

Law and technological change

British Irish Commercial Bar Association

Signet Library, Edinburgh

Lord Hodge, Justice of The Supreme Court of the United Kingdom

4 April 2019

I. Introduction¹

In 1996 (before YouTube, Facebook, Wikipedia or Google swam into our ken), Richard Susskind, who is now the IT Adviser to the Lord Chief Justice, predicted that by 2016 “many of our fundamental assumptions about the nature of legal service and the nature of legal process would be challenged and changed by the coming of technology and the internet”.² He predicted, for instance, a greater use of emails between clients and lawyers and reliance on the internet for online research – predictions labelled “outrageous if not plain seditious” at the time.³ He was, as it turned out, rather prescient.

My talk today will focus on the law in a time of technological change. There are four technological developments which have created new opportunities and challenges. They are, firstly, the huge increase in the computational and data processing power of IT systems. Secondly, the availability of data on an unprecedented scale. Thirdly, the falling costs associated with the storage of data. And, fourthly, increasingly sophisticated software services on the market.

One particular technological development has been described as “unlike any other technology or phenomenon that we have had to regulate previously”⁴: Artificial Intelligence (“AI”). There are various definitions of AI, which focus on its ability to perform tasks that otherwise would require human intelligence.⁵ That is so, however AI is not confined to matching human intelligence in the performance of tasks: AI can surpass it. Machines beat grand masters at chess and outperform expert players of “Go”.⁶ As such, I would prefer to define AI as computer

¹ I am very grateful to my judicial assistant, Courtney Grafton, for her assistance in the preparation of this lecture.

² Richard Susskind, *Tomorrow’s Lawyers: An Introduction to Your Future* (2nd ed, OUP: 2017) pg. 123.

³ Richard Susskind, *Tomorrow’s Lawyers: An Introduction to Your Future* (2nd ed, OUP: 2017) pg. 125.

⁴ 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).

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

⁶ 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.

systems able to perform tasks which traditionally have required human intelligence or tasks whose completion is beyond human intelligence.

Within the field of AI, there is “machine learning”, which involves the design of an algorithm which optimises automatically through experience and with limited or no human intervention.⁷ 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. For instance, in March 2018, the Data Consultant for *The Guardian* downloaded all of the data that Google had stored about him: the file was 5.5GB, or roughly 3 million Word documents. The equivalent file from Facebook was 600MB, roughly 400,000 Word documents.⁸ This, of course, raises major questions about our privacy and the manipulation of decision-making via the use of targeted advertising.

Big data analytics and AI can be used for what many would consider to be more questionable purposes. It can be used as a method of social control by authoritarian regimes in ways which pose serious challenges to Western concepts of human rights. 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 with the aim of allowing (and I quote) “the trustworthy to roam everywhere under heaven while making it hard for the discredited to take a single step.”⁹ Perhaps unsurprisingly, China’s proposed “social credit system” has been compared to Black Mirror or Big Brother because it involves the blacklisting of persons who are deemed “dishonest”.¹⁰ This can arise from a failure to pay a debt or from social behaviour which the algorithm deems as not conducive to the promotion of “trust” or “good citizenship”. 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.¹¹ Data that indicates non-

⁷ Financial Stability Board, ‘Artificial Intelligence and machine learning in financial services’ (1 November 2017).

⁸ Dylan Curran, ‘Are you ready? Here is all the data Facebook and Google have on you’, *The Guardian* (20 March 2018), available at: <https://www.theguardian.com/commentisfree/2018/mar/28/all-the-data-facebook-google-has-on-you-privacy>.

⁹ Simina Mistreanu, ‘Life Inside China’s Social Credit Laboratory’, *Foreign Policy* (3 April 2018), available at: <https://foreignpolicy.com/2018/04/03/life-inside-chinas-social-credit-laboratory/>.

¹⁰ Nicole Kobie, ‘The complicated truth about China’s social credit system’, *WIRED* (21 January 2019), available at: <https://www.wired.co.uk/article/china-social-credit-system-explained>.

¹¹ 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>.

compliance with social and economic obligations and contractual commitments are flagged and aggregated on a government-wide level to determine the trustworthiness of companies and individuals. The system awards credits for approved behaviour and deducts credits for behaviour that is frowned upon. People with low credit scores can be registered on a public blacklist and excluded from trains or banned from domestic flights, and there are reports of people being refused access to hotels and private schools and excluded from prestigious work.¹² The Chinese government anticipates that, by 2020, all of the social credit scores for its 1.4 billion citizens will be publicly available.¹³

In western societies, governments have not sought to exercise such control, but there are concerns about the potential for abuse of big data, for example, in relation to access to health insurance or to credit. And there is, of course, concern about foreign intervention in our domestic processes.

But all is not gloom and doom; there is unquestionably a sunny side of the street. The new processing capacity and storage infrastructure are advancements that can and are being used beneficially in the diagnosis of diseases, the translation of foreign languages, and the development of driverless vehicles. There are also interesting initiatives by a United Nations organisation, Global Pulse, on harnessing big data for development and humanitarian action.¹⁴ In the financial sphere, the new technology can be used to form digital identification records to give access to the financial system to those who are currently excluded from it. It can assist central banks in making economic forecasts, and can be used by regulated institutions to assist in compliance with regulations, and to detect fraud, money-laundering and the financing of terrorism.

My topic today is not so much these wider issues but rather three more focused topics: first, the effects of technological change on the law and legal practice; second, how technology can contribute to access to justice in civil disputes; and third, wider issues concerning the law and regulation of artificial intelligence and big data.

¹² The National Public Credit Information Centre reported that Chinese courts banned would-be travellers from buying flights 17.5 million times by the end of 2018. Citizens placed on blacklists for social credit offences were prevented from buying train tickets 5.5 million times (Lily Kuo, 'China bans 23m from buying travel tickets as part of 'social credit' system', *The Guardian*, 1 March 2019, available at: <https://www.theguardian.com/world/2019/mar/01/china-bans-23m-discredited-citizens-from-buying-travel-tickets-social-credit-system>).

¹³ 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>.

¹⁴ See the current projects here: <https://www.unglobalpulse.org/projects>.

II. Effects of technological change on the law and legal practice

What is clear from these examples is that the speed of technological developments poses a real challenge to the law and to regulation. The McKinsey Global Institute, a technology think tank, 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”.¹⁵ Ireland, sometimes referred to as the “AI island”, is fertile ground for this revolution.¹⁶

How then are legislators, judges and lawyers to apply and adapt the law, especially in a commercial context?

A successful system of commercial law must promote rather than hinder honest commercial activity. A legal system which offers a high degree of legal certainty will tend to reduce the cost of transactions and so encourage commerce. In the eighteenth century, the great Scottish jurist, Lord Mansfield, whom many would regard as the father of English commercial law, stated:

“In all mercantile transactions the great object should be certainty: and therefore, it is of more consequence that a rule should be certain, than whether the rule is established one way or the other.”¹⁷

Similarly, and more recently, Lord Goff stated in an extrajudicial writing:

“[Judges] are there to give effect to [businessmen’s] transactions, not frustrate them; we are there to oil the wheels of commerce, not to put a spanner in the works, or even grit in the oil.”¹⁸

How then can a legal system promote that certainty 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

¹⁵ Richard Dobbs, James Manyika, and Jonathan Woetzel, ‘The Four Global Forces Breaking all the Trends’, 2015.

¹⁶ See, for instance, <https://www.forbes.com/sites/alisoncoleman/2018/08/25/how-ireland-is-fast-becoming-the-ai-island/#5bb1e7786121> and <https://www.siliconrepublic.com/machines/ai-island-ireland-ida-infographic>.

¹⁷ *Vallejo v Wheeler* (1774) 1 Cowp 143 at 153.

¹⁸ Lord Goff of Chieveley, ‘Commercial contracts and the commercial court’, [1984] LMCLQ 382 at 391.

I start with contract law. “Smart contracts” are contracts which can be partially or fully executed or enforced 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.¹⁹ 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 (in which I include in this context Scots 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 has to address how to provide a remedy if contractual consent has been vitiated, for example, by 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 cancel the performance of the contract. 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.

Moreover, if (or rather, when) there is widespread use of AI to optimise the arrangements between contracting parties on the occurrence of contingencies, contract law will have to be developed to address this. If machines make independent decisions, how will the law attribute those decisions to the intention of the contracting parties?

Delict/Tort

The law will also have to address the existence of civil liability outside the field of contract law. AI may come to have many uses in financial systems such as the optimisation of the balance between assets and liabilities, portfolio management, the execution of trades and the detection of fraud.

In the law of tort or delict, liability can result from the combination of a wrongful intention to harm another or foresight of harm to another and a causal link between the individual’s action

¹⁹ 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.

(or inaction) and the harm which the other suffers. If an adverse outcome 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 a human's acts and that outcome? Who is to be responsible for the machines' decisions?

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? Or is it fair to hold humans liable at all if the AI systems write their own algorithms? Rather, should the AI system, like a corporation, be granted legal personality? A body of law will need to develop to decide how to allocate liability.²⁰ If a computer using AI is given separate legal personality, should it be required to have compulsory third party insurance and who should be liable if it does not?

Property

The law of property will also need to be adapted. For example, if digital currencies were to achieve a stability so far absent and were accepted widely in exchange for goods and services or for other uses, their nature as property would need to be defined. If they become widely used in cross-border commercial transactions, it will be necessary to achieve a degree of international legal consensus on their nature as property rights. Should such currencies, depending on their character, be regarded as money or are they to be seen as securities and regulated as such?²¹ A debate on this question is being conducted in London and I would suggest that Scottish law reformers should be asking similar questions of Scots law. In another field of technology, if computers using AI generate intellectual property, who owns that property? Rules will be required to define the nature of tokens and assets held on distributed ledgers and to identify when such property passes from one owner to another. This should involve cooperation between computer specialists and lawyers in order to maximise the benefits of the technology.

International cooperation

It is not enough for our legislatures and courts in England, Wales, Scotland or Ireland 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 and financial

²⁰ 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.

²¹ In London, the FMLC has suggested that virtual currencies which are pegged to "real world" currencies could be regarded as e-money and be negotiable. They suggest that the traditional categories of the common law might be extended to recognise virtual choses in possession as a new form of property: Financial Markets Law Committee, 'Fintech: Issues of Legal Complexity' (June 2018), pgs. 30 & 38.

services, there is a pressing need for international cooperation to establish agreed rules of private international law and also harmonised regulations. Many distributed ledger structures will 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.

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 as the nodes controlling such a distributed ledger will operate 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.

There is the potential to achieve real benefits if we were to develop internationally accepted laws and rules to govern those financial technology operations which can promote international trade in goods and services, so as to make the consequences of those operations as familiar as those of a bill of lading or a banker's letter of credit, we would enhance the prospect of spreading the gains of the new technology to benefit more people internationally.

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 the financial system, 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.

Changes to legal practice

But it is not only substantive law that will need to be adapted in order to accommodate changing technology. Many commentators have suggested that the legal profession itself is on the brink of unprecedented upheaval.²² 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.

²² Richard Susskind and Daniel Susskind, *The Future of the Professions: How Technology Will Transform the Work of Human Experts*" (OUP: 2015) pg. 67

It is clear that 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.²³ Even companies with deeper pockets are reticent to spend vast sums on tasks like document review and due diligence. In response, the legal sector is employing AI in novel ways.

It seems that some corporations are leading the way and that may pose a challenge to professional law firms. For instance, in Coca-Cola’s legal department, AI tools have streamlined the drafting process for many contractual documents, reducing the time that lawyers had been spending on review from as much as 10 hours to about 15 minutes. Not only does this improve efficiency, observers say, it also results in more consistent agreements while freeing up the legal team for more strategic tasks.²⁴ Similarly, JP Morgan Chase invested in its own proprietary AI platform – COIN (short for Contract Intelligence) – to review commercial loan agreements. The financial giant estimates that this automation has saved 360,000 hours of work by lawyers and loan officers annually, and it has expanded this platform to more complex matters, including credit default swaps and custody agreements.²⁵

Law firms are also employing AI to support or even replace lawyers in the execution of core legal tasks.²⁶ In *Pyrrho Investments v MWB Property*, an English court expressly endorsed, for the first time, the use of predictive coding software.²⁷ The case concerned alleged breaches of directors’ duties in the hotel and leisure industry, where over three million documents had to be considered for relevance and possible disclosure. The High Court considered whether, for the purpose of disclosure, the parties could rely on predictive coding, a form of machine learning that takes data input by people about document relevance and then applies it to much larger document sets. Master Matthews considered that there was no evidence that predictive coding software leads to less accurate disclosure than manual review, and indeed, there was some evidence to the contrary. He also noted that predictive coding software offers greater consistency

²³ Charles Dickens, *Bleak House* (Penguin: 1996), pg. 14.

²⁴ Michael Heric and Neal Goldman, ‘Corporate Legal Eagles Start to Embrace Artificial Intelligence’, Bain & Company Brief, (05 February 2019), available at: <https://www.bain.com/insights/corporate-legal-eagles-start-to-embrace-artificial-intelligence/>.

²⁵ John Browning, ‘Will Robot Lawyers Take Our Jobs?’, *D Magazine*, (March 2019), available at: <https://www.bain.com/insights/corporate-legal-eagles-start-to-embrace-artificial-intelligence/>.

²⁶ Christian Veith and others, ‘How Legal Technology Will Change the Business of Law’ (January 2016), available at: http://www.bucerius-education.de/fileadmin/content/pdf/studies_publications/Legal_Tech_Report_2016.pdf.

²⁷ [2016] EWHC 256 (Ch).

than dozens, or perhaps hundreds, of junior fee-earners independently seeking to apply the relevant criteria in relation to individual documents. Moreover, it was a much less expensive option: he estimated it would cost several million pounds for a full manual review versus approximately £500,000 for predictive coding software. As such, he thought it was a suitable case in which to use the technology and it would promote the overriding objective in Part 1 of the Civil Procedure Rules.²⁸

Technology in the courts

Similarly, technology is also changing the way courts operate. Technological advances in 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. To this end, the courts in England and Wales are embracing a variety of initiatives, including e-filing, computer-assisted transcription, document display systems, electronic presentation of evidence and the virtual examination of witnesses to protect the vulnerable. I recall similar initiatives when I was a commercial judge in Scotland in both commercial and IP cases.

In addition, HM Courts & Tribunal Service, in collaboration with the Ministry of Justice, is investing over £1bn to “modernise and upgrade” the justice system.²⁹ The reform programme comprises more than 50 distinct projects.³⁰

The geographic structure or spread of our courts dates back to a past age and modern communications, by which I mean both means of transport and electronic communications, have given an opportunity to rationalise the location of our courts. The process of court closures has in some cases been controversial as communities can resent the loss of local facilities, but technology can, one would hope, reduce the inconvenience which local court closures have caused and will cause.

One contribution which technology can provide is in giving people access to justice at a significantly lower cost. I turn now to that topic.

²⁸ The Civil Procedure Rules 1998 have the overriding objective of enabling the court to deal with cases justly. Criteria for dealing with cases justly include dealing with the case in ways that are proportionate to the amount of money involved, the importance of the case, the complexity of the issues and the financial position of each party.

²⁹ Ministry of Justice, ‘Transforming Our Justice System’, (September 2016), available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/553261/joint-vision-statement.pdf.

³⁰ See <https://www.gov.uk/guidance/hmcts-reform-programme-projects-explained>.

III. Access to justice in civil disputes

Access to justice is a fundamental component of the rule of law.³¹ In the recent *UNISON* case, the Supreme Court confirmed that access to justice is a fundamental constitutional principle: it is the role of the courts to make sure that laws are applied and enforced, and in order for them to perform that role, people must “in principle have unimpeded access to them”.³²

But can this be achieved?

Access to justice is currently a significant issue in the United Kingdom. But our country is not alone in its difficulties in funding legal representation in civil cases. This difficulty and the attempts to replace legal aid with other methods of funding legal representation are the backdrop against which I examine an important technological initiative.

The decline in the availability of legal aid in civil cases led to new funding arrangements, including conditional fee arrangements and after the event insurance in some cases, which imposed significant costs on the losing party in an action and necessitated further changes. There has also been a proliferation of litigants in person, which creates problems both for the litigants and the courts.

The truth is that legal aid cannot, by itself, solve the problem of access to justice. Nor will pro bono work by lawyers, immensely valuable though it is, solve it. This problem is not new. I am reminded of a discussion on my father’s farm over 45 years ago when I was a student working the fruit harvest: a farm worker spoke of there being “one law for the rich and one for the poor”. I disagreed then. But while there is formally one law for all and the courts strive to maintain that, access to the remedies of law is uneven, if one party can afford more skilful legal representation than the other. When practising at the Bar I frequently advised private clients, including reasonably comfortably off clients, against undertaking litigation partly because the costs, including the risk of adverse costs orders, were so significant.

We have a much-admired legal system in which skilled written legal pleading and strong oral advocacy enable the courts to achieve justice in many cases. But our adversarial systems

³¹ Thomas Bingham, *Rule of Law* (Penguin: 2010), Ch. 3.

³² *R (on the application of UNISON) v Lord Chancellor* [2017] UKSC 51, [68].

developed on the assumption that people will be legally represented. Our systems depend on the employment of skilful lawyers. And that, through no fault of working lawyers, involves a cost beyond the reach of most individuals and small businesses.

This has led to efforts to create a new form of court for smaller cases by which online dispute resolution can be achieved. As in many areas relating to access to justice, the Canadians were first off the mark. The Civil Courts Structure Review (2015-16), chaired by my colleague Lord Briggs, has drawn on the work of the charity Justice, and of Sir Stanley Burnton, to propose a new “Online Solutions Court” for cases of a value under £25,000.

The Online Solutions Court is described as a “radical and important structural change” because “[i]t provides the opportunity to use modern IT to create for the first time a court which will enable civil disputes of modest value and complexity to be justly resolved without the incurring of the disproportionate cost of legal representation”.³³

Perhaps the most important technology underpinning the proposed Online Solutions Court is online triage. In the context of a civil claim, online triage would enable the court to probe the claimant’s case by automatically presenting successive questions which are determined by the claimant’s answers, so as to convert a convoluted grievance into a legal claim. Online triage would reduce the time-consuming process of returning incomplete forms, and it could be utilised to enable court users to communicate directly with the court about simple claims and replace the complicated procedural rule book.³⁴

Online triage is intended to be the first stage in any Online Solutions Court. The second stage is resolution and case management by legally qualified Case Officers, and, the third, determination by judges either online, on the papers, by telephone, by video or in a traditional hearing.

How this will work is yet to be seen. If the triage at the first stage is good enough, it will certainly save parties much of the cost of litigation as they, rather than the lawyers, will do the donkey work of building up their case. Achieving this at the first stage will, of course, require assistance to the digitally challenged, and developing that support will also be part of that package. If it is successfully implemented, the Online Solutions Court has the prospect of providing access to

³³ Lord Briggs, Civil Courts Structural Review: Interim Report (December 2015), pg. 75.

³⁴ Lord Briggs, ‘The Civil Online Court in England’ (draft).

justice for people and small businesses who simply do not have the resources to bring an action in the traditional manner.

IV. Wider issues concerning the law and regulation of AI and big data

This brings me to my final topic – wider issues concerning the law and regulation of AI and big data.

It is, of course, fascinating to consider the various ways in which AI and big data are being utilised by corporations, lawyers, judges and governments.

But there are a variety of subtle ways in which bias can creep into a system, particularly 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.³⁵

One area of particular concern is the use of AI tools to create ‘risk assessments’ to aid judges in sentencing decisions. This practice is becoming more and more common within the US justice system. At a high level, risk assessment tools aggregate data, often based on answers provided by the defendant or pulled from criminal records, and provide the judge with a recidivism score: a single number estimating the likelihood that defendant will reoffend.³⁶ Many modern risk assessment tools were originally designed to provide judges with insight into the types of treatment that an individual might need — from drug treatment to mental health counselling. It can tell judges that if they put you on probation, they may need to provide certain services to assist you. But being judged ineligible for alternative treatment can translate into incarceration, and the risk assessment score is then used to determine how severe the sentence should be.

Although this technology was crafted with the best of intentions, a former US Attorney General has warned that it “may exacerbate unwarranted and unjust disparities that are already far too

³⁵ House of Lords Select Committee on Artificial Intelligence, ‘AI in the UK: ready, willing and able?’ Report of Session 2017 – 19, pg. 41.

³⁶ See, for instance, the Correctional Offender Management Profiling for Alternative Sanction (COMPAS) developed by Northpointe (now Equivant).

common in our criminal justice system and in our society.”³⁷ Unfortunately, it appears that his fears are being realised. ProPublica, a non-profit newsroom in the US, carried out a study based on the risk scores assigned to more than 7,000 people arrested in Broward County, Florida, and checked to see how many were charged with new crimes over the next two years, the same benchmark used by the creators of the relevant risk assessment system. They reported that the score proved “remarkably unreliable” in forecasting violent crime: only 20 percent of the people predicted to commit violent crimes actually went on to do so. When a full range of crimes were taken into account the algorithm was somewhat more accurate than a flip of a coin: 61%. Moreover, the study found significant racial disparities: the system wrongly labelled black defendants as future criminals at almost twice the rate as white defendants.³⁸ It is also concerning that defendants rarely have an opportunity to challenge their assessments. The results are usually shared with the defendant’s lawyer, but the calculations that transformed the underlying data into a score are rarely revealed.³⁹

The Durham Police have started to investigate the use of similar AI systems for determining whether suspects should be kept in custody. Aware of the issues in the US, the Head of Criminal Justice at Durham Constabulary has emphasised the considerable lengths that the Durham Constabulary has taken to ensure their use of these tools is open, fair and ethical.

But if risk assessments are to be implemented in Britain or Ireland, then developers of the systems will need to create more diverse, accurate datasets. I would also suggest that we should be slow to permit the use of such risk assessments unless both the prosecution and the defence get to see all the data that go into them, either directly or through the work of independent and informed auditors.

Fortunately, Parliament and the Government are aware of the perils of bias in AI and machine learning. In April 2018, the House of Lords recommended that a specific challenge be established to stimulate the creation of systems for auditing and testing training datasets to

³⁷ Attorney General Eric Holder, Speech at the National Association of Criminal Defence Lawyers 57th Annual Meeting and 13th State Criminal Justice Network Conference (1 August 2014), available at: <https://www.justice.gov/opa/speech/attorney-general-eric-holder-speaks-national-association-criminal-defense-lawyers-57th>.

³⁸ Julia Angwin and others, ‘Machine Bias’ *ProPublica* (23 May 2016), available at: <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

³⁹ Julia Angwin and others, ‘Machine Bias’ *ProPublica* (23 May 2016), available at: <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

ensure they are representative of diverse populations to reduce prejudicial decisions.⁴⁰ In response, the Government decided to enlist the help of The Alan Turing Institute, which has established a specific challenge to make algorithmic systems fair, transparent and ethical.⁴¹ It recommends, among other things, 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.⁴² It is important to implement these recommendations if risk assessments are further pursued in Britain or Ireland.

V. Conclusion

It will be clear from what I have said up till now that it is 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. Nor can the courts by themselves take the needed steps to increase access to justice. The judiciary does not have the constitutional competence to do so. The changes which are required are not interstitial law, the making of 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.

The Lord Chief Justice’s new initiative in setting up an advisory body is very welcome as a means of alerting the judiciary and the court system to the challenges of AI. But it is the Government and the legislatures in our countries, assisted by specialists, which must facilitate the needed legislation.

To do this most effectively there must be dialogue and learning across borders to innovate and transform the law to adapt to these technological developments. Associations such as yours and conferences such as this can only assist in the process. In so doing, Britain and Ireland will ensure that the law encourages technological innovation and facilitates open justice, whilst also upholding our basic human rights.

Thank you.

⁴⁰ House of Lords Select Committee on Artificial Intelligence, ‘AI in the UK: ready, willing and able?’ Report of Session 2017 – 19, pg. 41.

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.

⁴² See <https://www.turing.ac.uk/research/challenges/challenge-make-algorithmic-systems-fair-transparent-and-ethical>.