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# The Ethical Implications of Lawtech

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**Abstract.** The development of information and communications technology has changed the work of many professionals and may now be radically changing the functioning of the legal system. ‘Lawtech’, or technology which supports, replaces, or improves the provision of legal services and the operation of the justice system, has become more and more important.

Lawtech raises significant ethical issues. It often relies on so-called ‘artificial intelligence’ (AI), but this does not ‘think’ as humans do. Software, such as machine learning tools, can help judges to make decisions. Some jurisdictions are replacing judges with AI. Lawyers also use AI to predict the outcomes of litigation. These tools can be more transparent and fairer. However, they may also be more opaque. Also, researchers raise questions about whether the data and processes used in these applications simply reflects and strengthens existing biases and prejudices.

Lawtech provides an opportunity to improve the operation of the legal services market and the justice system for the benefit for the citizen and the consumer. However, this is not certain, and it could worsen existing problems or create new ones. This will require careful consideration and more research in the future.

**Keywords:** lawtech, legaltech, ethics, law, artificial intelligence, judicial support, bias, courts, lawyers.

## 1 Context

The development of information and communications technology (ICT), particularly the networked digital computer, has brought about very significant changes to the skills, capacity, and daily work practices of many professionals. However, the pace and type of change has not been the same across all walks of life. This paper explores how ICT has affected the practice of law and how it is likely to affect it in the future. Relatively little has changed in the practice of law since Dickens’ time [1, pp. 143–4]. If a doctor, engineer, or journalist from the 18th century was transported to a modern workplace, they would be confused and confounded by the many machines in use. A

lawyer from the same time period deposited in a modern courtroom or legal practice would see some computers but the nature of legal work, the interactions with clients, and the business of law would be familiar. However, the recent rapid growth in legal information technology – often referred to as ‘lawtech’ – is transforming and disrupting the world of legal practice to a very significant extent [2, p. 997].

This could have significant benefits, but it may also bring significant problems. Lawtech could lead to better access to justice, more affordable legal services, and a better quality of service. However, it could also strengthen existing biases and inequalities, widen the digital divide, and lead to the provision of unregulated services which do not serve consumers well.

## **2 What is ‘Lawtech’?**

A broad definition of ‘lawtech’ is any use of ICT for legal practice. It is also called ‘legaltech’ or ‘legal technology’ (This paper will use ‘lawtech’ to avoid the implication that all uses of ICT are legal.) This term covers quite a wide range of sophistication: from the relatively simple use of word processors for the preparation of correspondence, to the use of artificial intelligence (AI) to automatically review legal documents such as contracts. The Law Society of England and Wales has a more precise definition of lawtech, which this paper will adopt, as: ‘technologies that aim to support, supplement or replace traditional methods for delivering legal services, or that improve the way the justice system operates.’ [3]

This is quite a wide-ranging definition, and includes many aspects of the law – consumers and providers of legal services, the judiciary and courts, and public and private law. (This paper does not consider the use of ICT in policing.) Lawtech also includes:

1. *digitalisation or automation* – converting existing paper-based processes to electronic or digital processes, in the hope of saving time and money; and
2. *innovation or transformation* – re-thinking these processes entirely or creating new approaches to old problems or challenges, often relying on technology, and either trying to save time and money or to create new markets and business models.

Lawtech can be sub-divided into ‘Office Tech’ (traditional office automation tools, which have little or no influence on business models) and ‘Legal Tech’ (which ‘directly affects the provision of legal services’) [4]. Office Tech is perhaps best understood as internal and supporting lawyers, while Legal Tech is external and supports or facilitates clients.

## **3 Ethical Implications of Lawtech**

This section discusses some ethical issues which lawtech raises, particularly the risk of bias in judicial decision support systems.

### 3.1 AI, Judicial Decision Support Tools, and Bias

**Limitations of AI.** An important use of lawtech in the courts which raises ethical issues is judicial decision support tools. Many of these tools rely on artificial intelligence (AI). Although AI is sometimes understood or presented as having human-like intelligence, these tools do not work like a human mind and have significant limitations [5, Chapter 7]. A significant ethical issue in the development of digital technology, generally, is that AI which depends on ‘big data’ may strengthen existing biases and unfairness in society [6, pp. 2–5]. This is very relevant to the development of lawtech, and although Ireland is not as advanced as other jurisdictions in its adoption, it deserves careful consideration.

Lawtech AI generally takes two forms:

1. ‘*Expert systems*’ apply rules developed and programmed by humans to make decisions or provide guidance.
2. ‘*Machine learning*’ applies statistical analysis of large amounts of records (‘big data’) in order to identify connections and correlations, particularly ones that are not obvious to humans.

Neither of these approaches are truly ‘intelligent’, and the latter is often misunderstood:

Data-reliant AI operates by looking for associations. The software assesses how predictive certain factors are, and through iterative analysis hones in on relationships that might not be visible to human analysis.

This software does not apply logical rules in the sense of rules-based systems, or in the way that humans apply logic to solve problems. This software neither understands nor applies logical rules, rather through mathematical analysis of vast amounts of data relationships it can identify these relationships. The software neither knows nor cares why these relationships exist; it simply identifies that they do exist. [7, p. 327]

While these tools are quite powerful in certain contexts, they do not work in the same way as humans:

... today’s AI systems are decidedly not intelligent thinking machines in any meaningful sense. Rather, ... AI systems are often able to produce useful, intelligent results without intelligence. These systems do this largely through heuristics – by detecting patterns in data and using knowledge, rules, and information that have been specifically encoded by people into forms that can be processed by computers. Through these computational approximations, AI systems often can produce surprisingly good results on certain complex tasks that, when done by humans, require cognition. Notably, however, these AI systems do so by using computational mechanisms that do not resemble or match human thinking.

By contrast, the vision of AI as involving thinking machines with abilities that meet or surpass human-level cognition – often referred to as Strong AI or Artificial General Intelligence (AGI) – is only aspirational. [8, p. 1308]

These big data tools can enhance our lives, but the software programs used may also ‘learn’ to discriminate in ways that are illegal. For example, they might focus on characteristics that are proxies for social class, race or gender (such as home address or height). They might also pick up existing human biases in the data, for example, descriptions of images that differentiate on the basis of race [6, pp. 2–5].

**AI in Judicial Decision-Making.** Big data and machine learning tools are now being developed to support judges in their decision-making. These take two general forms:

1. an assistant, providing relevant information to guide judicial decisions
2. a complete replacement for a judge, providing judgments in an autonomous and automatic fashion [9, p. 4].

AI tools have been developed to predict the outcomes of litigation, to assess the risk of an individual, or otherwise to help to gather information needed for a decision [9, p. 5–12]. AI is now being used by judges worldwide. China has ambitious plans for the use of AI in judicial processes [7, p. 324; 10–12], and Pakistan is experimenting with its use by judges [13]. Estonia intends to use an automated system to deal with small claims disputes of less than €7000 [14].

The use of analytics to examine patterns in the decisions of judges has been banned in France. The rationale put forward was to prevent judges coming under undue pressure, but concerns were raised that the ban could reduce transparency and accountability. It has been argued that these tools could lead to a significant increase in transparency in judging. However, there are limitations, including incomplete or low-quality data, being inappropriate for certain areas of law, the unstructured nature of judgments, and high cost. They may improve as data sets become larger and better, the technology develops, and costs fall. They might lead to an increase in ‘judge shopping’ (preferring or avoiding judges seen as more or less favourable), and challenges to judicial fairness or competence [15].

AI judicial support tools have been controversial. The Correctional Offender Management Profiling for Alternative Sanctions (‘COMPAS’) software has been used to assess the risk of recidivism of an individual before sentencing in some US courts. Critics have alleged that it assigns African-Americans as high-risk at twice the rate of other groups, while assigning white people as low-risk more often than people of colour [16].

There are concerns that ‘algorithms might perpetuate or amplify existing biases and stereotypes, which can consequently result in discrimination.’ [9, p. 8] Underlying this concern is an understanding that no dataset is free of human choices regarding what is measured and what is recorded, and can thus easily reflect human biases and assumptions: ‘[f]or example, crime data may reflect policing and judicial biases to-

wards minority groups, while data on eligibility for benefits may reflect bureaucratic impulses to reduce spending.’ [17, p. 434; See also 18; 19; 20]

**Ethical Issues with Judicial Decision Support Tools.** If machine learning tools are used to support judges, this could have both positive and negative effects. From an ethical perspective, there may be an obligation on courts to take full advantage of the opportunities which digitalisation offers [21]. Technology can enable greater transparency and accountability, by enabling the court to communicate to a wider audience. However, it can also reduce transparency, by giving the court too much control over the message that it communicates, or making the reasons for decisions more difficult to publish or understand. A greater capacity to communicate can enhance the independence of the courts, and the use of (for example) random case allocation can enhance impartiality [22].

Algorithms could also reduce transparency by making decisions more opaque and hard to understand [9, pp. 13–17]. Four possible forms of opaque algorithm are [23, pp. 3–5; 24, p. 5–6]:

1. Intentional corporate or state secrecy, particularly to protect trade secrets and competitive advantage;
2. Software code which is difficult to understand, particularly for those without the specialised skills necessary;
3. Systems which are built to such a scale that they are difficult to completely grasp; and
4. AI systems which do not make it clear how their decisions are made.

There are arguments that trade secrecy should not be privileged in the use of software tools in criminal proceedings [25]. Judicial decision support tools could be developed with some degree of access to software source code – either entirely open, accessible on request, or reviewed by independent experts [26, p. 135]. However, review of open source by itself does not guarantee that problems will be identified [27, pp. 647–650]. In addition, AI researchers are developing more explainable or interpretable algorithms [24, pp. 6–7]. If these are insufficient, another approach could be to ensure that those who may be affected by AI judicial decision support tools can opt-in or opt-out of their use [26, p. 136].

Lawtech could enable greater efficiency, but this value may be in tension with ideals of fairness and justice [22]. However, providing judges with a database of past decisions (particularly sentences) could increase their consistency and impartiality, and external analysis of decisions may highlight unusual or unfair decision-making by particular judges. The use of AI in selecting judges could lead to a more diverse bench.

However, examination of case studies of these systems in practice show that this is not always achieved, and AI tools may never be appropriate for contexts where the stakes are high:

Ultimately, humans must evaluate each decision-making process and consider what forms of automation are useful, appropriate and consistent with the rule of law. The design, implementation and evaluation of any automated components, as well as the entire decision-making process including human elements, should be consistent with such values. It remains to be seen whether these values can be fully integrated into automated decision-making and decision-support systems used by government. [17, pp. 454–5]

**Can Judicial Decision-Making Be Automated?** The next possible step is the use of AI to replace some or all of the decision-making by human judges. It is argued that this could make the process much fairer:

In adjudication much uncertainty is due to the fact that outcomes are influenced by the judge's intellectual ability, background knowledge, experience, moral inclinations and political outlook, all of which vary from judge to judge. Computer law-application promises to be more consistent and equal. Like humans, AI systems may be infected with bias, but once such a defect has been detected, it may be eliminated. It is much more difficult to detect human bias since it may be unconscious, let alone to overcome it. Importantly, there is mounting evidence that machines are better than humans in detecting lying and assessing the probability of future eventualities, such as the risk of reoffending. [28, p. 439]

In addition, the population generally may think that AI is fairer than humans [29]. AI may assist in reducing bias, by providing more objective assessments of a case, removing flawed intuitions, reducing jury bias, and hiring more diverse staff. However, AI could also exacerbate bias because it relies on biased data, although this may be corrected [30, pp. 161–176].

From a human rights perspective, an automated or quasi-automated system could have the important advantage of speed, which is particularly important where there are backlogs in the court system. However, if the system is not explainable, it may infringe on the right to a fair trial [31, pp. 36–41].

It seems unlikely that AI will entirely replace human judges. The capacity of AI to substitute for human judges may be limited by lack of sufficient data. A more important limitation is that there is no artificial general intelligence, and even if there was, it would be very difficult, if not impossible, to free it from human bias. It also may not be appropriate for computers to create new rules which impact on humans, and AI might not be able to command the same respect from the public as do judges [7, p. 348].

The perception that AI is fairer and more consistent does not take into account how algorithms developed by different individuals or teams do not always yield the same results. For example, there are many online databases of legal resources, some of which will include functionality which extend a search to include similar words, singular/plural, and so on. These algorithms are unique to the database and proprietary. Carrying out the same search across different databases yields different results: up to



40% were unique to a particular database, some databases returned more than 50% irrelevant material in the top 10 results, and the ‘best’ database involved more human curation of its information [32]. Similarly, when 52 programmers were assigned the task of automating the enforcement of speed limits, the programs that they wrote issued very different numbers of tickets for the same sample data [33]. If artificial intelligence were to replace judges, this would raise questions such as whether computers have legal authority to make decisions, how laws are translated into computer code, how discretion can be managed, and when computers might understand meaning rather than simply logic [34, pp. 1126–1130].

Another limitation is that if AI becomes more common, the justice system may be re-engineered and individuals working within it may think in a different way, for example in terms of risk profiles and the classification of groups [35, pp. 630–631]. AI systems that predict the future based on the past, or reach conclusions based on past cases, may not be able to make creative leaps, deal with unanticipated situations, or develop the law in the way that a human lawyer or judge can [36, pp. 6–7]. The use of AI to support or substitute for human judges may lead to a more codified or standardised justice system, which could be more fine-grained than human decision-making, but which may also be too limited in its methods of measurement to be truly just. The end result may be incomprehensible by citizens and unable to change, leading to disillusionment and alienation [37]. A system that is slow to change could lose its legitimacy in the eyes of the public [38, p. 235].

Therefore, we are still some distance from fully automated judges being a reality [39]. It will require technology that does not yet exist, and may not ever [35, pp. 627–628]. It may be that ‘the human heart of the judicial process, being a combination of conscious and currently unknowable unconscious thought, remains quite literally beyond the comprehension of the most talented programmer.’ [40, p. 112] The incomplete and fuzzy nature of the law may mean that attempts to convert it into something which can be reliably processed by a machine could damage the rule of law [41]. In the future, therefore, judges are unlikely to be entirely replaced by AI [42, p. 3], but we may see hybrid human-machine systems used for judging [43].

**Is the Role of the Judiciary Limited to Decision-Making?** Another reason why AI may never entirely replace judges is that their role goes beyond simply adjudicating on cases, and can vary significantly between legal systems [7, p. 334]. Much of current AI research does not focus to a significant extent on what courts and judges do in practice, such as managing a courtroom, a caseload, and a team of staff, but only on the application of rules [35, pp. 628–631]. In addition to deciding cases, judges also enable public participation in the process of justice, explain its functioning, assess facts, create documents, identify and apply doctrine, reason by analogy, are consistent, create law when required, and ultimately project ‘the power and legitimacy of the state to the public.’ [7, pp. 338–341]

**European Ethical Charter on the Use of AI in Judicial Systems.** The use of AI in courts raises many important opportunities and challenges. Liu and others have considered these issues in detail, and have asked a number of questions for consideration:

It is far from clear whether automated systems support, or replace human discretion and judgment in practice. So who are the decision-makers – the government officials involved or software programs they are relying on, which are designed by companies for profit? In many cases, private entities wield public power by virtue of the algorithms they design[.]

...

..., what type of decisions can governments delegate to machines? Should the authority be shaped broadly enough to allow algorithms to make value-based judgments or only non-discretionary decisions? Moreover, codes and algorithms are value-laden. Development of algorithms is a complex process that can be influenced by humans – such as criteria selection, data mining, training, semantics and interpretation. In designing the operational parameters ... it is not uncommon for developers to have ‘desired outcomes in mind that privilege some values and interests over others’. While sensitive attributes like gender, race or ethnicity are generally disallowed in the decision-making process of public sectors, they may be encoded, inadvertently or not, when private companies design the systems. The fact that algorithms are implemented throughout government agencies can only magnify and perpetuate the risks of hidden biases and errors. [26, pp. 137–138]

One possible structure for responding to these issues is the Council of Europe's European Commission for the Efficiency of Justice (CEPEJ)'s European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and Their Environment, which sets out five principles:

1. *Principle of respect for fundamental rights*: Ensure that the design and implementation of artificial intelligence tools and services are compatible with fundamental rights;
2. *Principle of non-discrimination*: Specifically prevent the development or intensification of any discrimination between individuals or groups of individuals;
3. *Principle of quality and security*: With regard to the processing of judicial decisions and data, use certified sources and intangible data with models conceived in a multidisciplinary manner, in a secure technological environment;
4. *Principle of transparency, impartiality and fairness*: Make data processing methods accessible and understandable, and authorise external audits; and
5. *Principle ‘under user control’*: Preclude a prescriptive approach and ensure that users are informed actors and in control of their choices [44].

The CEPEJ has also prepared a feasibility study for a mechanism for certifying AI tools and services in the sphere of justice and the judiciary, which outlines how these principles might be applied in practice [45].

## 4 Conclusion

Lawtech has been part of a wave of change and innovation in the legal services market. It could save consumers and businesses money and time, and be a source of economic growth. However, it is not a ‘silver bullet’ to solve the problem of access to justice. As AI is used more by lawyers and courts, this could save time and money and be fairer, but may be biased and inflexible.

These policy choices will become more important as lawtech develops at a faster pace. The Council of Bars and Law Societies of Europe has considered the use of AI in detail, and provides a reflection which summarises the issues well:

Much debate is still needed critically to assess what role, if any, AI tools should play in our justice systems. Change should be embraced where it improves or at least does not worsen the quality of our justice systems. However, fundamental rights and adherence to ethical standards that underpin institutions based on the rule of law, cannot be subordinated to mere efficiency gains or cost saving benefits, whether for court users or judicial authorities.

Increasing access to justice by reducing the cost of judicial proceedings may sound like a desirable outcome, but there is little value in increasing access to justice if the quality of justice is undermined in doing so. [46, p. 20]

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## References

1. Kirby M (1998) The future of courts – do they have one? *Journal of Law and Information Science* 9:141–151
2. Donoghue J (2017) The rise of digital justice: Courtroom technology, public participation and access to justice. *Modern Law Review* 80:995–1025
3. The Law Society (2019) What is lawtech?  
<http://www.lawsociety.org.uk/campaigns/lawtech/guides/what-is-lawtech>
4. Hartung M, Bues M-M, Halbleib G (eds) (2018) *Legal Tech: How Technology is Changing the Legal World*. Beck/Hart, Munich/Oxford
5. Broussard M (2018) *Artificial Unintelligence: How Computers Misunderstand the World*. MIT Press, Cambridge, Massachusetts

6. Fundamental Rights Agency (2018) #bigdata: Discrimination in Data-Supported Decision-Making. Fundamental Rights Agency, Vienna
7. Campbell RW (2020) Artificial intelligence in the courtroom: The delivery of justice in the age of machine learning. *Colorado Technology Law Journal* 18:323–349
8. Surden H (2018) Artificial intelligence and law: An overview. *Georgia State University Law Review* 35:1305–1337
9. Ulenaers J (2020) The impact of artificial intelligence on the right to a fair trial: Towards a robot judge. *Asian Journal of Law and Economics* 11
10. Zou M (2020) “Smart courts” in China and the future of personal injury litigation. *Journal of Personal Injury Law* 2:135–140
11. Wang R (2020) Legal technology in contemporary USA and China. *Computer Law and Security Review* 39:105459
12. Zheng GG (2020) China’s grand design of people’s smart courts. *Asian Journal of Law and Society* 00:1–22
13. Pakistan Today (2019) AI to assist judiciary in becoming more efficient, says CJP Khosa. <https://www.pakistantoday.com.pk/2019/06/19/ai-to-assist-judiciary-in-becoming-more-efficient-says-cjp-khosa/>
14. Park J (2020) Your Honor, AI. *Harvard International Review* Spring:46–48
15. McGill J, Salyzyn A (2021) Judging by numbers: How will judicial analytics impact the justice system and its stakeholders. *Dalhousie Law Journal* 44:forthcoming
16. Angwin J, Larson J, Mattu S, Kirchner L (2016) Machine bias. *ProPublica* <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>
17. Zalnieriute M, Moses LB, Williams G (2019) The rule of law and automation of government decision-making. *Modern Law Review* 82:425–455
18. Gitelman L (ed) (2013) *Raw Data is an Oxymoron*. MIT Press, Cambridge
19. Bowker GC, Star SL (1999) *Sorting Things Out: Classification and Its Consequences*. MIT Press, Cambridge
20. Kitchin R (2014) *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences*. Sage, London
21. Prins C (2018) Digital justice. *Computer Law & Security Review* 34:920–923
22. Zalnieriute M, Bell F (2020) Technology and the Judicial Role. In: Appleby G, Lynch A (eds) *The Judge, the Judiciary and the Court: Individual, Collegial and Institutional Judicial Dynamics in Australia*. Cambridge University Press, Cambridge
23. Burrell J (2016) How the machine ‘thinks’: Understanding opacity in machine learning algorithms. *Big Data & Society* 3:1–12
24. Busuioc M (2020) Accountable artificial intelligence: Holding algorithms to account. *Public Administration Review* 1–12
25. Wexler R (2018) Life, liberty, and trade secrets: Intellectual property in the criminal justice system. *Stanford Law Review* 70:1343–1429
26. Liu H-W, Lin C-F, Chen Y-J (2019) Beyond *State v Loomis*: artificial intelligence, government algorithmization and accountability. *International Journal of Law and Information Technology* 27:122–141

27. Kroll JA, Barocas S, Felten EW, Reidenberg JR, Robinson DG, Yu H (2016) Accountable algorithms. *University of Pennsylvania Law Review* 165:633–705
28. Zuckerman A (2020) Artificial intelligence—implications for the legal profession, adversarial process and rule of law. *Law Quarterly Review* 136:427–453
29. Helberger N, Araujo T, de Vreese CH (2020) Who is the fairest of them all? Public attitudes and expectations regarding automated decision-making. *Computer Law & Security Review* 39:105456
30. Goodman CC (2019) AI/Esq.: Impacts of artificial intelligence in lawyer-client relationships. *Oklahoma Law Review* 72:149–184
31. Dymitruk M (2019) The right to a fair trial in automated civil proceedings. *Masaryk University Journal of Law and Technology* 13:27–44
32. Mart SN (2017) The algorithm as a human artifact: Implications for legal [re]search. *Law Library Journal* 109:387–422
33. Shay LA, Hartzog W, Nelson J, Conti G (2016) Do robots dream of electric laws? An experiment in the law as algorithm. In: Calo R, Froomkin AM, Kerr I (eds) *Robot Law*. Edward Elgar Publishing, Cheltenham
34. Sourdin T (2018) Judge v. Robot: Artificial intelligence and judicial decision-making. *University of New South Wales Law Journal* 41:1114–1133
35. Morison J, Harkens A (2019) Re-engineering justice? Robot judges, computerised courts and (semi) automated legal decision-making. *Legal Studies* 39:618–635
36. Miller S (2019) Machine learning, ethics and law. *Australasian Journal of Information Systems* 23
37. Re RM, Solow-Niederman A (2019) Developing artificially intelligent justice. *Stanford Technology Law Review* 22:242–289
38. Crotoof R (2019) Cyborg justice and the risk of technological-legal lock-in. *Columbia Law Review Forum* 119:233–251
39. Rubim Borges Fortes P (2020) Paths to digital justice: Judicial robots, algorithmic decision-making, and due process. *Asian Journal of Law and Society* 00:1–17
40. Sourdin T, Cornes R (2018) Do judges need to be human? The implications of technology for responsive judging. *IUS Gentium* 67:87–119
41. Markou C, Deakin S (2020) *Ex Machina Lex: The Limits of Legal Computability*. In: Deakin S, Markou C (eds) *Is Law Computable? Critical Perspectives on Law + Artificial Intelligence*. Hart Publishing, Oxford
42. Wallace A (2019) Ten Questions for Dory Reiling - Developing IT for Courts. *International Journal for Court Administration* 10:1–3
43. Wu T (2019) Will artificial intelligence eat the law? The rise of hybrid social-ordering systems. *Columbia Law Review* 119:2001–2028
44. European Commission for the Efficiency of Justice (2018) *European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and Their Environment*. Council of Europe, Strasbourg
45. Quiniou M (2020) *Possible Introduction of a Mechanism for Certifying Artificial Intelligence Tools and Services in the Sphere of Justice and the Judiciary: Feasibility Study*. European Commission for the Efficiency of Justice, Strasbourg

46. Council of Bars and Law Societies of Europe (2020) CCBE Considerations on the Legal Aspects of Artificial Intelligence. Council of Bars and Law Societies of Europe, Brussels