI), of the Academia Europaea (AE), and various other organisations. He has been visiting Oxford University, LSE, Stanford University, and the National University of Singapore. Matthias has participated in various UNIDROIT and HCCH Working Groups, inter alia on Digital Assets and Digital Tokens.

Aija Lejniece is an independent counsel and arbitrator based in Paris. She advises governments and private entities in international commercial and investment disputes across a broad range of jurisdictions and business sectors. Aija was also one of the first international arbitration specialists to branch out into crypto disputes, most notably advising traders in a dispute against the world's largest cryptocurrency exchange, Binance. The Government of Latvia recently appointed her as a Member of the Court of the Permanent Court of Arbitration.

Sean McCarthy is an Irish barrister, New York attorney and founder of Aegis Arbitration, an international disputes consultancy practice. He is a former Deputy Counsel at the International Chamber of Commerce in Paris. Sean is also a co-founder and moderator for ArbTech, a knowledge-sharing platform fostering cross-disciplinary dialogue on technology, dispute resolution and the future of justice. Sean is a founding member of Blockchain Ireland's Legal Working Group as well as VIAC's Legal Tech Think Tank (LTTT).

Sophie Nappert is an arbitrator in independent practice, based in London. She is dual-qualified as an Avocat of the Bar of Quebec, Canada and as a Solicitor of the Supreme Court of England and Wales. Before becoming a full-time arbitrator, she pursued a career as an advocate and was Head of International Arbitration at a global law firm. She is commended as “most highly regarded” and a “leading light” in her field by Who’s Who Legal. Sophie is a pioneering practitioner at the intersection of arbitration and Legal Tech. In 2019, she completed the University of Oxford’s Saïd Business School Programme on Blockchain Strategy. In 2021, she co-founded ArbTech, a knowledge-sharing platform fostering cross-disciplinary dialogue on technology, dispute resolution and the future of justice. In its first year of existence, ArbTech was shortlisted at the 2022 GAR Awards.

Ekaterina Oger Grivnova is an international arbitration lawyer with expertise in Web3, crypto-assets, and the Metaverse. Recognised in Legal500, she has advised on high-profile investment and commercial disputes across various sectors and arbitration rules. She has also taught international arbitration and comparative law at the Paris Bar School and the University of Versailles and is currently completing her PhD. Ekaterina is the founder of MetaverseLegal, a decentralised community exploring the legal implications of Web3, and the initiator of Web3TuesDays, a webinar series on Law and Web3. She has spoken at global conferences on blockchain, NFTs, and metaverse-related disputes.

Maud Piers is an associate professor at Ghent University and Coordinator at the Center for the Future of Dispute Resolution. She serves as an arbitrator in domestic and international cases and is vice-president at Cepani. Maud edited *Arbitration in the Digital Age*, pioneering digitalization in arbitration, and has over 100 publications on the subject. She is widely recognized for her expertise and thought leadership on the future of dispute resolution, actively contributing to various working groups, including those with Cepani, CIArb, and the Vienna International Arbitral Centre (VIAC).

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In an era where technology is rapidly transforming the legal landscape, *Transforming Arbitration* explores how innovations like AI, blockchain, the Metaverse, and Web3 are reshaping arbitration as a key form of dispute resolution. The book features insights from leading academics, practitioners, and policymakers, offering a comprehensive look at how these advancements are influencing our conceptual, substantive and procedural understandings of many parts of this field.

Each chapter examines the challenges and opportunities presented by these technologies, raising important questions about the compatibility of traditional arbitration processes with digital innovations. As the legal field adapts to developments like cryptocurrencies, NFTs, and 'virtual' disputes, this book provides valuable guidance on the future implications for arbitration. By questioning established norms and advocating for fresh approaches, *Transforming Arbitration* is a vital resource for legal professionals and scholars committed to evolving with the times.

Combining theoretical exploration with practical recommendations, this collaborative volume equips the legal community with the tools to navigate the complexities of our digital age with confidence and foresight.

**Maud Piers** is an associate professor at Ghent University and Coordinator at the Center for the Future of Dispute Resolution. She serves as an arbitrator in domestic and international cases, is a certified mediator and is vice-president at CEPANI. Maud edited *Arbitration in the Digital Age*, pioneering digitalization in arbitration, and has over 100 publications on the subject. She is widely recognized for her expertise and thought leadership on the future of dispute resolution, actively contributing to various working groups, including those with CEPANI, CIARB, and VIAC.

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