Artificial Intelligence and Arbitration: A US Perspective

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Introduction

As artificial intelligence (AI) continues to develop, legal industries around the world face complicated questions regarding the scope and role that AI technologies can and should play in legal practice. This article sets out to identify and discuss certain challenges and opportunities that the development of AI may pose to legal practice from a US perspective, with a focus on AI's applications to US dispute resolution generally, and to US arbitration in particular.

This article proceeds in three parts. First, it discusses the intractable problem of defining AI, highlighting competing definitions and the ways of conceptualising AI from a technical and social perspective. Secondly, it discusses how AI is already influencing dispute resolution in the United States (through assistance with case management, legal research, discovery, and more) and how it will undoubtedly continue to do so moving forward (potentially as a sophisticated tool for arbitrator selection and the adjudication of arbitral disputes). Thirdly, this Article analyses some key US legal considerations that may influence how AI will be integrated into US dispute resolution systems, including arbitration. As a federal legal system with a common law heritage, the layered US legal system is a complex site for adoption of AI in general, and AI in arbitration in particular. US product liability law, federal regulators, potential and enacted legislation, and the basic tenets of American dispute resolution each bear on AI's current and future roles in US dispute resolution systems.

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In undertaking the above, a few trends become apparent. The combination of a developing technology with a developing legal landscape is a recipe for uncertainty, which may bear on how and when actors adopt AI tools. Additionally, the sheer variety of those actors – parties, counsel, arbitrators, arbitral institutions, federal and state agencies, AI vendors – and the varied sources of law in the US federal system generates complexity when adapting the use of AI tools for arbitration practice. Finally, regulation does not happen in a vacuum; the regulation of AI in general, and AI in arbitration in particular, is coloured by regulatory competition between countries competing for gains from supreme AI technology and from attractive arbitral law.

Ultimately, AI technologies offer tremendous opportunities to the field of arbitration, whose contract-basis uniquely positions it to take advantage of legal innovations.

Defining artificial intelligence

Necessary to any analysis of the present and future uses of AI tools in the legal practice is an understanding of artificial intelligence itself. A consensus definition for AI has proven elusive, and substantial disagreement exists as to when a piece of technology transcends the bounds of an ordinary computer to become an 'intelligent' machine.[1] This article does not purport to offer an answer to this question, but it does explore current definitions of AI to provide a foundation for understanding how AI is already interacting with US dispute-resolution systems, and how it may do so in the future.

A 2006 article published in the *Washington Times* sought to summarise why achieving a uniform definition of AI has proven intractable. Although older by technology standards, its message remains relevant today. 'When we know how a machine does something "intelligent," it ceases to be regarded as intelligent. If I beat the world's chess champion, I'd be regarded as highly bright. When a computer does it by sorting through all possible moves, people say, "That's not thinking. It's just being stupid real fast".'[2] Indeed, Rodney Brooks, former director of MIT's Artificial Intelligence Laboratory, has observed of AI that '[e]very time we figure out a piece of it, it stops being magical; we say, "Oh, that's just a computation"'.[3] Both the article in the *Washington Times* and Brooks suggest that defining what constitutes AI is

1 See, eg, Darrell M West, 'What is Artificial Intelligence?', Brookings Institute (4 October 2018) (explaining that society lacks a uniform definition as to what constitutes AI).

2 'Promise of AI not so bright' (13 April 2006) at www.washingtontimes.com/news/2006/apr/13/20060413-105217-7645r [accessed 7 March 2022].

3 Jennifer Kahn, 'It's Alive', Wired (1 March 2002)) at www.wired.com/2002/03/everywhere [accessed 7 March 2022].

necessarily a subjective exercise, and the group of technologies that satisfy a given definition are fluid. Thus, under this conception of AI, there is no guarantee that a technology considered today to be 'intelligent' will retain this designation in the future.

Despite these challenges, academics and experts have not been shy in offering definitions of AI. Many definitions opt to focus on the degree to which a computer appears to reason and problem-solve at the level of human beings:

> 'Artificial intelligence is the study of ideas to bring into being machines that respond to stimulation consistent with traditional responses from humans, given the human capacity for contemplation, judgment and intention.'[4]

while others focus more heavily on an AI's ability to engage in complex reasoning:

> 'Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions.'[5]

> 'The term "artificial intelligence" means a machine-based system that can, for a given set of *human-defined objectives*, make *predictions, recommendations or decisions* influencing real or virtual environments. Artificial intelligence systems use machine and human-based inputs to –
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> (A) perceive real and virtual environments;
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> (B) abstract such perceptions into models through analysis in an automated manner; and
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> (C) use model inference to formulate options for information or action.'[6]

One simple definition states:

> '[M]achine learning is the capability of computers to teach themselves and learn from experience. This means that the AI can do more than

4 Darrell M West, 'What is Artificial Intelligence?', Brookings Institute (4 October, 2018); see also Shukla Shubhendu S, Jaiswal Vijay, 'Applicability of Artificial Intelligence in Different Fields of Life' (September 2013).

5 See www.aepd.es/sites/default/files/2019-12/ai-definition.pdf [accessed 7 March 2022].

6 See also The National AI Initiative Act, 15 USC § 9401(3).

> blindly adhere to what it has been programmed to do, but can learn from experience and data to constantly improve its capabilities.'[7]

Common in present-day discussions about AI is a focus on AI's potential 'black-box' nature,[8] representing the idea that the results produced by many advanced AI algorithms are not fully understood, even by the algorithm's human creators.[9] As one AI team lead put it: 'We can build these models, but we don't know how they work.'[10]

The concept of AI as a black box ties in nicely with Brooks's observation that AI is, at least in popular culture, understood as being somehow 'magical'. While an ordinary computer may be capable of performing complex but comprehensible calculations quickly, for certain AI, the tool's processes seem opaque to the human observer: it is not clear how the tool gets from point A to point B. To the extent humans come to understand how a specific AI tool goes about performing its processes, that tool begins to appear less magical.

Regardless of the definition one applies, AI applications are growing in usage and scope in the legal field. Applications outside of the law already include applications in the fields of medicine, journalism, autonomous vehicles and anti-fraud efforts.[11] AI has also been recognised as an essential element of national power**:**

> 'AI systems will … be used in the pursuit of power. We fear AI tools will be weapons of first resort in future conflicts. AI will not stay in the domain of superpowers or the realm of science fiction. AI is dual-use, often open-source, and diffusing rapidly. State adversaries are already using AI-enabled disinformation attacks to sow division in democracies and jar our sense of reality. States, criminals, and terrorists will conduct AI-powered cyber attacks and pair AI software with commercially available drones to create "smart weapons".'[12]

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7 Gary E Marchant, 'Artificial Intelligence And The Future Of Legal Practice'. Document Crunch, www.documentcrunch.com/ai-news-artificial-intelligence-and-the-future-of-legal-practice.php [accessed 13 March 2022].

8 See, eg, Vijay Pande, 'Artificial Intelligence's "Black Box" is Nothing to Fear', New York Times (24 January 2018) ('[T]he unseeable space between where data goes in and answers come out is often referred to as a "black box".').

9 Will Knight, 'The Dark Secret at the Heart of AI', MIT Technology Review (11 April 2017), www.technologyreview.com/2017/04/11/5113/the-dark-secret-at-the-heart-of-ai [accessed 13 March 2022].

10 *Ibid.*

11 Darrell M West and John R Allen, 'How artificial intelligence is transforming the world', Brookings (24 April 2018), www.brookings.edu/research/how-artificial-intelligence-is-transforming-the-world [accessed 13 March 2022].

12 Final Report, National Security Commission on Artificial Intelligence.

With respect to the law in particular, the legal industry as a whole is fertile ground for disruption by technology, including the use of AI tools. The history of law dates back thousands of years, and the legal field has not been known as an early adopter of new technologies or approaches. To the contrary, in legal systems generally, and in common law systems (like the US) in particular, the law develops more slowly as cases are decided and precedent is made, and then followed. Legal practice, however, is an industry motivated by competitive forces driving towards increased speed and lowered costs. It should be unsurprising, therefore, that these confluence of factors render AI in the legal field an area of considerable and growing attention.[13] As one commentator noted: 'The law is in many ways particularly conducive to the application of AI and machine learning. Machine learning and law operate according to strikingly similar principles: they both look to historical examples in order to infer rules to apply to new situations.'[14] This article reviews below how AI is already impacting, and will likely continue to impact, dispute resolution in the United States.

Present and future applications of AI in US dispute resolution

To be clear, AI tools are already in use in the legal field, and have been for years. Many companies have developed AI tools that target various aspects of legal practice, covering elements of both traditional litigation and arbitration.[15] Importantly though, future applications of AI in the US legal field, such as using AI in the adjudication of the merits of arbitral disputes, will face additional thought and scrutiny before widely being put into practice.[16]

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13 See Harry Surden, 'Artificial Intelligence and Law: An Overview', (2019) 35 Georgia State University Law Review 1306, 1327–1328; Calum Chance, 'The Impact of Artificial Intelligence on the Law', Forbes (22 October 2020), www.forbes.com/sites/calumchace/2020/10/22/the-impact-of-artificial-intelligence-on-the-law/?sh=28133bb76b45 [accessed 13 March 2022]; Rob Toews, 'AI Will Transform The Field of Law', Forbes (19 December 2019) www.forbes.com/sites/robtoews/2019/12/19/ai-will-transform-the-field-of-law [accessed 13 March 2022]; Bernard Marr, 'How AI and Machine Learning are Transforming Law Firms and the Legal Sector', Forbes (23 May 2018), www.forbes.com/sites/bernardmarr/2018/05/23/how-ai-and-machine-learning-are-transforming-law-firms-and-the-legal-sector/?sh=4f2c6f0d32c3 [accessed 13 March 2022].

14 Toews, above n 13.

15 *Ibid.*

16 See below.

Current uses of AI legal tools

Presently, AI legal tools available in the US focus on assisting lawyers with case management and administrative tasks. These tasks include document review, legal research, contract drafting, case analysis and case management. In fact, early AI legal projects and tools date back to the mid-20th century.[17] 'Since at least 1987, the International Conference of Artificial Intelligence and Law […] has held regular conferences showcasing these applications of AI techniques to law.'[18] By the start of the 21st century, AI legal tools shifted to focus on machine learning techniques, and many early advances focused on the development of predictive coding and technology-assisted document review.[19] While some of these tools fall closer to 'efficient processing' than 'artificial intelligence' on the AI spectrum, they generally carry the hallmarks of AI: they tend to accomplish tasks traditionally reserved for human judgment; they often predict, recommend, or otherwise accomplish complex goals, and their processes are the result of machine-learning or black-boxed algorithms.

These tools accomplish tasks including document review, legal research, contract drafting, case analysis and case management. In fact, the earliest uses of AI in legal application date back to 2005 and 2006, which marked the early days of technology-assisted document review or TAR.[20] Since then, the uses and applications have expanded.

CASE MANAGEMENT AND ADMINISTRATIVE TASKS

Case management and administrative tasks are a key element of any legal practice, including arbitration. Lawyers must not only keep track of the law, but they must also keep abreast of deadlines, materials, and documents. Currently available AI tools aim to assist lawyers in managing these tasks so that they can spend more time on the analytical aspects of legal practice.[21] For example, AI powered tools are already helping lawyers with the tedious, but necessary, element of legal practice: scheduling.[22] As any lawyer can attest, deconflicting schedules and resolving calendar conflicts are a feature

17 Surden, above n 13, at 1327.

18 Surden, above n 13, at 1327.

19 Surden, above n 13, at 1328.

20 www.lawtechnologytoday.org/2015/11/history-technology-assisted-review [accessed 13 March 2022].

21 *Ibid*.

22 X.ai, a start-up recently acquired by events-management company Bizzabo, offered an AI-powered scheduling assistant to automate scheduling and increase productivity. Hope Reese, 'How to use AI to automatically schedule your appointments with x.ai', TechRepublic (16 March 2016), www.techrepublic.com/article/how-to-use-ai-to-automatically-schedule-your-appointments-with-x-ai [accessed 13 March 2022].

of legal practice that consume a fair amount of time, and can be done more efficiently with automated tools.[23]

Beyond scheduling, AI tools already assist with transcription and translation services. Arbitration, as well as litigation, often requires lawyers to transcribe and translate documents, particularly in the context of international arbitrations. Typically, lawyers rely on human court reporters and translators (if necessary) to record depositions, proceedings, and other meetings. Several companies aim to replace this human transcription and translation with AI-driven alternatives through the use of voice recognition technology.[24] AI transcribers and translators can likely more efficiently convert speech into text or translate one language into another at lesser cost, although the documents still often need human review.

Contract drafting, analysis, and management

Contracts are often at the heart of any litigation or arbitration. Several companies already offer AI-powered tools to assist lawyers with drafting, analysing, and managing contracts. For example, several companies offer AI tools to enable lawyers to build contracts based upon databases of prior contracts or their own contracts.[25] AI contract tools can be further trained to locate specialised contract terms, depending on a lawyer's needs, by reviewing and learning from a curated database of contracts.[26] Similarly,

23 Horst G M Eidenmueller and Faidon Veresis, 'What is an Arbitration? Artificial Intelligence and the Vanishing Human Arbitrator', 8–9 (17 June 2020) (unpublished manuscript) at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3629145 [accessed 13 March 2022]; 'Bizzabo Acquires Klik to Transform In-Person Events Into Immersive, Data Driven Experiences', Yahoo! Finance (16 November 2021), https://ca.finance.yahoo.com/news/bizzabo-acquires-klik-transform-person-160000634.html [accessed 13 March 2022]; Hope Reese, TechRepublic (16 March 2016), www.techrepublic.com/article/how-to-use-ai-to-automatically-schedule-your-appointments-with-x-ai [accessed 13 March 2022].

24 For example, Verbit is a start-up that aims to provide AI-powered transcription services: 'About Us', Verbit (2021), https://verbit.ai/about-us [accessed 13 March 2022]; see also Niket Nishant & Manya Saini, 'Transcription services provider Verbit raises pre-IPO funding at $2 billion valuation', Reuters (23 November 2021), https://cn.reuters.com/article/verbit-funding-idCNL4N2SA2KN [accessed 13 March 2022]; and TransPerfect is a company that provides machine translation and foreign-language document review, 'AI & Machine Translation', TransPerfect (2022), https://www.transperfect.com/solutions/translation-and-language-services/ai-and-machine-translation [accessed 13 March 2022].

25 Examples of these companies include Kira, Lawgeex, Clearlaw and LexCheck. 'How Kira Works', Kira (2021), https://kirasystems.com/how-kira-works [accessed 13 March 2022]; 'About Us', Lawgeex (2022), www.lawgeex.com/company [accessed 13 March 2022]; 'The Clearlaw Contracting Platform', Clearlaw (2020), www.clearlaw.ai/copy-of-features [accessed 13 March 2022]; 'About', Lexcheck (2021), www.lexcheck.com/about [accessed 13 March 2022].

26 'How Kira Works', Kira above n 25; 'The Clearlaw Contracting Platform', Clearlaw (2020), above n 25.

AI-powered contract tools also seek to help lawyers quickly identify key contract provisions or important differences between contracts[27] and even suggest changes or replacement language.[28]

Legal research

Another central aspect of legal practice is legal research. As a common-law legal system, in the United States, legal research skills are critical to success in practice and are thus developed early and are a subject of emphasis within US law schools. Lawyers spend considerable time and resources identifying and dissecting case law relevant to their matters, which is why legal research can also be a major cost centre of US legal practice.[29]

Currently, several AI and data-driven tools assist lawyers with legal research, making legal research faster and more accurate.[30] The traditional method of modern legal research requires that lawyers search for relevant precedent through Boolean search terms (eg, 'AND', 'OR', 'NOT').[31] Under the traditional method, lawyers must string together an appropriate batch of search terms, which requires accounting for synonyms, spelling differences, and variations in legal terms. If the search terms are too narrow, lawyers risk missing key precedent. But if the search terms are too broad, lawyers risk spending hours sorting through irrelevant case law. In contrast, AI legal research tools facilitate natural-language searches, which allow lawyers to search by asking a question or entering a phrase or statement.[32] This method is more intuitive and does not require a lawyer to think through all possible synonyms or term variations. Moreover, beyond simplifying the research process to reflect natural speech, several companies

27 Toews, above n 13; Marr, above n 13.

28 'About Us', Lawgeek, above n 25; 'About', Lexcheck, above n 25.

29 See David Houlihan, 'How Research Efficiency Impacts Law Firm Profitability', Law360 (11 September 2014), www.law360.com/articles/575667/how-research-efficiency-impacts-law-firm-profitability [accessed 13 March 2022].

30 See Toews, above n 13; Marr, above n 13; Robert Ambrogi, 'New feature in Westlaw Edge tool uses artificial intelligence to analyze briefs', ABA Journal (12 July 2019), www.abajournal.com/news/article/new-feature-in-westlaw-edge-uses-ai-to-analyze-your-briefs [accessed 13 March 2022]; 'LexisNexis Launches AI/Ravel-Powered 'Context' Analytics System', Artificial Lawyer (29 November 2018); 'CARA AI', Casetext (2021), https://casetext.com/cara-ai [accessed 13 March 2022].

31 See Shauntee Burns, 'What is Boolean Search?', New York Public Library (22 February 2011), https://www.nypl.org/blog/2011/02/22/what-boolean-search [accessed 13 March 2022].

32 Nicole Black, 'Lawyers have a bevy of advanced and AI-enhanced legal research tools at their fingertips', ABA Journal (22 November 2019), https://www.abajournal.com/web/article/lawyers-have-a-bevy-of-advanced-and-ai-enhanced-legal-research-tools-at-their-fingertips [accessed 13 March 2022].

have developed tools to identify supporting or contrary precedent.[33] AI legal research tools provide confidence that a lawyer has exhausted the field of relevant cases and not missed important precedent. Overall, these AI-driven tools increase lawyers' research productivity while also ensuring that key precedent is identified and saving clients money.

Discovery

Discovery is another area that has been a long-term focus area for application of AI technologies.[34] It is increasingly common for large disputes to involve millions of pages or emails.[35] All of this information must be searched, filtered, and reviewed by lawyers for relevance and privilege.[36] Several companies now provide tools to automate some of the discovery process. 'Predictive coding' tools allow lawyers to code sample subsets of documents which are used to train an AI. Based on the sample, an AI tool predicts which un-reviewed documents are likely to be relevant to the dispute. As the tool reviews more documents and receives human feedback on what is or is not relevant, the tool gets progressively better at identifying documents.[37] These tools can help decrease the amount of time that lawyers spend performing document review.[38] Beyond predictive coding, linguistic analysis technologies assist document review. These tools analyse language to determine the underlying semantic meaning, which is then indexed and made searchable through a variety of phrasings. [39] These tools help identify responsive discovery documents, and also increase the speed and precision of lawyers in retrieving information for document databases.

Future uses of AI: arbitrator selection and adjudication

Whereas currently available AI legal tools aim to assist with lawyers' tasks, AI could expand to help parties select arbitrators or to become a tool for

33 *Ibid.*

34 Surden, above n 13, at 1329–1330.

35 *Ibid.*; see also Nicholas M Pace and Laura Zakaras, 'The Cost of Producing Electronic Documents in Civil Lawsuits', (2012) Rand, 1–2.

36 Surden, above n 13, at 1329–1330.

37 See Surden, above n 13, at 1329–1330; see also 'How to make the e-discovery process more efficient with predictive coding', Thomson Reuters, https://legal.thomsonreuters.com/en/insights/articles/how-predictive-coding-makes-e-discovery-more-efficient#:~:text=Essentially%2C%20predictive%20coding%20is%20a%20tool%20that%20allows,of%20your%20predictive%20coding%20software%20for%20quality%20assurance [accessed 13 March 2022].

38 *Ibid.*

39 Daniel G Babrow, Tracy H King, Lawrence C Lee, 'Enhancing Legal Discovery with Linguistic Processing', Palo Alto Researching Center Inc, May 2007, at http://users.umiacs.umd.edu/~oard/desi-ws/papers/bobrow.pdf [accessed 13 March 2022].

adjudication itself. Databases already exist to help parties identify potential arbitrators for a dispute,[40] and by extension, to assist with arbitrator selection.[41] To the extent decisions are public or at least can be sufficiently anonymised to be used in such a database, AI can survey past decisions and expertise of arbitrators to select or recommend the most favourable candidates.

Beyond arbitrator selection, parties could eventually elect to allow AI tools to arbitrate their disputes. This would involve an AI tool analysing facts and legal arguments to arrive at a determination as to an award, based on legal precedent. Essentially, the AI tool would become the arbitrator.[42] Of course, AI adjudication could operate with varying levels of human intervention. At one end, AI could fully adjudicate a dispute. In that scenario, parties would agree to submit their dispute to resolution by a mutually-vetted and selected AI tool. While this may seem like a leap of faith, this approach might lend itself nicely to adjudication of high-volume, low value claims. At the other end, AI could operate as a tool to assist a human arbitrator with making their determination, analogous to the use of expert determinations. In such a scenario, a human arbitrator may still make the ultimate decision, but an AI tool could provide a range of reasonable outcomes or a recommendation to assist with the decision making. To avoid unpredictable extremes, parties could even agree that the arbitrator must select an award from within the range provided by the AI tool.

As a middle approach, AI could adjudicate a subset of issues, such as discovery or damages, while leaving the ultimate resolution on the merits to a human arbitrator.[43] One could foresee that as AI continues to develop, it may initially be better suited for the adjudication of simple or readily quantifiable sub-issues, such as discovery disputes. Nonetheless, the degree to which AI may perform adjudication in the future will not only be determined by the technological progress of AI and parties' willingness to submit disputes to AI adjudication, but also the resolution of legal and institutional concerns regarding the use and development of AI adjudication.

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40 See Arbitrator Intelligence, https://arbitratorintelligence.com [accessed 13 March 2022]; The Global Arbitration Review Arbitrator Research Tool, https://globalarbitrationreview.com/tools/arbitrator-research-tool [accessed 13 March 2022].

41 Jenny Gesley, 'Artificial "Judges"? – Thoughts on AI in Arbitration Law', Library of Congress Blog (13 January 2021), https://blogs.loc.gov/law/2021/01/artificial-judges-thoughts-on-ai-in-arbitration-law [accessed 13 March 2022].

42 *Ibid.*

43 See Hergüner Bilgen Özeke, 'Artificial Intelligence in Arbitration – Current Uses and the Turkish Law Approach', (2018) 11(1) NYSBA New York Dispute Resolution Lawyer 25, 27, at https://www.lexology.com/library/detail.aspx?g=a38af5ee-2713-43b1-abb3-367955126604#_ftn15 [accessed 13 March 2022].

Legal roadblocks

AI adjudication may become subject to conflicting regulatory regimes among jurisdictions. Some jurisdictions may outright prohibit the use of AI for the adjudication of arbitral disputes. For example, France and the Netherlands explicitly require the use of human arbitrators.[44] Such prohibitions could obviously hamper innovation related to the use of AI in adjudication. In contrast, some jurisdictions embrace this technology and explicitly provide that parties to an arbitration can opt for a non-person arbitrator. For instance, the Turkish Arbitration Code provides for a human arbitrator by default, but allows parties to opt for a non-person arbitrator.[45] Ultimately, usage and development of AI tools for use in adjudication will depend at least in part on applicable regulatory regimes.

Importantly, some courts have already accepted the use of AI tools as a means for resolving or assisting with sub-issues within litigation, particularly with regard to discovery. In 2012, a federal magistrate approved the use of computer-assisted review as a way to search for relevant information during discovery in *Moore v Publicis Groupe*.[46] Since *Moore*, other district courts have followed suit.[47] And the acceptance of predictive coding is not limited to the United States. In 2016, an English court used predictive coding to sort documents by relevance and to narrow the universe of relevant documents.[48] When facing large volumes of information to sort through, courts have approved the use of predictive coding to identify documents that should be produced as relevant in discovery.[49] But, as noted above, predictive coding does not fully replace the role of lawyers because lawyers still code the

44 Gesley, above n 41; French Code of Civil Procedure, Art 1450; Dutch Code of Civil Procedure, Art 1023.

45 Turkish International Arbitration Code No 4686, Art 7/B/1; Özeke, above n 43.

46 *Moore v Publicis Groupe*, 287 FRD 182, 183 (SDNY 2012) ('This judicial opinion now recognizes that computer-assisted review is an acceptable way to search for relevant ESI in appropriate cases.').

47 *Lawson v Spirit AeroSystems, Inc*, 2020 WL 1813395, at *6 (D Kan 9 April 2020); *Youngevity Int'l Cor v Smith*, 2019 WL 1542300, at * 11 (SD Cal 9 April 2019); *Entrata, Inc v Yardi Sys, Inc*, 2018 WL 5470454, at *7 (D Utah 29 October 2018); *Rio Tinto PLC v Vale S A*, 306 FRD 125, 127–128 (SDNY 2015); see *Dynamo Holdings Ltd P'Ship v Comm'r of Internal Revenue*, 2014 WL 4636526, at *5 (TC 17 September 2014); *Green v Am Modern Home Ins Co*, 2014 WL 6668422, at *1 (WD Ark Nov 24, 2014); *Bridgestone Americas, Inc v Int'l Bus Machines Corp*, 2014 WL 4923014, at *1 (MD Tenn 22 July 2014); *Fed Hous Fin Agency v HSBC N Am Holdings Inc*, 2014 WL 584300, at *3 (SDNY 14 February 2014); *United States v Educ Mgmt LLC*, 2013 WL 12140442, at *8 (WD Pa 24 November 2013) (approving predictive coding to prioritise review but not to exclude documents); *In re Actos (Pioglitazone) Prods Liability Litig*, 2012 WL 7861249, at *4 (WD La 27 July 2012).

48 *Pyrrho Investments Ltd v MWB Property Ltd*, [2016] EWHC 256 (Ch).

49 *Moore*, 287 FRD at 193.

documents used to train the AI tool.[50] Although these decisions relate to the use of AI in traditional litigation, they provide insight into how jurisdictions may approach the use of AI in the arbitration context.

Regulating the machine: AI, arbitration, and the role of US law

The interaction of AI and arbitration raises unique questions in the context of the US legal system. Questions regarding product liability, federal and state agency regulation and legislation, and traditional notions of legal dispute resolution all bear on AI's adoption in arbitral practice.

Complexity and uncertainty: AI and product liability

One question that is likely to impact the development of AI in the United States is whether AI tools will be subject to the US product liability scheme. That issue is currently unsettled. It is common knowledge that litigation is a major method of regulation within the US legal system,[51] with the product liability scheme as a key example.[52] Product liability law concerns suits brought by injured parties against parties in the chain of manufacture of a product.[53] A key trigger for application of product liability law is that damage was caused by a *product*. While this requirement appears obvious, whether AI constitutes a product—rather than a service—is currently far from clear.[54] Likewise, it is unclear whether resolution of this ambiguity can be reached categorically, rather than on a fact-dependent basis that accounts for the capabilities and characteristics of the particular AI tool and its use. While the legal status of AI tools remain unclear, the categorisation is nevertheless key for assigning liability for injuries caused by AI technologies. Product liability encompasses a combination of contract and tort law claims, and in the AI context, the law may develop to address general issues with misrepresented AI features, breaches of warranty, negligence, strict liability, failure to warn, and more.[55]

50 See above.

51 See generally, Robert A Kagan, *Adversarial Legalism,* 2nd edn, (Harvard University Press, 2019); Sean Farhang, *The Litigation State: Public Regulation and Private Lawsuits in the US* (Princeton University Press, 2010).

52 Keith N Hylton, 'The Law and Economics of Products Liability', (2013) 88 Notre Dame Law Review 2457, 2458.

53 'Products Liability', *Wex Legal Dictionary,* (Legal Information Institute, Cornell University Law School), www.law.cornell.edu/wex/products_liability [accessed 13 March 2022]; Keith N Hylton, The Law and Economics of Products Liability, above n 52.

54 See eg, *Prairie River Home Care, Inc v Procura, LLC*, No CV 17-5121, 2018 WL 3621208, at *6-7 (D Minn 30 July 2018).

55 John Villasenor, 'Products Liability Law as a Way to Address AI Harms', Brookings (21 October 2019), https://www.brookings.edu/research/products-liability-law-as-a-way-to-address-ai-harms [accessed 13 March 2022]; cf Scott J Schweikart, 'Who Will Be Liable for Medical Malpractice in the Future?', (2021) 22 Minnesota Journal of Law Science & Technology 1.

In the context of arbitration, the questions of liability related to the use of AI become more complicated.[56] In the simplest scenario, assigning risk related to harms or mistakes caused by an AI tool between a simple user and manufacturer remains an open question.[57] Arbitration is not the simplest scenario. Instead, the assignment of risks in arbitration is complicated by diffuse responsibility between contracting parties, AI vendors, attorneys, arbitrators, and arbitral institutions. If something goes wrong, responsibility may be difficult to assign.

This complexity and uncertainty results in two major takeaways. First, analysis of liability will likely proceed case-by-case, with outcomes dependent on who used which AI tools and to what end. Secondly, unpredictability may risk chilling the development and adoption of AI tools.[58] In fact, with so many actors present in a complicated international arbitration, there are many parties who could prevent the adoption of AI tools. Contracting parties, individual arbitrators, and arbitral institutions could each refuse to use AI tools for fear of liability or other reasons. AI vendors may likewise decline to develop them. Risk of potential mistakes may cause all actors to avoid full reliance on AI tools and to instead conduct old-school, human analyses.

Applying traditional risk management techniques to these potential liabilities is likewise complex in arbitration. While arbitral immunity is generally absolute in the US, it is unclear whether reliance on AI will fall within the non-performance exception to that immunity. Moreover, immunity law varies by jurisdiction, and non-uniform choice of law rules mean that the applicable immunity rule is not necessarily clear

56 Cf Scott J Schweikart, 'Who Will Be Liable for Medical Malpractice in the Future?', (2021) 22 Minnesota Journal of Law Science & Technology 1, 8. ('The diffuseness and discreteness in the development of AI make questions about assigning liability difficult, as issues of who "controls" the technology become difficult to parse, especially when also factoring in that the end-user of the AI (ie, a hospital or physician) could also be a party who also potentially has control. Hence, answers related to agency and tort duties may be murky.')

57 Corinne Ferro, Mildred Segura and Farah Tabibkhoei, 'Is Artificial Intelligence a "Product"? The Third Circuit Says,"No"', Drug and Device Law (27 March 2020), www.druganddevicelawblog.com/2020/03/guest-post-is-artificial-intelligence-a-product-the-third-circuit-says-no.html [accessed 13 March 2022] (discussing *Rodgers v Christie*, 795 F App'x 878 (3d Cir 2020)); Ryan E Long, 'Artificial Intelligence Liability: The Rules are Changing', LSE Business Review (26 August 2021), https://blogs.lse.ac.uk/businessreview/2021/08/16/artificial-intelligence-liability-the-rules-are-changing [accessed 13 March 2022].

58 Whether product liability law stifles innovation is subject to debate. See generally Michael E Porter, *The Competitive Advantage of Nations* (Free Press, 1990); Alberto Galasso and Hong Luo, 'When Does Product Liability Risk Chill Innovation? Evidence from Medical Implants', (2022) 14(1) American Economic Journal: Economic Policy (forthcoming).

during an arbitration.[59] The possibility of waivers, indemnification, and insurance all likewise rest on jurisdiction.

Incentives and innovation: AI regulators and federalism

While products liability law is a patchwork quilt of 50 state jurisdictions, much US regulation is governed through concurrent and overlapping federal, state, and local laws and regulations. These laws and regulations are variously enforced by federal agencies, state agencies and attorneys general, municipal agencies, and private individuals through private rights of action. While product liability law may open up AI to regulation by private rights of action, on the government side, AI regulation comes primarily from the Federal Trade Commission and new federal and state legislation.

The Federal Trade Commission

One feature unique to the US that is clearly impacting the development of AI is the Federal Trade Commission, or FTC. The FTC is a federal agency with the legal authority to shape the adoption of AI technologies, and has a demonstrated interest in doing so. Specifically, the FTC has the power to regulate unfair or deceptive acts and practices in or affecting commerce, and it uses this authority to regulate algorithms, big data analytics, and machine learning.[60] The FTC also issues business guidance on AI and algorithms, and has the authority to bring lawsuits for violations of laws and regulations within its authority.[61] The FTC has made clear its interest in the AI space, and FTC commissioners have expressed concern over

59 See Susan D Franck, 'The Liability of International Arbitrators: A Comparative Analysis and Proposal for Qualified Immunity', (2000) 20 New York Law School Journal of International & Comparative Law 1, 49–53.

60 15 USC para 45(a)(1) (unfair or deceptive act or practices); Elisa Jillson, 'Aiming for Truth, Fairness, and Equity in Your Company's Use of AI', FTC Business Blog (19 April 2021), www.ftc.gov/news-events/blogs/business-blog/2021/04/aiming-truth-fairness-equity-your-companys-use-ai [accessed 13 March 2022]; 'Big Data: A Tool for Inclusion or Exclusion?', Federal Trade Commission (January 2016), at v, www.ftc.gov/system/files/documents/reports/big-data-tool-inclusion-or-exclusion-understanding-issues/160106big-data-rpt.pdf [accessed 13 March 2022].

61 Andrew Smith (Director, FTC Bureau of Consumer Protection), 'Using Artificial Intelligence and Algorithms', FTC Business Blog (8 April 2020), www.ftc.gov/news-events/blogs/business-blog/2020/04/using-artificial-intelligence-algorithms [accessed 13 March 2022].

the use of black-box algorithms in the sale of consumer goods.[62] For AI and arbitration, this means that vendors must accurately represent AI tools to clients, practitioners, and arbitrators, and that such tools cannot discriminate on the basis of a protected class.[63]

Federal & State legal developments and regulation

In the US, lawmakers at the federal, state, and local levels have recently proposed and occasionally enacted new AI-regulating legislation. For example, in 2019 the Algorithmic Accountability Act was proposed at the federal level.[64] This act would require covered entities to produce AI impact assessments and report them to the FTC.[65] The proposed law also includes both FTC and state-level enforcement provisions.[66] At the state level, at least 12 AI regulations have been enacted since 2019, with at least 17 out of 50 states considering AI legislation in 2021 alone.[67] Since 2017, at least eight states have created dedicated AI task forces or commissions.[68] Regulation of AI can even occur at the municipal level. For instance, New York City recently passed a bill regulating the use of AI in employment decisions within the City.[69] Absent an overarching federal law, it is likely that a patchwork of localized AI rules will continue to proliferate.

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62 See Hearing #7: The Competition and Consumer Protection Issues of Algorithms, Artificial Intelligence, and Predictive Analysis, Federal Trade Commission (13–14 November 2018); Letter from Lina Khan, Chair, FTC, joined by Rebecca Kelly Slaughter, Commissioner, FTC (14 September 2021), available at www.ftc.gov/system/files/documents/public_statements/1596260/p859900omnibuslmkrksconcur.pdf [accessed 13 March 2022].

63 Elisa Jillson, Aiming for Truth, Fairness, and Equity in Your Company's Use of AI, FTC Business Blog (19 April 2021), www.ftc.gov/news-events/blogs/business-blog/2021/04/aiming-truth-fairness-equity-your-companys-use-ai' [accessed 13 March 2022] (warning against AI 'discriminat[ing] on the basis of race, gender, or other protected class').

64 HR 2231, 116th Cong (2019).

65 *Ibid.* ('Assessments of high-risk automated-decision systems must (1) describe the system in detail, (2) assess the relative costs and benefits of the system, (3) determine the risks to the privacy and security of personal information, and (4) explain the steps taken to minimize those risks, if discovered. Assessments of high-risk information systems involving personal information must evaluate the extent to which the system protects the privacy and security of such information.')

66 Kari Johnson, 'The Movement to Hold AI Accountable Gains More Steam', Ars Technica (5 December 2021), https://arstechnica.com/tech-policy/2021/12/the-movement-to-hold-ai-accountable-gains-more-steam [accessed 13 March 2022].

67 Legislation Related to Artificial Intelligence, National Conference of State Legislatures (15 September 2021), www.ncsl.org/research/telecommunications-and-information-technology/2020-legislation-related-to-artificial-intelligence.aspx [accessed 13 March 2022].

68 *Ibid.*

69 NYC Admin Code, paras 20–80 *et seq.*

Two consequences of FTC and local regulation of AI use in arbitration are lack of clarity and potential chill. Just as with product liability law, it is unclear who will bear the ultimate responsibility for the use of AI arbitration tools.[70] Localised AI regulations mean that rules governing this responsibility may also vary depending on the location of the arbitration, the parties, and the seat.[71] Additionally, by imposing fairness and non-discrimination obligations, consumer protection laws may end up highlighting potential gaps in representation, such as the ability to select a diverse arbitrator for a particular proceeding.[72] These obligations are weighty given the potential of algorithms to replicate or entrench historical biases.[73]

While it is unclear to what extent an arbitral institution may be liable if it provided algorithmic selection services that enacted an impermissible bias, the introduction of AI into the arbitration setting will likely present unique challenges. Moreover, thorny issues may arise should a particular AI tool come to identify and rely on existing biases in its decision making. An algorithm could rely on gender as an input of arbitrator selection in an impermissible and undesirable way. Likewise, algorithmic award determinations may replicate reliance on impermissible classifications. For instance, algorithms may risk gender-norm or race-norming damage calculations. In 2020, women tended to earn 84 per cent of what men earned,[74] an algorithm may take this disparity into account when making damages determinations and impermissibly 'discount' certain awards. The black-box nature of AI algorithms only compounds these problems by making their exact algorithmic source difficult to spot.

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70 See above.

71 It is unclear how the Federal Arbitration Act could preempt local AI regulations for the purposes of arbitration.

72 Homer LaRue, Professor of Law, Howard University, and Alan Symonette, owner, Symonette ADR Services, Address at American Bar Association Annual Labor Law Conference: Diversity and Inclusion in Arbitrator Selection or 'I Select Who I Know' (2019), www.americanbar.org/content/dam/aba/events/labor_law/2019/annual-conference/papers/diversity-and-inclusion-in-arbitrator-selection.pdf [accessed 14 March 2022] (finding only 2 per cent of members of the National Academy of Arbitrators to be black, indigenous and people of colour (BIPOC) in its 72-year history).

73 Eg, Ashley Jones and Stephanie Mbonu, 'The ERA Pledge Surpasses 4,000 Signatories', Practical Law Arbitration Blog, 28 May 2020, at http://arbitrationblog.practicallaw.com/the-era-pledge-surpasses-4000-signatories [accessed 14 March 2022] (describing the Equal Representation in Arbitration Pledge); Bruno Acevedo, 'REAL Gets Real: Launch of Racial Equality for Arbitration Lawyers', Kluwer Arbitration Blog, 20 April 2021, at http://arbitrationblog.kluwerarbitration.com/2021/04/20/real-gets-real-launch-of-racial-equality-for-arbitration-lawyers [accessed 14 March 2022].

74 Amanda Barroso and Anna Brown, 'Gender Pay Gap in US Held Steady in 2020', Pew Research Center (25 May 2021), www.pewresearch.org/fact-tank/2021/05/25/gender-pay-gap-facts [accessed 14 March 2022] .

The legal regulation of AI generally, and the use of FTC authority in particular, also bears on the potential for innovation in the use of AI in arbitration. First, as a technological matter, various geopolitical actors come to different balances when weighing AI innovation, the goal of AI supremacy, and the needs of AI regulation. In light of different regulatory approaches, some claim that the AI technology race is already over,[75] while others argue that the race is still competitive.[76]

Secondly, party autonomy may breed competition to quickly adopt AI in the arbitration context.[77] One theory supposes that parties choosing arbitration law and procedure maximise welfare by adopting more efficient and cost-effective AI tools, so states will adapt in order to attract arbitrations to their jurisdictions.[78] One the other hand, states may be less quick to adopt AI-friendly arbitration rules depending on their clout. For example, regionalised legal backstops could act as a global least-common denominator, exporting effects across borders.[79]

Furthermore, because certain jurisdictions do not allow for the enforcement of an award decided by or through the use of AI, parties and arbitrators may decline to use of AI for fear of annulment. Consider an award that must be enforced in France or the Netherlands: enforcement of that award will require a human arbitrator.[80] One can imagine then that parties may opt for a human arbitrator as a default in order to mitigate risk of future enforcement issues in those jurisdictions. The degree to which AI-regulating rules affect arbitrations across jurisdictions depends both on the particular parties as well as the general market force of the exporting jurisdiction. If some jurisdictions are very often the seat or site of enforcement, then those jurisdictions' AI rules may carry more influence. Consequently, US regulation could stifle innovation in comparison to other countries.

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75 Adam Clark Estes, 'Maybe Losing the AI Race to China Isn't Such a Bad Idea', recode (13 October 2021), https://www.vox.com/recode/22725044/china-ai-race-pentagon-wechat [accessed 14 March 2022]; Mila Jasper, 'US Unprepared for AI Competition with China, Commission Finds,' Nextgov (1 March 2021), www.nextgov.com/emerging-tech/2021/03/us-unprepared-ai-competition-china-commission-finds/172377 [accessed 14 March 2022].

76 Daniel Castro and Michael McLaughlin, 'Who is Winning the AI Race: China, the EU, or the United States – 2021 Update', Information Technology & Innovation Foundation (25 January 2021), https://itif.org/publications/2021/01/25/who-winning-ai-race-china-eu-or-united-states-2021-update [accessed 14 March 2022].

77 Horst Eidenmuller and Faidon Varesis, 'What Is an Arbitration? Artificial Intelligence and the Vanishing Human Arbitrator', (2020) 17 New York University Journal of Law & Business 88–90.

78 *Ibid.*

79 Cf. Anu Bradford, The Brussels Effect (2020).

80 Eg, French Code of Civil Procedure, Art 1450; Art 1023 Rv (Neth).

Additionally, to analyse the impact of regulation on AI innovation requires us to consider whether the regulation itself is worthwhile. For instance, regulation can act as a quality control device.[81] While FTC regulation of discriminatory AI could slow the adoption of AI in arbitration, it may also admirably prevent the adoption of biased AI. Arguments concerning the 'stifling' of innovation must unpack the term, asking whether the benefits of regulation outweigh the cost and whether alternative forms of regulation better achieve goals internal and external to arbitration.

Legitimacy and cross-pollination: AI and US dispute resolution traditions

The use of AI in arbitration brings to the forefront some of the basic tenets concerning reliable dispute resolution in the American legal tradition.

First, recent years have seen discussion of questions regarding legitimacy in international arbitration,[82] and in the United States, in particular, arbitration has faced its challenges.[83] Regardless of one's position on these issues, it is clear that layering the complexity of questions about AI over them will not make them any easier to resolve. Issues such as black-box reasoning, problematic data-sets, lack of clarity regarding liability and lack

81 Alberto Galasso and Hong Luo, 'When Does Product Liability Risk Chill Innovation? Evidence from Medical Implants', (2022) 14(1) American Economic Journal: Economic Policy (forthcoming); Adam Clark Estes, 'Maybe Losing the AI Race to China Isn't Such a Bad Idea', above n 75; Saiful Khan, 'AI Regulation: Threat to Innovation or Timely Intervention?', Bloomberg Law (19 May 2021).

82 See eg, Stephan W Schill, 'Conceptions of Legitimacy of International Arbitration' (Amsterdam Law School Legal Studies Research Paper No 2017-17, Amsterdam Center for International Law No 2017-14), in D D Caron *et al* (eds), *Practicing Virtue: Inside International Arbitration* (Oxford University Press, 2015), pp 106–124; S I Strong, 'Legitimacy and International Arbitration: An Alternate View', Kluwer Arbitration Blog (4 October 2017), http://arbitrationblog.kluwerarbitration.com/2017/10/04/legitimacy-international-arbitration-alternate-view [accessed 14 March 2022]; Michelle Grando, 'Challenges to the Legitimacy of International Arbitration: A Report from the 29th Annual ITA Workshop', Kluwer Arbitration Blog (19 September 2017), http://arbitrationblog.kluwerarbitration.com/2017/09/19/challenges-legitimacy-international-arbitration-report-29th-annual-ita-workshop [accessed 14 March 2022]; Charles N Brower and Stephan W Schill, 'Is Arbitration a Threat or a Boon to the Legitimacy of International Investment Law?', (2009) 9(2) Chicago Journal of International Law 471 at https://chicagounbound.uchicago.edu/cjil/vol9/iss2/5 [accessed 14 March 2022]; George A Bermann, 'What Does it Mean to be "Pro-Arbitration"?', (2018) 34 Arbitration International 341, 352.

83 Jyotin Hamid and Adrian St Francis, Anti-arbitration statute, the FAA, and #MeToo, Reuter (5 October 2021), https://www.reuters.com/legal/legalindustry/anti-arbitration-statutes-faa-metoo-2021-10-05 [accessed 14 March 2022]; Elizabeth C Tippett, The Legal Implications of the MeToo Movement, (2018) 57 Minnesota Law Review 229, 235. Reform on the Federal Arbitration Act is perennially introduced each year, and perennially fails. Eg, Forced Arbitration Injustice Repeal Act or the FAIR Act H R 963, 117th Cong (2021–2022) (proposing to prohibit arbitration of employment, consumer, antitrust and civil rights disputes).

of nuance in decision-making all need attention,[84] and these issues go to the very heart of demonstrating that an arbitral award is fair and justified.[85]

All is not lost, however. In the face of these complexities, arbitration can draw on responses to technological change in other areas of US law. For example, US federal agencies adjudicate more cases than all US federal courts combined, and they use AI to do it.[86] An ASUS report shows agencies utilising AI to deal with caseloads, processing time, and differential benefit grant rates.[87] The methods used ranged from clustering case assignment for micro-specialisation, expediting claims that were predicted to have high likelihood of success, and using natural language processing (NLP) to identify weakness in opinions.[88] In this way, use of AI in US administrative law can serve both as technical inspiration and as a legitimating force. Administrative adjudication and arbitration share several points of commonality: non-court legal actors who issue binding adjudications, with the benefits of speed and efficiency. Additionally, administrative agencies offer a technical analogue that can be adopted in arbitration. It is easy to imagine arbitral institutions, or technology vendors, offering AI-predicted micro-specialisation in arbitrator selection or NLP for draft award review. Claim expediting may present more difficulties, but use of AI to identify likelihood of success could help parties and institutions determine urgency for emergency arbitration issues.

Secondly, administrative use is government use, which helps legitimate use of AI in arbitration. Government adoption of AI may help legitimate the use of AI tools in arbitration, guarding against both private critics and government bans. Though stopping short of complete AI adjudication, 'governmental entities at all levels are taking steps that could lead to the implementation of

84 See above.

85 Eg, Frederick Schauer, 'Giving Reasons', (1995) 47 Stanford Law Review 633. ('The conventional picture of legal decision-making … is one in which giving reasons is both the norm and the ideal. Results unaccompanied by reasons are typically castigated on precisely those grounds.'); Henry M Hart, Jr and Albert M Sacks (William N Eskridge, Jr and Philip P Frickey (eds)), *The Legal Process: Basic Problems in the Making and Application of Law* (Foundation Press, 1994), pp 143–152 (describing reasoned elaboration).

86 David Freeman Engstrom et al, 'Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies' (NYU School of Law, Pub L Research Paper No 20–54), 36, www-cdn.law.stanford.edu/wp-content/uploads/2020/02/ACUS-AI-Report.pdf. [accessed 14 March 2022]

87 *Ibid.*

88 David Freeman Engstrom et al, above, n 87, at 36–40; see also Cary Coglianese and Lavi M Ben Dor, 'AI in Adjudication and Administration', (2021) 86 Brooklyn Law Review ('[Some] efforts include the increased digitization of court records that algorithms will need to draw upon for data, the growth of online dispute resolution inside and outside of the courts, and the incorporation of non-learning risk assessment tools as inputs into bail, sentencing, and parole decisions.').

automated, machine-learning decision tools in the relatively near future.'[89] Concerns for due process in arbitration find an analogue in administrative law, but scholars note that AI accords with administrative law values.[90] Essentially, it may be difficult to argue that AI-generated decisions do not afford due process in arbitration when governmental agencies may employ the same methods for administrative adjudication.[91]

Institutions and award review: the way forward?

Arbitral institutions will likely be key shepherds and decision makers in the development of AI for arbitral adjudication. Several arbitral institutions review awards prior to issuance for errors, omissions, and areas that need more detail or revision.[92] Through this review process, arbitral institutions preserve the integrity of arbitral decisions, support stability and consistency, and prevent the annulment of awards.[93] This system also allows arbitral institutions to maintain databases of awards and decisions.[94]

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89 Cary Coglianese and Lavi M Ben Dor, 'AI in Adjudication and Administration', above n 88.

90 Cary Coglianese, 'Administrative Law in the Automated State', (2021) 150(3) Daedalus 104 ('Most existing administrative law principles can already accommodate the widespread adoption of automation [in administrative decision-making … Agencies already long relied on a variety of physical machines that exhibit automaticity, [and automation is] the culmination of administrative law's basic vision of government that relies on neutral public administration of legislatively delegated authority.').

91 Notably, court review of arbitral decisions in the United States is narrow. US federal courts will only vacate or modify an award on the basis of grounds statutorily enumerated in the FAA. *Hall St Assocs, LLC v Mattel, Inc*, 552 US 576, 128 S Ct 1396, 170 L Ed 2d 254 (2008). This includes those reasons listed in FAA para 10, 'where the arbitrators were guilty of misconduct … [or] refus[e] to hear evidence pertinent and material to the controversy' or 'where the arbitrators exceeded their powers, or so imperfectly executed them … .' *See also Hall St Assocs, LLC v Mattel, Inc*, 552 US 576, 585, 128 S Ct 1396, 1404, 170 L Ed 2d 254 (2008) ('Maybe the term "manifest disregard" was meant to name a new ground for review, but maybe it merely referred to the § 10 grounds collectively, rather than adding to them … . Or, as some courts have thought, "manifest disregard" may have been shorthand for § 10(a)(3) or § 10(a)(4), the paragraphs authorizing vacatur when the arbitrators were "guilty of misconduct" or "exceeded their powers".') (citations omitted).
Indeed, the use of AI in arbitration may breathe new life into discussions on 'due process paranoia'. See, eg, Koji Takahashi, 'Exclusion of Arbitral Procedure from the Scope of Public Policy Scrutiny as a Measure to Curb Due Process Paranoia: A Proposal under the UNCITRAL Model Law', (2021) 29 Michigan State International Law Review 539.

92 See, eg, Rules of the International Chamber of Commerce, Art 34 ('Before signing any award, the arbitral tribunal shall submit it in draft form to the Court. The Court may lay down modifications as to the form of the award and, without affecting the arbitral tribunal's liberty of decision, may also draw its attention to points of substance. No award shall be rendered by the arbitral tribunal until it has been approved by the Court as to its form.').

93 See *ibid*.

94 *S*ee, eg, *Cases*, International Centre for Settlement of Investment Disputes (2021), https://icsid.worldbank.org/cases/case-database [accessed 14 March 2022].

To develop AI arbitration, an AI tool would require access to databases of awards and decisions from which to learn. Without robust, representative data sets, AI tools are less likely to develop as suitable alternatives to human arbitrators.[95] Stated otherwise, the quality of data sets used to train the AI will determine the quality of the AI arbitrators. Because US arbitral decisions are often kept confidential,[96] arbitral institutions are uniquely positioned to support the development of AI by considering a path forward with respect to access to their awards and decisions databases.[97]

Although arbitral institutions stand to benefit from the development of AI, which could be employed to assist in the review and rendering of awards, these institutions may be reluctant to fully embrace AI. Some institutions may fear that they are developing their replacements, and others may voice fairness and accuracy concerns. On the other hand, some institutions may view the development of AI as desirable and inevitable and may see it as a valuable means of gaining a competitive advantage. Still others may view it as a way to bring fair and balanced dispute resolution quickly and cheaply to more people around the globe. Indeed, the support and adoption of AI by some arbitral institutions may drive institutional competition to build effective AI tools and incorporate them into the dispute resolution process. Ultimately, arbitral institutions are likely to play a defining role in the development and implementation of AI in adjudication.

Conclusion

AI's continued development presents both limitless possibilities and complicated issues that must be resolved if AI applications are to be expanded further within US dispute-resolution systems. While this article does not resolve these issues, it provides a framework for understanding how considerations unique to the United States may influence AI's role within the US legal industry.

95 Cf Darrell M West, 'What is artificial intelligence?', Brookings (4 October 2018), www.brookings.edu/research/what-is-artificial-intelligence [accessed 14 March 2022] ('[I]f the software is poorly designed or based on incomplete or biased information, it can endanger humanity or replicate past injustices.').

96 See Gary B Born, 'Confidentiality of International Commercial Arbitration in the United States', (2021) 31 American Review of International Arbitration 209, 254 (noting that 'most US courts have given effect to express contractual confidentiality provisions in arbitration agreements').

97 Cf *ibid.*