

# **The Law and AI: where are we going?**

**Lecture at De Montfort University, Leicester**

**Lord Hodge, Deputy President of The Supreme Court of the United Kingdom**

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## **I. Introduction<sup>1</sup>**

It is a great pleasure to return to your university this afternoon. I recall with pleasure the occasion in 2019 when I came here to address post-graduate students on a related theme of financial technology and the law. Today, I will speak about how technological change will necessitate change in our legal rules and the opportunities and challenges which that technology creates for the administration of justice and the legal professions. I recognise that we don't know what is coming down the road and that most predictions will be wrong. But I have no doubt as to the need for our public authorities to be ready to address whatever does come down the road.

We live in a time of rapid technological change. Recent decades have seen four important developments. There has been a huge increase in the computational and data processing power of IT systems. Data has become available on an unprecedented scale. The cost of storing data has fallen precipitously. And we have seen the development of increasingly sophisticated software services. From

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<sup>1</sup> I am very grateful to Francesca Ruddy, Jamie Farmer and Ruaridh Owens, Judicial Assistants in the Supreme Court who have helped me retain my interest in the topic of technological change and the law and have assisted in my research over the years.

the dawn of civilisation until 2003, humans created a sum total of five exabytes of information. By 2010, the same volume of information was being generated every two days.<sup>2</sup> According to Professor Richard Susskind, we will soon be creating five exabytes of information every hour.<sup>3</sup>

One particular technological development has been described as “unlike any other technology or phenomenon that we have had to regulate previously”<sup>4</sup>: that is Artificial Intelligence (“AI”). There are various definitions of AI, which focus on its ability to perform tasks that otherwise would require human intelligence.<sup>5</sup> However AI is not confined to matching human intelligence in the performance of tasks: AI can and does surpass it. Machines beat grand masters at chess and outperform expert players of “Go”.<sup>6</sup> As such, I would prefer to define AI as computer systems able to perform tasks which traditionally have required human intelligence or tasks whose completion is beyond human intelligence. In his book, called “A World without Work”, Daniel Susskind, one of Richard’s sons, records how, in the early years of computer science, researchers initially focussed on how far computers could match human capabilities, underestimating the power of what they were creating, but how over time, in what he calls “the pragmatist revolution”, AI theorists and scientists realised that machines could be developed which thought in different ways from human beings.<sup>7</sup>

A prodigious amount of information is now available on the web. Much of it is of great benefit to humanity but one can also find harmful material such as material which promotes self-harm or suicide, child abuse or other sexual abuse

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<sup>2</sup> Eric Schmidt, then CEO of Google addressing the 2010 Techonomy conference: <https://www.youtube.com/watch?v=UAcClSrAq70> (at 8:00).

<sup>3</sup> Richard Susskind, *Online Courts and the Future of Justice* (OUP: 2019) pg. 37.

<sup>4</sup> As stated by Jacob Turner on Law Pod UK by One Crown Office Row on episode 71, ‘Robot Rules with Jacob Turner’ (4 March 2019).

<sup>5</sup> See, for instance, Jacob Turner, *Robot Rules: regulating artificial intelligence* (Palgrave Macmillan: 2019) pg. 16.

<sup>6</sup> In 1997, IBM’s Deep Blue defeated Gary Kasparov at chess and in 2016 Google DeepMind’s AlphaGo program beat the 18-time world champion Lee Sedol.

<sup>7</sup> Daniel Susskind, *A World without Work* (Allen Lane: 2020) chapter 3.

and, of course, terrorism. When faced with a blizzard of data, good, bad, and indifferent, on whom should we impose responsibility for policing web platforms and removing harmful content?<sup>8</sup> And will the individual nation state be able to enforce such obligations?

Returning to the subject of AI, within its field, there is “machine learning”, which involves the design of an algorithm which optimises automatically through experience and with limited or no human intervention.<sup>9</sup> Machine learning can be used to find patterns in large amounts of data (commonly referred to as “big data analytics”) from increasingly diverse sources. There is, of course, no shortage of data for this purpose.

Big data analytics and AI can be used for what many consider to be questionable purposes. For instance, in China, the government is developing a “social credit system” using big data analytics to assess the economic and social reputations of its citizens and businesses and to reward or punish as a result. The scoring system operates by mining people’s data in order to construct a full profile of their behaviour, including their friends, their health records, online purchases, legal matters, and tax payments (to name a few), and it combines that data with images gathered from China’s 200 million surveillance cameras and facial recognition software.<sup>10</sup>

Whilst Western governments have not sought to exercise that sort of social control over their citizens, it is increasingly common for Western businesses to

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<sup>8</sup> The UK Government Online Harms White Paper proposes a new regulatory framework for online safety, imposing obligations on tech companies to counter illegal content and activity. It proposes to impose on such companies a new statutory duty of care and to establish an independent regulator to oversee and enforce that duty. <https://www.gov.uk/government/consultations/online-harms-white-paper/online-harms-white-paper>.

<sup>9</sup> Financial Stability Board, *Artificial Intelligence and machine learning in financial services* (1 November 2017).

<sup>10</sup> Bernard Marr, *Chinese Social Credit Score*, *FORBES* (21 January 2019), available at: <https://www.forbes.com/sites/bernardmarr/2019/01/21/chinese-social-credit-score-utopian-big-data-bliss-or-black-mirror-on-steroids/#331260d448b8>.

gather and use “reputational information” in order to monitor and influence the behaviours of their partners and consumers. For instance, platforms such as eBay, Airbnb and Deliveroo collect and publish feedback and “ratings” from service users, so as to cultivate and reward trustworthy providers and expel poor performers.<sup>11</sup> In the case of Uber, the rating system is mutual, with both riders and drivers at risk of expulsion or loss of privileges if their scores fall below acceptable levels.<sup>12</sup> More significantly, data brokers such as Experian generate credit scores based on their assessment of available data relating to our lifestyles and consumption habits. These ratings, in turn, determine our access to key financial products such as mortgages. In short, we need to look at the risks which AI creates in our societies, whether through political surveillance in autocratic regimes or commercial surveillance in the democratic West.

The potential impact of error or abuse in the underlying data inputs and algorithms could be very significant for the data subjects. Yet the possibility of this happening is far from remote. We have all seen how trusted ratings providers can be targeted with deliberately false reviews, whether by unscrupulous, self-promoting retailers<sup>13</sup> or as a form of political protest.<sup>14</sup> It is also well-documented that algorithms can replicate and amplify human biases.<sup>15</sup> Because the proprietary code underlying popular rating systems is invariably confidential, there is

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<sup>11</sup> D. Mac Sithig and M. Siems, *The Chinese Social Credit System: A Model for Other Countries?* (2019) *Modern Law Review* 1034 at pgs. 1039-1040

<sup>12</sup> *Ibid* at pg. 1041

<sup>13</sup> BBC News, *Amazon 'flooded by fake five-star reviews - Which? Report* (16 April 2019) available at: <https://www.bbc.co.uk/news/business-47941181>.

<sup>14</sup> David Streitfeld, *Swarming a Book Online*, *The New York Times* (20 January 2013), available at: <https://www.nytimes.com/2013/01/21/business/a-casualty-on-the-battlefield-of-amazons-partisan-book-reviews.html>. See also Alison Flood, *Amazon redacts one-star reviews of Hillary Clinton's What Happened*, *The Guardian* (14 September 2017), available at: <https://www.theguardian.com/books/2017/sep/14/amazon-redacts-one-star-reviews-of-hillary-clintons-what-happened>.

<sup>15</sup> Daniel Cossins, *Discriminating algorithms: 5 times AI showed prejudice*, *New Scientist* (12 April 2018), available at: <https://www.newscientist.com/article/2166207-discriminating-algorithms-5-times-ai-showed-prejudice/>. See also Miranda Bogen, *All the Ways Hiring Algorithms Can Introduce Bias*, *Harvard Business Review* (6 May 2019), available at: <https://hbr.org/2019/05/all-the-ways-hiring-algorithms-can-introduce-bias>;

alarming little scope for outsiders to unearth errors or abuse, or to seek redress for any resulting harm.

In 2020 I spoke to Government lawyers in Dover House, London, about the challenges to society from technological developments. Since then, there have been significant developments in the field of generative AI, such as ChatGPT, which is able to create new things when given an instruction or input prompt. Generative AI can create images, computer code, audio (including composing music) and text (including writing novels). We now have large language models (“LLMs”) which are trained on a vast array of text-based data enabling the machine to learn the patterns and connections between words. Once trained the model can generate text-based content based on the parameters set by the user. ChatGPT is one such generative AI. This form of AI was recently described in the Bletchley Park Summit Declaration as a particular danger.<sup>16</sup> Another branch of generative AI is natural language processing (“NLP”) that trains computers to understand the way in which humans write and speak. Combining LLMs and NLPs and other generative AI models will enable the machine to learn from each user prompt or interaction making itself much better for the next task.<sup>17</sup>

Daniel Susskind warns that machines will bring about radical socio-economic change. They will, he predicts, reduce opportunities for employment and, in future, states may have to encourage their underemployed or unemployed citizens to engage in other activity and fund them through significantly higher top tax rates on those with capital and those who remain fully employed.<sup>18</sup> Whether he

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<sup>16</sup> Gov.UK, *The Bletchley Declaration by Countries Attending the AI Safety Summit* (1 November 2023) available at: <https://www.gov.uk/government/publications/ai-safety-summit-2023-the-bletchley-declaration/the-bletchley-declaration-by-countries-attending-the-ai-safety-summit-1-2-november-2023>

<sup>17</sup> Elastic.co, *What is natural language processing (NLP)?*, (accessed 29 November 2023), available at: <https://www.elastic.co/what-is/natural-language-processing>

<sup>18</sup> Daniel Susskind, *A World without Work* (Allen Lane: 2020), chapters 10 and 12. See also Goldman Sachs, *Global Economics Analyst: The Potential Large Effects of Artificial intelligence on Economic Growth* (26 March 2023) available at: [https://www.key4biz.it/wp-content/uploads/2023/03/Global-Economics-Analyst-The-Potentially-Large-Effects-of-Artificial-Intelligence-on-Economic-Growth-Briggs\\_Kodnani.pdf](https://www.key4biz.it/wp-content/uploads/2023/03/Global-Economics-Analyst-The-Potentially-Large-Effects-of-Artificial-Intelligence-on-Economic-Growth-Briggs_Kodnani.pdf) and McKinsey Quarterly, *AI and the future of*

is correct, I cannot say. None of us knows the future; but technological change poses challenges which we need to address now. Concerns about generative AI have caused some experts to call for a pause in the development of AI on the basis that it poses a significant risk to humanity.<sup>19</sup>

I am not qualified to comment on whether there are such existential threats. I will be less ambitious this afternoon and will discuss two matters: first, the need to adapt our laws to facilitate, accommodate and regulate emerging technologies; and second, the opportunities these technologies present for improvements in legal practice and the justice system.

## **II. Adapting the law to accommodate and regulate emerging technologies**

The speed of technological developments poses a real challenge to the law and to regulation. How can we keep up with it? The McKinsey Global Institute concluded that AI and big data are not only contributing to the transformation of society but, as compared to the Industrial Revolution, the revolution is “happening ten times faster and at 300 times the scale, or roughly 3000 times the impact”.<sup>20</sup>

Generative AI poses particular problems through its ability to create new things and, currently, its tendency toward confabulation which I will discuss later.

How are legislators, judges, and lawyers to apply and adapt the law to these phenomena, especially in a commercial context? A successful system of commercial law must promote rather than hinder honest commercial activity. An

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*work*, (accessed 29 November 2023), available at: <https://www.mckinsey.com/quarterly/the-five-fifty/five-fifty-gen-ai-and-the-future-of-work>

<sup>19</sup> Future of Life Institute, *Pause Giant AI Experiments: An Open letter*, (accessed 29 November 2023), available at: <https://futureoflife.org/open-letter/pause-giant-ai-experiments/>

<sup>20</sup> Richard Dobbs, James Manyika, and Jonathan Woetzel, *The Four Global Forces Breaking all the Trends*, 2015.

effective and trusted legal system promotes economic growth and welfare. How can a legal system promote the certainty that businesspeople need and oil the wheels of commerce when its traditional structure has not been adapted to accommodate the novel forms of transacting which technology offers?

### Contract law

I start by addressing contract law and the advent of “smart contracts”. As many of you will know, “smart contracts” are contracts which can be partially or fully executed without human intervention. At their simplest, they involve an instruction to the computer that if X happens then the computer is to act to make Y the result. This process of “if-then” instructions can be compared to the operation of an automatic vending machine. If you wish to buy a snack, you put money in the machine, select the product and the machine takes the money and delivers you your snack.<sup>21</sup> In such a simple form, there should be no problem in upholding the existence of a contract in legal systems such as the common law, which assess the intention of the contracting parties objectively, so long as the parties were aware, when contracting, of the nature of the arrangement which they were entering into.

But the law must also address how to provide a remedy if contractual consent has been vitiated, for example, by mistake,<sup>22</sup> misrepresentation or fraud. Smart contracts are self-executing as the terms of the agreement between a buyer and a seller are written into lines of code which exist in a blockchain. When the coded conditions are met, a product is released or a payment made. No-one, including a court, can stop the performance of a smart contract. The courts will not be able to

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<sup>21</sup> The example of the vending machine was the chosen illustration of the idea behind a smart contract which Nick Szabo used when he coined the term “Smart contracts” in his 1997 paper “The Idea of Smart Contracts”. The “smart contract” in the sense used by Nick Szabo involves no machine learning but simply implements “if-then” instructions.

<sup>22</sup> An illustration of the problems which contract law faces in adapting to technology can be seen in a judgment of the Singapore Court of Appeal in *Quoine Pte Ltd v B2C2 Ltd* [2020] SGCA (I) 02.

cancel the performance of the contract.<sup>23</sup> But a remedy may lie in the law of unjust enrichment in both common law and civil law jurisdictions to compel the parties to re-transfer the property or money which was the subject of the transaction.

Much greater problems in the law of contract may arise if computers are developed to use machine learning to optimise the transactions which they enter into. We are no longer dealing only with blockchain. Generative AI may assist developers to write code speeding up the process of drafting smart contracts and monitoring the execution of contracts.<sup>24</sup> If businesses were to use computers with machine learning capability to deal with other computers with similar ability, they could autonomously generate transactions which would not fit easily into our contract law. How will the law attribute the decisions made autonomously by computers to the intention of the contracting parties? Should the law say that those who willingly use computers with machine learning to effect their transactions are to be taken as intending to be contractually bound by the deals which those autonomous machines make? If there is to be a contract drafted or adapted and implemented by machines, there will have to be significant development to our law of contract which will require careful and imaginative consideration.

## Tort

The law will also have to address the existence of civil liability outside the field of contract law. For those of you who are not learning law, tort is concerned with obligations imposed by law, rather than by voluntary contract, to regulate our behaviour towards each other. In the law of tort, liability can result from the combination of a wrongful intention to harm another or foresight of harm to

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<sup>23</sup> Unscrambling an executed contract on blockchain is difficult to achieve, requiring one to go back in the chain to a point before the contract, creating a fork and re-creating the chain without the impugned transaction.

<sup>24</sup> Thomas Warschauer Nuni, *Generative AI will disrupt blockchain too: Here's how*, Coin Telegraph (3 July 2023) available at: <https://cointelegraph.com/innovation-circle/generative-ai-will-disrupt-blockchain-too-heres-how>

another and a causal link between the individual's action (or inaction) and the harm which the other suffers. If an adverse outcome which the other suffers is the result of a decision by a computer, to whom will the law attribute fault? How will the law see a causal connection between the acts of a natural person (ie a human being) and that outcome? Who is to be responsible for the machines' decisions, or its biases, or its malfunctions?

And when one addresses economic torts, namely the intentional infliction of harm by unlawful means, inducing breach of contract or conspiracy, which require a mental element of an intention to cause harm, or the tort of fraud, in which the knowledge or belief of the misrepresenter is relevant, how do you impose liability for the harm caused by the autonomous acts or malfunctioning of computers?

Will there have to be legislation to impose liability on the developer of AI systems as one might in relation to the manufacturer of driverless cars? Or should legislation impose liability on those who choose to use such devices – ie their operators? Or is it fair to hold humans liable at all if the AI systems write their own algorithms?

One possibility is to give an AI system, like a corporation, legal personality and to impose an obligation of compulsory third party insurance against harm caused without fault. In addition, or alternatively, a body of law will need to develop to decide how to allocate liability.<sup>25</sup>

In recent years Parliament and the Government have taken steps to establish mechanisms for *ex ante* scrutiny of AI, enlisting the help of The Alan Turing

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<sup>25</sup> Woodrow Barfield, *Towards a law of artificial intelligence* in Woodrow Barfield and Ugo Pagallo, *Research Handbook on the Law of Artificial Intelligence* (Edward Elgar Publishing: 2018) pg. 5.

Institute to make algorithmic systems fair, transparent and ethical.<sup>26</sup> Recommendations include opening ‘black box’ systems to improve comprehension and explanation of algorithmic decision-making, preserving protected characteristics like gender and ethnicity in automated systems, and balancing innovation with privacy in analysis of personal data.<sup>27</sup>

The UK Government advocates a “pro-innovation” approach to regulating AI. This would require appropriate “transparency and explainability” set by regulators together with “contestability and redress” by means of the regulatory system.<sup>28</sup> Whilst these initiatives are promising, it will be vital to address the wider legal questions I have mentioned.

The European Union has been addressing some at least of these issues. The EU’s proposed liability directive would modify the existing law on tortious/delictual liability by including a rebuttable presumption of a causal link between the fault of the defendant person and the output produced by AI.<sup>29</sup> Article 4 of the proposed directive would apply the presumption only in specific circumstances.

## Property

The law of property will also need to be adapted to take account of emerging technologies. For instance, if computers using AI generate intellectual property,

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<sup>26</sup> House of Lords Select Committee on Artificial Intelligence, *AI in the UK: ready, willing and able?*, Report of Session 2017 – 19, pg. 41; Government response to the House of Lords Artificial Intelligence Select Committee’s Report on AI in the UK: Ready, Willing and Able? (June 2018), available at: <https://www.parliament.uk/documents/lords-committees/Artificial-Intelligence/AI-Government-Response.pdf>, pg. 13.

<sup>27</sup> See <https://www.turing.ac.uk/research/challenges/challenge-make-algorithmic-systems-fair-transparent-and-ethical>.

<sup>28</sup> Gov.UK, Policy Paper, *A pro-innovation approach to AI regulation* (3 August 2023) paragraph 10

<https://www.gov.uk/government/publications/ai-regulation-a-pro-innovation-approach/white-paper>

<sup>29</sup> European Commission, *Proposal for a directive of the European Parliament and of the Council on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive)* (28 September 2022) available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52021PC0206>. See also Linklaters, *EU – Taking responsibility for artificial intelligence: New tort liability proposals* (3 September 2022) available at: <https://www.linklaters.com/en/insights/blogs/digilinks/2022/october/eu---taking-responsibility-for-artificial-intelligence-new-tort-liability-proposals>

who owns that property? If machines act autonomously to create new contracts, should there be copyright, and who should own it? Similar questions arise in relation to patents if such machines devise things which have industrial application. In relation to copyright, UK law treats as the author of a computer-generated work the person by whom the arrangements necessary for the creation of the work are undertaken.<sup>30</sup> This approach appears to have considerable potential to create disputes, particularly if a machine is involved in the arrangements.

Turning to the law of patents, the Supreme Court recently heard an appeal by Dr Thaler, the owner of a machine which he asserted has used AI to create new products. He claims that the UK's patent legislation entitles him as owner of the machine to be granted a patent for things that the machine has devised. The Court of Appeal by majority held that, under the Patents Act 1977, only a natural person could be an inventor and refused his application. The Supreme Court will be issuing its judgment in the next few months.<sup>31</sup>

The question as to who owns the output of generative AI needs to be addressed more widely. We also need to address the boundaries between the rights of the owners of the output of AI machines and the owners of rights which are affected by the uses of data by those machines. One problem is generative AI's potential to breach copyright and other intellectual property rights. You may have read about the strike by film actors over their concerns about the use of recordings to recreate their voices and images in future films. Novelists and photographers are concerned about the use of their copyright works in training generative AI models. Numerous cases have been raised against generative AI developers

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<sup>30</sup> Copyright, Designs and Patents Act 1998, sections 9(3) and 178.

<sup>31</sup> See <https://www.supremecourt.uk/cases/uksc-2021-0201.html>. For the judgment of the Court of Appeal of England and Wales, see *Thaler v Comptroller General of Patents Trade Marks and Designs* [2021] EWCA Civ 1374, available at <https://www.bailii.org/ew/cases/EWCA/2021/1374.html>

asserting violations of copyright law.<sup>32</sup> In the UK, the Intellectual Property Office in June this year published details of a working group to establish code of practice which seeks to avoid such disputes.<sup>33</sup>

### Data protection, transparency, and regulation

Generative AI also raises questions concerning data protection and transparency. Generative AI depends upon the input of a mass of data. Much may be obtained from the internet, which includes extensive personal data. Developers of AI incorporate such data in the algorithms of AI, giving rise to concerns and litigation about the use of the data in the United States.<sup>34</sup> Italy for a while banned ChatGPT in its jurisdiction over such concerns.

There are also serious concerns about generative AI's ability to create "deep-fakes", that is, very convincing false statements and images. Deep-fakes have been used in criminal activity, such as the sexual grooming of children or blackmail/extortion, and in foreign state interference in democratic elections. Different jurisdictions have responded differently to this threat. The United States and the EU have proposed legislation. The United States propose to watermark images and videos created by AI.<sup>35</sup> The EU intends to take a hardline approach, ranking AI on a scale from high to low risk and imposing obligations on its developers commensurate with that categorisation.<sup>36</sup>

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<sup>32</sup> For example, stock photo provider Getty Images has sued AI company Stable Diffusion company Stability AI Inc., accusing it in a lawsuit of misusing more than 12 million Getty photos to train its Stable Diffusion AI image-generation system. See Reuters, *Getty Images lawsuit says Stability AI misused photos to train AI* (6 February 2023) available at: <https://www.reuters.com/legal/getty-images-lawsuit-says-stability-ai-misused-photos-train-ai-2023-02-06/>

<sup>33</sup> Gov.UK, *The government's code of practice on copyright and AI* (29 June 2023) available at: <https://www.gov.uk/guidance/the-governments-code-of-practice-on-copyright-and-ai>

<sup>34</sup> K&L Gates Hub, *Recent Trends in Generative Artificial Intelligence Litigation in the United States* (5 September 2023) available at: <https://www.klgates.com/Recent-Trends-in-Generative-Artificial-Intelligence-Litigation-in-the-United-States-9-5-2023>

<sup>35</sup> The White House, *Fact Sheet: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence* (30 October 2023) available at: <https://www.whitehouse.gov/briefing-room/statements-releases/2023/10/30/fact-sheet-president-biden-issues-executive-order-on-safe-secure-and-trustworthy-artificial-intelligence/>

<sup>36</sup> European Commission, *Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (artificial intelligence act) and amending certain union legislative acts* (21 April 2021) available at: <https://eur->

## Recognising digital assets as property

I should not however focus too much on the problems and the need for regulation, very important though those matters are. We should also facilitate the development of the new technologies in order to harvest their potential.

The potential of digital assets to boost our economy is great. There is a pressing need to facilitate the development of digital assets and to protect the billions of pounds that are being invested in the development of such assets, not least in the field of financial technology. The United Kingdom has so far adopted a light-touch approach to regulation and has not introduced legislation.<sup>37</sup>

Much work has been done in the UK. The LawTech Delivery Panel's UK Jurisdiction Taskforce published in 2019 an authoritative statement on the current status of smart contracts and crypto-assets in English private law.<sup>38</sup> More recently, the Law Commission in London published a consultation paper and later a report on digital assets. The Law Commission concluded that the common law was sufficiently flexible to accommodate digital assets. Nonetheless, it recommended that the UK Government should put in place a statutory framework which recognised crypto-tokens and digital assets as a particular category of property. It also recommended that the courts continue to develop the common law and that this process be assisted by detailed guidance from industry experts who would operate through working group or panel.<sup>39</sup> In Scotland, I have had the

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[lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021PC0206](https://lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021PC0206); European Parliament, *EU AI Act: first regulation on artificial intelligence* (14 June 2023) available at: <https://www.europarl.europa.eu/news/en/headlines/society/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence>

<sup>37</sup> See fn 28 above.

<sup>38</sup> LawTech Delivery Panel (UK Jurisdiction Taskforce), *Legal statement on cryptoassets and smart contracts* (November 2019) available at: [https://35z8e83m1ih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056\\_JO\\_Cryptocurrencies\\_Statement\\_FINAL\\_WEB\\_111119-1.pdf](https://35z8e83m1ih83drye280o9d1-wpengine.netdna-ssl.com/wp-content/uploads/2019/11/6.6056_JO_Cryptocurrencies_Statement_FINAL_WEB_111119-1.pdf)

<sup>39</sup> The Law Commission, *Digital Assets: Final report*, HC 1486, Law Com No 412 (27 June 2023) paragraphs 2.5 and 2.8

pleasure of chairing an expert reference group which has made recommendations to the Scottish Government on legislation to facilitate the recognition of digital assets as property in Scots law.

If we are to exploit the economic potential of those assets, we must facilitate their recognition as property in our law.

### International cooperation

Of course, it is not enough for our legislatures and courts in the UK to adapt the law to accommodate these novel forms of transacting without looking outside these islands. If advances in technology are to contribute significantly to international commerce, there is a pressing need for international cooperation to establish agreed rules of private international law and harmonised regulations. Many distributed ledger structures operate across borders. This gives rise to uncertainty as to the governing law in relation to contracts executed and property held in the distributed ledger. The development of AI will generate similar problems as cyber assets know no national boundaries.

What is the way forward in this respect? I suggest that we should seek to extend the cooperation between regulators, such as the Global Financial Innovation Network, to achieve a greater harmonisation of regulation. Also, countries with a major interest in financial services should cooperate to promote new rules of private international law which could be promulgated by an international body, such as the Hague Conference or Unidroit.

There needs also to be agreement on jurisdiction and enforcement to enable court judgments and arbitration awards to be enforced in several jurisdictions. The Standing International Forum of Commercial Courts is working on enforcement

of commercial judgments for money and might be a suitable body to seek agreement on rules of jurisdiction and enforcement in relation to digital assets.

In all this, ethical considerations, the interests of the consumer, and the need for privacy and data integrity will have to be balanced carefully against the potential benefits the new technology brings in terms of lowering transaction costs, broadening access to commerce and finance, increasing market efficiency and enhancing consumer choice. It will be a most challenging task with important ramifications for the well-being of our societies in the years to come.

### **III. The response of the legal profession and the courts to technological change**

#### **(a) Use by the legal profession:**

The legal profession is having to adapt to technological advances. Several commentators have suggested that the legal profession is on the brink of unprecedented upheaval.<sup>40</sup> In the traditional model on which we rely, legal advice is crafted by lawyers and delivered on a one-to-one basis. Trials take place in a courtroom where procedure is formal and sometimes difficult for the parties to comprehend.

This traditional model is proving too expensive for many. Dickens overstated the position when he referred to legal papers as “mountains of costly nonsense”, but unfortunately, legal and court services are simply unaffordable for many users.<sup>41</sup> Even companies with deeper pockets are reluctant to spend vast sums on tasks

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<sup>40</sup> Eg Richard Susskind and Daniel Susskind, *The Future of the Professions: How Technology Will Transform the Work of Human Experts* (OUP: 2015) pg. 67

<sup>41</sup> Charles Dickens, *Bleak House* (Penguin: 1996), pg. 14.

like document review and due diligence. The obligations of disclosure by the prosecution, in a world in which there is a mass of data, are imposing unmanageable burdens on the criminal justice system. In response, the legal sector is employing AI in novel ways.

### Discovery/disclosure

For several years, English courts have endorsed the use of predictive coding software, a form of machine learning that takes data input by people about document relevance and then applies it to much larger document sets.<sup>42</sup>

### Legal advice

Generative AI, with its ability to process and synthesise large quantities of data and answer queries in a comprehensive and comprehensible manner (as well as answer follow up questions), has significant potential to be used as a legal research tool for both lawyers and litigants in person. There have already been isolated examples of litigants in person using publicly available generative AI tools to find cases supporting their claims. Specialist AI software has already been developed for the legal sector.<sup>43</sup> For example, in February 2023, the law firm Allen & Overy (“A&O”) announced that it was integrating a specialist AI platform named ‘Harvey’ (based on GPT-4) into its global practice.<sup>44</sup> Following a trial, 3,500 lawyers had ‘asked’ Harvey around 40,000 queries. A&O state on their website that: “*Harvey is a platform that uses natural language processing, machine learning and data analytics to automate and enhance various aspects of legal work, such as contract analysis, due diligence, litigation and regulatory*

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<sup>42</sup> See, for example, *Pyrho Investments v MWB Property* [2016] EWHC 256 (Ch).

<sup>43</sup> See the third annual France-Singapore Symposium on law and business, *Legal Systems in a Digital Age: Pursuing the Next Frontier*, The Honourable the Chief Justice Sundaresh Menon, Supreme Court of Singapore (11 May 2023), available at: [Chief Justice Sundaresh Menon: Speech delivered at 3rd Annual France-Singapore Symposium on Law and Business in Paris, France \(judiciary.gov.sg\)](https://www.judiciary.gov.sg/Chief-Justice-Sundaresh-Menon-Speech-delivered-at-3rd-Annual-France-Singapore-Symposium-on-Law-and-Business-in-Paris-France)

<sup>44</sup> Another such model is run by the start-up Scissero, which has a chatbot named “Mike” which has been trained on real-world legal scenarios to draft emails and mark up legal documents – see: <https://www.ft.com/content/aa78650b-9738-4c71-a4e0-ac5e5c3a9e2d>

*compliance. Whilst the output needs careful review by an A&O lawyer, Harvey can help generate insights, recommendations and predictions based on large volumes of data, enabling lawyers to deliver faster, smarter and more cost-effective solutions to their clients.”<sup>45</sup>*

Some commentators have pointed out that generative AI has the potential not only to assist lawyers, but, in the longer term, to displace them altogether.<sup>46</sup> One of the key benefits of AI is that it could provide lay persons with accessible information without the need to instruct a lawyer. Such displacement seems quite far away at the moment, at least in the context of more complex and high value disputes. It will be interesting to see how legal training of junior lawyers adjusts to the reality that AI has the potential to perform tasks like legal research and document review much more efficiently than human beings.

Much research has gone into whether the predictive capabilities of generative AI can be usefully adapted to predicting the outcome of cases. The lawyer’s task in advising a client is, at least in part, predicting how likely it is that a court or tribunal will accept their case. The significance of using AI to predict cases is its ability to analyse large and varied data sets rapidly and systematically to make more accurate predictions.

One well known example of AI analytics software is ‘Lex Machina’. This was developed by computer scientists at Stanford University and has been acquired

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<sup>45</sup> Allen & Overy, *A&O announces exclusive launch partnership with Harvey* (15 February 2023) available at: <https://www.allenoverly.com/en-gb/global/news-and-insights/news/ao-announces-exclusive-launch-partnership-with-harvey>

<sup>46</sup> For more information on disruption posed by AI to the legal profession, see R Susskind, *Tomorrows Lawyers: An introduction to your future* (OUP, 2023), 3<sup>rd</sup> edition and Richard Susskind and Daniel Susskind, *The Future of the Professions: How Technology Will Transform the Work of Human Experts* (OUP: 2015), Adrian Zuckerman in Zuckerman, *Artificial intelligence – implications for the legal profession, adversarial process and rule of law* (2020) 136 LQR 427 and Armour and Sako, *AI-enabled business models in legal services: from traditional law firms to next-generation law companies?* (2020) *Journal of Professions and Organisation* 1.

by LexisNexis. It was developed to predict the outcome of IP Litigation. The technology works by mining data about lawyers, parties, and the subject of the cases. For example, it recently announced the launch of Legal Analytics for nine Oregon Circuit Courts, giving it access to 230,000 civil cases filed in Oregon from which it could produce data driven insights “about judges, law firms, individual attorneys, and parties in state courts”.<sup>47</sup> Amongst various capabilities, LexisNexis claims that it can: provide ‘outcome analytics’ on damages, findings, resolutions and remedies; identify cases that have similar facts; and produce records of counsel involved in the case.<sup>48</sup> The use by the profession or others of this sort of AI to profile judges may make serving judges, like me, feel rather uncomfortable.

(b) Use in the court system

Technological improvements to the systems, processes and infrastructure of the courts are necessary for any jurisdiction which seriously aspires to be a global centre of excellence for the resolution of disputes.

The courts in England and Wales have undergone an extensive programme of digitisation in the past few years where significant steps have been taken towards creating an integrated digital justice system for civil, family and tribunal cases, including a court-based online justice process.<sup>49</sup> His Majesty’s Courts and

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<sup>47</sup> Gloria Huang, *Lex Machina Launches Enhanced Legal Analytics for Oregon Court Modules*, LexisNexis blog (19 July 2023) available at: <https://lexmachina.com/blog/lex-machina-launches-enhanced-legal-analytics-for-oregon-courts-modules/>

<sup>48</sup> <https://lexmachina.com/>

<sup>49</sup> Epitomised by Online Money Civil Claims and Damages Claims Online. Development of the rules for online proceedings across Civil, Family and Tribunal jurisdictions as well as data and behavioural standards for before online dispute resolution proceedings are brought to trial are being overseen by the new Online Procedure Rule Committee which held its first meeting in June 2023, see: <https://www.gov.uk/government/news/new-online-procedure-rule-committee-launched#:~:text=The%20Online%20Procedure%20Rule%20Committee,to%20a%20court%20or%20tribunal.> See further, Master of the Rolls, Sir Geoffrey Vos, *The Future of Dispute Resolution: Horizon Scanning*, The Society of Computers and Law. Sir Brian Neill Lecture 2022. Online. (17 March 2022) available at:

Tribunals Service (“HMCTS”), in collaboration with the Ministry of Justice, has been investing £1bn in modernising the courts system.<sup>50</sup> This has included the implementation of ‘online’ courts which aims to enable users in smaller and more straightforward disputes to lodge their claims, as well as a variety of other initiatives, including e-filing, computer-assisted transcription, document display systems, electronic presentation of evidence and the examination of witnesses to protect the vulnerable. Following recommendations by the Civil Justice Committee and concerns raised about the cost of access to justice in the UK, it aims to move the courts into the digital age onto an “extended court” model.<sup>51</sup>

These reforms have only used a more primitive form of algorithmic “decision tree” software to help triage cases at an early stage and do not yet use more advanced forms of AI. But it is hoped that AI can be integrated further into the system. For example, it is intended that contentious mediated interventions will be integrated into the new HMCTS digital justice system, with the potential for AI to help suggest outcomes being contemplated.<sup>52</sup>

The use of technology to automate triaging of cases, which is designed to help litigants in person articulate their claim accurately in a form which the court can resolve (and to help them upload key documents and evidence) is something that has already started to be taken seriously in England and Wales.<sup>53</sup> Certain private

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<https://www.judiciary.uk/wp-content/uploads/2022/03/MR-to-SCL-Sir-Brain-Neill-Lecture-2022-The-Future-for-Dispute-Resolution-Horizon-Scannings-.pdf>

<sup>50</sup> This includes 50 projects, see

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/553261/joint-vision-statement.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/553261/joint-vision-statement.pdf) and <https://www.gov.uk/guidance/hmcts-reform-programme-projects-explained>

<sup>51</sup> In China, courts have apparently gone further; adopting paper-free litigation, voice-to-text transcription technology for court hearings, voice-command navigation of e-evidence and “one click generation” of judgments for simple cases. See Tania Sourdin, *Judges, Technology and Artificial Intelligence: The Artificial Judge*, Elgar Law, Technology and Society (2021), who cites Supreme People’s Court of China, Chinese Courts and Internet Judiciary (White Paper, 4 December 2019), pp.80-81.

<sup>52</sup> Sir Geoffrey Vos (see fn 49 above).

<sup>53</sup> Civil Courts Structure Review: Final Report by Lord Justice Briggs (as he then was) (July 2016), para 6.4/p.36: [civil-courts-structure-review-final-report-jul-16-final-1.pdf \(judiciary.uk\)](https://www.judiciary.uk/wp-content/uploads/2016/07/civil-courts-structure-review-final-report-jul-16-final-1.pdf) (21 August 2023). Though note, the

dispute resolution mechanisms operate in a similar way. For example, eBay contracted out its dispute resolution to an internet startup SquareTrade to deal with the issue of large volumes of small-scale disputes between users of its platform. The eBay online dispute resolution platform operates a two-stage process. The disputing parties proceed through a series of online forms designed to lead them to a settlement. Most complaints are thereby resolved without any human intervention. Where no agreement can be reached, the parties can appeal to a human mediator (which happens in about 10% of cases). By 2003, eBay's system could handle several million disputes per year; today, it resolves more than sixty million.<sup>54</sup> Similarly Facebook and X (Twitter) use a hybrid adjudication system that makes use of computer processing of simpler cases whilst using human adjudication for more complex cases.<sup>55</sup>

A more conservative prediction of the capability of AI in the medium term is that it will be useful in circumstances where uncontroversial categorisation is possible: for example, in cases where there is a clearly established legal rule which can be applied to undisputed facts. It is not yet clear that it will be of assistance in cases where the facts and the law are less easy to discern, or where the problem may be how to categorise a problem, or where existing categorisations may be inadequate.

It has been proposed that AI should be used in future in England and Wales for online resolution of large numbers of minor disputes, such as consumer disputes, subject to safeguards such as the ability to appeal to a human judge. It is argued that this will improve access to justice and reduce costs.<sup>56</sup> It has been suggested that AI could assist in countries like Brazil, where it is predicted they have a

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capability is still at an early stage, see Fred Wilmot-Smith, *Justice ebay style*, London Review of Books, vol 41 no.18. 26 September 2019.

<sup>54</sup> Fred Wilmot-Smith (see fn 53 above).

<sup>55</sup> Wu, *Will Artificial Intelligence Eat the Law? The Rise of Hybrid Social-Ordering Systems*, (2019) 119Colum. L Rev. 1.

<sup>56</sup> Sir Geoffrey Vos (see fn 49 above), paragraph 27.

backlog of circa 100m court cases.<sup>57</sup> It appears this suggestion is being taken seriously in Brazil.<sup>58</sup>

We are many years away from developing systems that can deliver decisions with accompanying reasoning, in the style of, say, a High Court judge. This is, in part, because the technology is not at a stage of achieving fully functioning natural language processing.<sup>59</sup> Some (including former President of the Supreme Court, Lord Neuberger) have contemplated that there may come a time that AI may make decisions and give reasons for their decisions, whether the relevant issue concerns fact, discretion or law.<sup>60</sup>

Sooner, it might be possible to replicate the social and economic outcomes expected of judges, whilst not adopting their methodology (e.g., through sophisticated predictive models, rather than replicating ‘deductive’ reasoning). Richard Susskind poses the question in his book *Online Courts and the Future of Justice* whether predictive tools might usefully be employed to replace the role of the judiciary and make fully binding decisions.<sup>61</sup> Although we are long way off the replacement of human judges with AI (which may never eventuate), some machine-learning researchers believe that there is a 50% chance of AI outperforming humans in all tasks in 45 years and of automating all human jobs in 120 years.<sup>62</sup>

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<sup>57</sup> J Kelly, *AI-driven justice may be better than none at all*, FT Opinion (28 September 2022) available at: <https://www.ft.com/content/a5709548-03bd-4f65-b9b5-7aa0325c0f6b>

<sup>58</sup> Brehm et al, *The Future of AI in the Brazilian Judicial System*, prepared for the National Council of Justice, Institute for Technology and Society of Rio De Janeiro: “...the Brazilian judicial system operates with substantial challenges in case flow management and a lack of resources to meet this demand. Drastic solutions are needed... the Brazilian National Council of Justice has enabled the 92 courts it administratively oversees to develop their own AI models...”, available at: <https://itsrio.org/wp-content/uploads/2020/06/SIPA-Capstone-The-Future-of-AI-in-the-Brazilian-Judicial-System-1.pdf>

<sup>59</sup> According to Zuckerman (see fn 46 above)

<sup>60</sup> Lord Neuberger, Lord Neuberger delivers keynote speech on London’s arbitration offering at London International Disputes Week 2023 Main Conference, available at: <https://www.oelaw.co.uk/news/view/lord-neuberger-delivers-keynote-speech-on-londons-arbitration-offering-at-london-international-disputes-week-2023-main-conference>

<sup>61</sup> Richard Susskind (see fn 3 above), chapter 27 (The Computer Judge), p.286.

<sup>62</sup> Katja Grace, John Salvatier, Allan Dafoe, Baobao Zhang and Owain Evans ‘When will AI exceed human performance? Evidence from AI Experts’ (2018) 62 *Journal of Artificial Intelligence Research* 729.

Regardless of the technological constraints, there are numerous ethical and political concerns that “robot judges” may give rise to, which may be insurmountable.<sup>63</sup> For example, any such system of adjudication, which relies heavily on AI, will have to be sufficiently sophisticated so as to overcome the problem of ‘bias’<sup>64</sup>, which has been identified as existing in systems which rely on machine learning and predictive models based on big data.<sup>65</sup> We must also consider the psychological role which a human judge performs in the resolution of disputes: litigants can get closure by the just and courteous determination of the dispute by a human judge. Will a machine give them this closure?

Although the replacement of judges with AI can feel far-fetched, it may be the case that AI will much sooner be applied to assist in process of judging. This is already happening in other jurisdictions. Within the US system, there is an increasingly commonplace practice to use “risk assessment” tools to aid sentencing decisions (such as Correctional Offender Management Profiling for Alternative Sanction (“COMPAS”)). In China, courts have been using AI techniques to assist and supervise judges. Many local courts are developing case pushing systems which “push” similar cases to judges for their reference. Other court systems are using “abnormal judgment” warning systems which take a risk

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<sup>63</sup> There is a huge literature on this. Some of the problems include: the difficulties with maintaining “open justice” when decisions are made instantaneously online rather than in open court; the “black box” problem and issues with transparency which relate to uncertainty (even among AI experts) as to how or why decisions are reached ( See further J. Burrell, ‘How the machine ‘thinks’: Understanding opacity in machine learning algorithms’ (2016) 3:1, Big Data & Society); the problem of democratic deficit and other issues to do with legitimacy when decisions are automated; the problem of ensuring that users of the justice system are able to have a voice and are treated with dignity, an important value (see J Waldron, *How Law Protects Dignity* [2012] CLJ 200); concerns to do with privacy; issues to do with machine bias, either by virtue of prejudice of those creating algorithms or by virtue of undesirable inequalities in statistics which reflect aspects of society which one would not wish to see reflected in decision-making; and the question of whether such systems will be recognised as having legitimacy amongst the public and the legal profession.

<sup>64</sup> For more detail on this, see Jamie Susskind, *Future Politics*, Oxford University Press (2020), at p.280.

<sup>65</sup> House of Lords Select Committee on Artificial Intelligence (see fn 26 above), pg. 41. In AI systems dependent on machine learning, bias may originate in the data used to train the system, in data that the system processes during its period of operation, or in the person or organisation that created it. There are additional risks that the system may produce unexpected results when based on inaccurate or incomplete data, or due to any errors in the algorithm itself. And although bias can of course emerge when datasets inaccurately reflect society, it can also emerge when datasets accurately reflect unfair aspects of society. See further, Lord Hodge, *Law and technological change*, speech at the British Irish Commercial Bar Association, Signet Library, Edinburgh on 4 April 2019.

management approach to supervision of judicial decisions and issue alerts to a judge's superior if a decision is made which significantly differs from judgments of similar cases.<sup>66</sup>

#### **IV. Conclusion**

The long-term implications of advances in technology for our laws and legal profession are not yet clear. But I am struck by the accelerating pace of change and the prospect that, by the end of this decade, systems which are not even conceivable today will have changed our lives profoundly.<sup>67</sup> King Canute would, I think, have recognised the power of the technological tide.

It will be clear from what I have said that it is probably not practicable to develop the common law through case law to create a suitable legal regime for many of the technological developments we have discussed. It appears to me that the judiciary does not have the resources or the opportunity in hearing individual cases to create the needed framework. The changes which are required are not interstitial law-making, which is the long-recognised task of judges. They will require interdisciplinary policy-making and consultation, which a court cannot perform when resolving individual disputes. Similarly, improvements of access to justice, in which judges have an important role, will have to be a collaborative process.

The law in this country and in other countries will have to adapt to the new technologies and the legal professions embrace them. To do this most effectively there must be dialogue and learning across borders. National and international collaboration between lawyers, judges, government officials, and academics

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<sup>66</sup> See Sourdin, (fn 51 above), pp.13-14.

<sup>67</sup> As Richard Susskind notes in *Online Courts and the Future of Justice* (OUP: 2019) at pg. 266.

(both legal scholars and computer scientists) offers the best prospect of facilitating and harnessing the new technology.

Thank you.