

CHAPTER 7

Picking the Proper Technological Tool for Problem-Solving in Arbitration

AMY J. SCHMITZ¹

I Introduction

Recent years have seen new technologies disrupt many established industries and institutions, continually defying predictions and defying our expectations.² 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.³

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).⁴ 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.⁵ 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).⁶ 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.⁷

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 Chat-GPT “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.”⁸

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.⁹ 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*.¹⁰ 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 Arbitration¹¹

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.¹² 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.¹³ Kleros aims to be “[a] fast, inexpensive, transparent, reliable and decentralized” ODR system built on game theory and crowdsourced justice.¹⁴ 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.¹⁵ 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.¹⁶

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.¹⁷ 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.¹⁸ 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.”¹⁹ 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,²⁰ 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*.²¹ 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.²² 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.²³ 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.²⁴ 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.²⁵

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.²⁶

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

- 1 Thank you to Lara Estevez for her research assistance.
- 2 See *MIT Technology Review* Vol. 123, No. 2, Mar.-Apr. 2020, at 15-17.
- 3 Susskind, Richard. *Tomorrow's Lawyers: An Introduction to Your Future* Oxford University Press 2d ed. (2017).
- 4 Schmitz, Amy J. "Drive-Thru' Arbitration in the Digital Age: Empowering Consumers Through Regulated ODR" 62 *Baylor Law Review* 178, 178-244 (2010) (proposing "oarb" as a distinct type of online dispute resolution).
- 5 See generally Schmitz, Amy J. & Rule, Colin. *The New Handshake: Online Dispute Resolution and the Future of Consumer Protection* ABA Book Publishing (2017) (hereafter Schmitz & Rule); See also Schmitz, Amy J. "Building on oarb Attributes in Pursuit of Justice" in Piers, Maud & Aschauer, Christian (eds.) *Arbitration in the Digital Age: The Brave New World of Arbitration* Cambridge University Press (2018) (hereafter Schmitz).
- 6 *Id.*
- 7 Katsh, Ethan & Rule, Colin. "What We Know and Need to Know About Online Dispute Resolution", 67 *South Carolina Law Review* 329, 330. See also Katsh, Ethan & Rabinovich-Einy, Orna. *Digital Justice: Technology and the Internet of Disputes* 1-25 Oxford University Press (2017).

- 8 Schmitz, Amy J. & Rule, Colin “2023: The Year of oArb” *Arbitrate.com* (January 17, 2023) <https://arbitrate.com/2023-the-year-of-oarb/>; Schmitz, Amy J. & Rule, Colin. “oArb Enters the Age of Artificial Intelligence” *American Bar Association Dispute Resolution Magazine* (2023). The American Bar Association and others have been working on Guidance and Standards around the use of technology in dispute resolution for some time. This includes consideration of AI. See Larson, David., Schmitz, Amy J. & Weiner, Alan. “ABA ODR Guidance Has Been Adopted” 38 *Ohio State Journal on Dispute Resolution* 235 (2023).
- 9 Of course, there will be public data in cases where the arbitration award is enforced in court. However, most awards are simply followed and the parties never bring the award to court for enforcement.
- 10 Vermeys, Nicolas & Schmitz, Amy J. “Arbitration Conversation No. 40: Prof. Nicolas Vermeys of the University of Montreal Law School” *Arbitrate.com* (December 21, 2020) <https://arbitrate.com/arbitration-conversation-no-40-prof-nicolas-vermeys-of-the-university-of-montreal-law-school/>.
- 11 For related or alternative definitions of blockchain arbitration, see also: Chapter 2, p. 40 and Chapter 3, p. 72-73.
- 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>.
- 13 Lesaege, Clément & Ast, Federico. “Kleros Whitepaper” 1 (November 2018), <https://kleros.io/assets/whitepaper.pdf>.
- 14 *Ibid.*
- 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.
- 18 *Ibid.*; See also Lesaege, Clément & George, William. “Kleros and Augur, Keeping People Honest on the Blockchain Through Game Theory” *Kleros* (11 February 2018) <https://medium.com/kleros/kleros-and-augur-keeping-people-honest-on-ethereum-through-game-theory-56210457649c>.
- 19 See “Demystifying the Metaverse” *PwC* <https://www.pwc.com/us/en/tech-effect/emerging-tech/demystifying-the-metaverse.html>.
- 20 For example, “Grinhaus Law, a business firm that provides tax and securities advice on blockchain law and cryptocurrency regulation, has set up shop in the metaverse. The firm opened a virtual office in “Decentraland,” a platform where people interact, play and make blockchain and cryptocurrencies transactions.” Ormandi, Annabel. “Grinhaus law establishes firm in the metaverse with virtual office in Decentraland” *Law Times* (February 2022) <https://www.lawtimesnews.com/practice-areas/corporate-commercial/grinhaus-law-establishes-firm-in-the-metaverse-with-virtual-office-in-decentraland/363871>.
- 21 Cohen, Paul & Schmitz, Amy J. “Arbitration Conversation No. 7: Arbitrator Paul Cohen” *Arbitrate.com* (9 August 2022) <https://arbitrate.podbean.com/e/episode-7-envisioning-arbitration-in-the-metaverse/>.
- 22 See El Ahdab, Jalal & Bentley, Claire. “Paris Arbitration Week Recap: Blockchain, nfts, and the Metaverse” *Kluwer Arbitration Blog* (14 May 2022)

- <http://arbitrationblog.kluwerarbitration.com/2022/05/14/paris-arbitration-week-recap-blockchain-nfts-and-the-metaverse/>.
- 23 See Asso, Juliette & Azaria, Laura. “Arbitration in the Metaverse: How to Anticipate and Resolve Web3 Disputes” *The Fashion Law* (23 May 2022) <https://www.thefashionlaw.com/arbitration-in-the-metaverse-how-to-anticipate-and-resolve-web3-disputes/>; Susskind, Richard. *Tomorrow’s Lawyers: An Introduction to Your Future* Oxford University Press 2d ed. (2017).
- 24 Amsler, Lisa B., Martinez, Janet K. & Smith, Stephanie E. *Dispute System Design* Stanford University Press (2020); Smith, Stephanie E. & Martinez, Janet K. “Analytic Framework for Dispute System Design” *Harvard Negotiation Law Review* (Winter 2007).
- 25 Schmitz, Amy J. & Martinez, Janet K. “ODR and Innovation in the United States” in Abdel Wahab, Mohamed S., Katsh, Ethan & Rainey, Daniel (eds.) *Online Dispute Resolution: Theory and Practice: A Treatise on Technology and Dispute Resolution* Eleven International Publishing, Netherland: The Hague (2021).
- 26 Schmitz & Rule.