The Use of Artificial Intelligence in the Judiciary and Its Compliance with the Right to a Fair Trial

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European courts are increasingly investing in Artificial Intelligence (AI) applications for the automation of the administration of justice, to improve the efficiency and quality of the judiciary. However, AI can display considerable issues, such as opaqueness and unfair bias, resulting from the defective designing of their algorithms. This article explores the opportunities and risks of AI technology for court users – including judicial staff, legal representatives and litigants – by investigating proposed and developed applications by European judiciaries under the right to a fair trial. AI is found to pose certain risks to the independence and impartiality of the judiciary, as well as to the adversarial and public character of court proceedings, notwithstanding the opportunities for the improvement of access to courts. The regulatory solutions for the safe use of AI adopted by European judiciaries can encourage similar practices in other judiciaries, including Australia and the United States.

I. INTRODUCTION

Modern courts are plagued by administrative issues that reduce the quality of judicial services provided to citizens, such as the backlog of cases and the length and cost of judicial proceedings.[1] While the political and economic context of a country may significantly influence the operation of its courts, internal factors – such as the lack of available judges, the frequency of periods of court inactivity and the antiquated rules of procedure – may contribute to the length of proceedings and general inefficiency.[2] European states reserve part of their court expenditures for Information Communications Technology (ICT) tools automating the application procedure, case management before and during the hearing and communication processes to improve the organisation of courts and the attribution of justice.[3]

More recently, European courts have started to invest in advanced technological tools to optimise their internal processes, including Artificial Intelligence (AI) technology. Applications for document management, allocation of judges to cases and anonymisation of judgments for publication are some of the most researched and developed AI applications for judicial administration in European courts.[4] AI algorithms employing Machine Learning methods differ from earlier ICT software in that they can

[1] Richard E Susskind, *Online Courts and the Future of Justice* (Oxford Scholarship, 2019) 28–29.

[2] Nicolas Regis, "Length of Court Proceedings in the Member States of the Council of Europe Based on the Case Law of the European Court of Human Rights" (CEPEJ, 2018) 38–61 <https://rm.coe.int/cepej-2018-26-enrapport-calvez-regis-en-length-of-court-proceedings-e/16808ffc7b>.

[3] European Commission for the Efficiency of Justice (CEPEJ), "Special File – Report European Judicial Systems – CEPEJ Evaluation Report – 2020 Evaluation Cycle (2018 Data)" (Council of Europe, 2020) 96–97 <https://www.coe.int/en/web/cepej/special-file-publication-of-the-report-european-judicial-systems-cepej-evaluation-report-2020-evaluation-cycle-2018-data->.

[4] European Commission and Directorate-General for Justice and Consumers, "Study on the Use of Innovative Technologies in the Justice Field: Final Report" (Publications Office of the European Union, 2020) 111–142 <http://op.europa.eu/en/publication-detail/-/publication/4fb8e194-f634-11ea-991b-01aa75ed71a1/language-en>.

demonstrate interactivity with and adaptability to their environment, but also autonomy from it since they can independently carry out internal changes without the need for any interactions.[5]

While the intention of AI integration plans is to promote access to justice and enhance the efficiency and quality of judicial administration, reported issues of AI algorithms – such as their opaqueness, bias and technical vulnerabilities – foster a risk-based approach during their designing, development and employment phases.[6] At the same time, European states worry that the attractiveness of AI solutions developed extraterritorially in nations like the United States and China where investments in the research and development of AI are much higher would render them less competitive.[7] A general preference for AI systems developed elsewhere could generate not only an economic disadvantage for European states but also the risk that these AI applications might be under-regulated and thus more likely to cause harm.

This article examines AI systems for the automation of judicial administration under the right to a fair trial, with a complementary examination of the ethical standards for the development and use of safe and trustworthy AI. First, it describes the transition from ICT to AI technology in the judiciary and enumerates certain types of AI applications in European courts. Secondly, it analyses the defined applications under the right to a fair trial according to Art 6(1) of the *European Convention of Human Rights*.[8] Finally, it reflects on the designing of safe AI applications in accordance with the ethical standards laid down in the "Ethics Guidelines for Trustworthy AI" and the "European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and Their Environment".[9] It concludes with reflections on the effect that regulatory developments regarding AI applications in European courts might have on other jurisdictions.

II. Digital Transformation of Court Administration

ICT systems offer a considerable automation advantage, assisting judicial staff with activities such as drafting documents, managing correspondence and setting up the court calendar. Besides telephony and fax machines, court offices are equipped with computer systems supporting the staff with organising and systematising their tasks. Still, these tools offer limited automating capabilities and require significant digital literacy that prompts judicial staff to keep relying on paper means, reducing the chances for improvement of the backlog of cases and the length of proceedings. AI technology demonstrates certain advanced technical characteristics that differentiate it from basic ICT technologies, presenting an alternative for the automation of judicial administration as shown by the increased interest of European courts in its development.

A. From ICT to AI Technology in Courts

ICT applications, consisting of hardware or software that enable the management of digital information, have been systematically supplied to European courts since the 1990s with the ultimate purpose of automating routine judicial activities.[10] Broadly described, ICT tools automate back-office tasks, including case management, document management, courtroom procedures, and external communications with litigants and legal representatives.[11] European courts with more resources generally allocate a higher

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[5] Luciano Floridi and JW Sanders, "On the Morality of Artificial Agents" (2004) 14(3) *Minds and Machines* 349, 357–362.

[6] See, eg, High-Level Expert Group on Artificial Intelligence, "Ethics Guidelines for Trustworthy AI | Shaping Europe's Digital Future" (European Commission, 2019) 14–20 <https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai>; see also European Commission for the Efficiency of Justice (CEPEJ), "European Ethical Charter on the Use of Artificial Intelligence (AI) in Judicial Systems and Their Environment" (Council of Europe, 2018) 7–12 <https://www.coe.int/en/web/cepej/cepej-european-ethical-charter-on-the-use-of-artificial-intelligence-ai-in-judicial-systems-and-their-environment>.

[7] See, eg, French National Strategy on Artificial Intelligence: Cédric Villani, "For a Meaningful Artificial Intelligence, Towards a French and European Strategy" (AI Watch, 2018) 5–6 <https://knowledge4policy.ec.europa.eu/publication/meaningful-artificial-intelligence-towards-french-european-strategy_en>.

[8] *European Convention on Human Rights*, opened for signature 4 November 1950 (entered into force 3 September 1953).

[9] High-Level Expert Group on Artificial Intelligence, n 6; see also CEPEJ, n 6.

[10] Marco Velicogna, "Justice Systems and ICT – What Can Be Learned from Europe?" (2007) 3(1) *Utrecht Law Review* 129, 131.

[11] Dory Reiling, *Technology for Justice: How Information Technology Can Support Judicial Reform* (Leiden University Press, 2009) 48.

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percentage of their budget to ICT tools, having in place a legal framework to regulate their use in judicial administration.[12] In any case, the level of development of ICT tools should be considered as a mere indicator of the improvement of court performance, to be viewed in the broader context of judicial administration, along with other factors such as governing legislations, court organisation and court users' expectations.[13]

The development and use of ICT applications are somewhat inadequate for the efficiency and quality of judicial administration. Digital tools may require advanced digital skills – for example, when their features do not appear in a layered way for easy navigation or when they are based on decentralised systems not offering a homogenous design.[14] Internally, ICT systems are not tailored to the needs of judicial staff and their introduction to administrative offices is generally not accompanied with training on their use, which discourages their systematic employment.[15] Externally, communication with parties and their legal representatives remains non-interactive and does not allow citizens to expand on their issues and receive tailored answers to their questions.[16]

AI can be viewed as a potential solution to the inefficiencies of basic ICT tools. Among the various definitions of AI, the High-Level Expert Group on Artificial Intelligence has defined AI systems as:

> [S]oftware (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behavior by analyzing how the environment is affected by their previous actions.[17]

AI algorithms defer from ICT algorithms in the following ways:

(1) they can act autonomously by evolving independently from human developers, based on (semi-) autonomous training with input data;
(2) they can interact with their environment through the input and output of values; and
(3) they can adapt to their surroundings by changing their functioning parameters based on previous experiences.[18]

Current applications use "narrow AI" that can perform certain routine tasks, but do not have the ability to reach the level of human intelligence so as to carry out judicial activities that would require legal reasoning.[19] Learning methods to train AI algorithms include Machine Learning (ML), whereby developers can provide the algorithm with certain inputs, like texts or images, with which the system can be trained and ultimately generate its outputs.[20] Processing of text or speech inputs by AI algorithms is specifically implemented by a field of ML called Natural Language Processing (NLP).[21]

Current uses of AI in the judicial environment include: the searchability of court documents through the detection of patterns in the text; the provision of advice to parties on solutions to their problems,

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[12] CEPEJ, n 3, 96–97.

[13] CEPEJ, n 3, 95.

[14] Giampiero Lupo and Jane Bailey, "Designing and Implementing E-Justice Systems: Some Lessons Learned from EU and Canadian Examples" (2014) 3(2) *Laws* 353, 373.

[15] Velicogna, n 10, 135.

[16] Reiling, n 11, 261.

[17] High-Level Expert Group on Artificial Intelligence, "A Definition of Artificial Intelligence: Main Capabilities and Scientific Disciplines" (European Commission, 2019) 6 <https://ec.europa.eu/digital-single-market/en/news/definition-artificial-intelligence-main-capabilities-and-scientific-discipline.html>.

[18] Floridi and Sanders, n 5, 357–362.

[19] High-Level Expert Group on Artificial Intelligence, n 17, 5.

[20] High-Level Expert Group on Artificial Intelligence, n 17, 3–4.

[21] Rinu Gour, "What Is Natural Language Processing in Artificial Intelligence?" (Medium, 2019) <https://medium.com/@rinu.gour123/what-is-natural-language-processing-in-artificial-intelligence-b13dc4aa1c81>.

judicial remedies and court proceedings; and the "prediction" of the outcome of litigation based on patterns in past case law and judges' profiles.[22] These applications are mainly developed by private actors offering commercial services;[23] however, European justice systems are slowly starting to develop, either autonomously or through outsourcing, AI solutions for the automation of their judicial administration.

The European Commission has classified certain AI systems for the administration of justice as "high-risk" due to the considerable harm they can cause to, for example, the right to a fair trial and to an effective remedy resulting from potential defections (such as opaqueness and unfair bias). Annex III of the *Proposal for a Regulation on a European approach for Artificial Intelligence* (*AI Act*) lists as "high-risk" AI applications that assist judicial staff in "researching and interpreting facts and the law and in applying the law to a concrete set of facts".[24] Recital 40 specifies that assisting systems not directly linked with the adjudication of a case are not considered as high risk. Such systems may aim at the anonymisation of judgments, document handling and allocation of resources. This would then leave high-risk AI assisting systems to possibly involve applications for the recommendation of relevant legislation and case law to the judges on the one hand, and the adjudication of fact-based cases that must be finally verified by a judge on the other.

The European Union is placing great significance on the regulation of AI systems for courts during their designing, development and use stages, to create trustworthy applications that can be safely employed by court users without the risk of harm to their rights. On the contrary, there are examples from third states where the lack of adherence to (binding) standards jeopardises litigants' rights, despite the large investments in the research and development of AI solutions. For example, the Correctional Officer Management Profiling for Alternative Sanctions (COMPAS) system, used by US State courts to calculate the risk for recidivism of defendants, was excluding the processing of inputs associated with race but allowed the processing of its proxies, such as poverty rates, thus leading to biased outcomes.[25] Likewise, smart courts in China have incorporated AI systems to improve the consistency of their judgments by comparing cases with similar facts, which raises concerns on their accuracy due to the use of general language processing instead of advanced ML and the unavailability of sufficient data inputs.[26] Court users are likely to feel safer and therefore prefer interacting with AI systems that protect their right to a fair trial and promote the rule of law, instead of systems that are efficient in achieving their set goal but are not in accordance with existing laws and standards.

B. AI Applications for Judicial Administration

European state courts are gradually exploring the integration of AI applications in their judicial administration to automate tasks in pre-trial, hearing and post-sentencing proceedings. Pre-trial proceedings extend from the submission of an application to the court until its introduction in the hearing stage but can also imply the sum of back-office tasks. AI systems can automate the management of documents, workflows and databases, the provision of legal information through chatbots or registries for legal aid, and the building of intranets and extranets for communication with personnel and the public.[27] The Anoppi project is an initiative by the Finnish Ministry of Justice that centres around the development of an autonomously trained AI system that recognises key words in a text and uses them as search terms

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[22] Dory Reiling, "Courts and Artificial Intelligence" (2020) 11(2) *International Journal for Court Administration* 1, 3–6.

[23] See, eg, "10 Legal AI Startups Transforming the Way Legal Industry Operates", *IndustryWired*, 24 February 2021 <https://industrywired.com/10-legal-ai-startups-transforming-the-way-legal-industry-operates/>.

[24] European Commission, "Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonized on Artificial Intelligence (Artificial Intelligence Act)" (Publications Office of the EU, 2021) <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206>.

[25] Lauren Kirchner et al, "Machine Bias", *ProPublica*, 23 May 2016 <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing?token=pB6i06IyoO0LwmE2vfYUQBGseZmS8U0E>.

[26] Changqing Shi, Tania Sourdin and Bin Li, "The Smart Court – A New Pathway to Justice in China?" (2021) 12(1) *International Journal for Court Administration* 4, 18 <https://doi.org/10.36745/ijca.367>.

[27] European Commission and Directorate-General for Justice and Consumers, n 4, 111–142.

for the exploration of a legal document and its linking with relevant legislation or case law.[28] This AI tool can be used by judges and prosecutors to research relevant material in preparation for an upcoming case.

Hearing proceedings begin from the introduction of a case to the courtroom and last until the public announcement of the judgment. AI applications in this stage may involve the allocation of judges to cases, videoconferencing, automatic translation tools and decision-making.[29] In Hungary, state courts have purchased speech recognition and transcription systems that automatically transcribe decisions and minutes into text, detecting even abbreviations and references to legal rules.[30] The aim of this initiative is to minimise the time spent by judicial clerks in writing down courtroom proceedings or internal meetings, so they can channel their working time into other pending administrative tasks. The systems were purchased after the testing of their accuracy, time efficiency and ease of use, and following a consultation period whereby users could submit feedback to the developers.

Post-sentencing proceedings take place after the public announcement of the judgment and up to the start of the enforcement procedure. Automation may involve the anonymisation or pseudonymisation of the judgment for later publication on the court's website and the assessment of compensation and other payment matters arising from a decision. In France, the Ministry of Justice authorised the development of an algorithm that extracts data from texts of cases concerning compensation for physical damage, in order to inform litigants and judges of the imposed sums so they can be used as a reference for the calculation of compensation in similar cases.[31] The algorithm detects in the text of the judgment the sums requested and offered by the parties during the court or dispute resolution proceedings, as well as the compensation allocated to the victims by the court.

C. Conclusion

There is an increasing interest by European courts in the incorporation of AI systems in their judicial administration, fuelled by the automation advantages that AI algorithms present in comparison to ICT systems. Despite the hype around AI technology, the European Commission has deemed as high risk all AI systems used for the administration of justice, due to the significant impact on the lives and rights of citizens that the outcome of deficient algorithms might have.[32] While the development of these systems should not be impeded given the efficiencies they might provide to the public sector and society in general, AI systems must be made safe by complying with legal and ethical standards. AI applications for the judicial sector should primarily comply with the rule of law and the principle of fairness of the trial so they can contribute to access to justice and enhance the trust of citizens in the judicial system.

III. COMPLIANCE OF AI SYSTEMS WITH THE RIGHT TO A FAIR TRIAL

AI technology has raised enthusiasm about the potential benefits to court efficiency, along with concern regarding adverse consequences on the rule of law and fundamental rights. For their integration to courts, AI systems must primarily comply with the right to a fair trial. On a European level, this right is regulated by Art 6 of the *European Convention of Human Rights*. The treaty is binding on all Member States of the Council of Europe and can be enforced before state courts and the European Court of Human Rights. The Article, in particular, applies to courts and tribunals that are competent to render binding decisions in accordance with prescribed legal rules and procedures.[33] Paragraph 1 refers to "civil

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[28] Ministry of Justice of Finland, *Anoppi Project* (Oikeusministeriö, 2018) <https://oikeusministerio.fi/en/project?tunnus= OM042:00/2018>.

[29] European Commission and Directorate-General for Justice and Consumers, n 4, 111–142.

[30] National Office for the Judiciary of Hungary, "Speech Recognition and Transcription Software" (Courts of Hungary, 2016) <https://birosag.hu/en/speech-recognition-and-transcription-software>.

[31] Republic of France, "Décret N° 2020-356 Du 27 Mars 2020 Portant Création d'un Traitement Automatisé de Données à Caractère Personnel Dénommé « DataJust »" <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000041763205>.

[32] European Commission, n 24, Recital 40.

[33] *Sramek v Austria* (European Court of Human Rights, Plenary, Application No 8790/79, 22 October 1984) [36]; *Benthem v The Netherlands* (European Court of Human Rights, Plenary, Application No 8848/80, 23 October 1985) [40].

rights and obligations" and "criminal charge[s]", indicating that it applies to both civil and criminal proceedings, where fairness is guaranteed for the entirety of the proceedings and not just for the oral hearing procedures.[34] Therefore, AI systems for judicial administration must be found compatible with this right during all stages of the judicial process, regardless of the type of court or level of court proceedings.

A. Access to a Court

The principle of access to a court indicates that litigants must have a clear and practical opportunity to challenge interferences with their rights before a tribunal.[35] Insufficient or inaccurate information regarding, among other things, procedural time limits[36] or the right to apply for free legal aid[37] can inhibit prospective litigants from making an informed choice and thus interfere with their right to access justice.

AI applications can contribute to the fast and effective distribution of information on court proceedings to all citizens regardless of their economic means, respecting the principle of equality before the law. This can be facilitated through AI-driven chatbots providing accurate, understandable and consistent information on court proceedings. The system can be trained with data deriving from court files and can redirect citizens to frequently asked questions or contact information of competent court officials when it is unable to provide an answer.[38] The Finnish public administration is experimenting with the Aurora assistant, an AI system that interacts with online users and provides them with requested information on a 24/7 basis, which will replace telephone or in-person appointments.[39] This initiative may enhance the access to justice of citizens, who can receive valuable information in regards to their legal affairs without any delay.

Certain AI algorithms may impede access to courts, as is the case with predictive justice algorithms enabling the prediction of the outcome of a case based on the analysis of previous case law. These algorithms use NLP techniques to analyse and extract patterns from the text of judgments – in particular, the facts that are relevant to the case at hand – and arrive at a prediction of its outcome.[40] Algorithms that predict an unfavourable outcome of a prospective case might disincentivise citizens from applying for court proceedings, thus indirectly depriving them from a clear and practical opportunity to solve their legal problem before the Bench. This disincentivising effect is more harmful to the right of access to justice when the prediction of the system is inaccurate due to the defective training of the system. In Italy, the Court of Genoa is part of the "Predictive Jurisprudence" project, which aims at the development of an AI system for the extraction and analysis of the legal reasoning in court decisions concerning separation, divorces and compensation for non-pecuniary damages.[41] On a positive note, judges can detect patterns in their decision-making and improve their performance accordingly, thus increasing the consistency of their decisions.

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[34] *Phillips v The United Kingdom* (European Court of Human Rights, Fourth Section, Application No 41087/98, 5 July 2001) [39].

[35] *Bellet v France* (European Court of Human Rights, Chamber, Application No 23805/94, 4 December 1995) [36].

[36] *Gajtani and Switzerland* (European Court of Human Rights, Second Section, Application No 43730/07, 9 December 2014) [65]–[77].

[37] *Airey v Ireland* (European Court of Human Rights, Chamber, Application No 6289/73, 9 October 1979) [26]–[28].

[38] Lise Embley, "Getting Started with a Chatbot" (National Center for State Courts, 2020) 1–5 <https://www.ncsc.org/__data/assets/pdf_file/0028/28567/2020-04-15-qr-getting-started-with-a-chatbot.pdf>.

[39] Ministry of Economic Affairs and Employment, "Finland's Age of Artificial Intelligence – Turning Finland into a Leading Country in the Application of Artificial Intelligence. Objective and Recommendations for Measures" (Finnish Government, 2017) 54–55 <https://julkaisut.valtioneuvosto.fi/handle/10024/160391>.

[40] Nikolaos Aletras et al, "Predicting Judicial Decisions of the European Court of Human Rights: A Natural Language Processing Perspective" (2016) 2 *PeerJ Computer Science* e93, 3–9.

[41] "L'occhio della tecnologia sulla giustizia di Genova: un'intelligenza artificiale potrà prevedere la sentenza? Presentata la Convenzione tra Scuola Sant'Anna e Tribunale di Genova", *Sant'Anna Scuola Universitaria Superiore Pisa*, 5 October 2019 <https://www.santannapisa.it/it/news/locchio-della-tecnologia-sulla-giustizia-di-genova-unintelligenza-artificiale-potra-prevedere>.

B. Reasonable Time

The principle of reasonable time indicates that proceedings should last for the minimum duration possible to eliminate unnecessary delays that compromise the "effectiveness and credibility" of the trial.[42] Systematic court delays are the result of a number of factors. Public administration is still largely based on paper files stored in courts' registries that provide judicial staff with valuable information to consistently carry out their activities.[43] Manual processing of administrative tasks can be slower than their digital execution and can create a backlog of cases overtime, impeding the fast adjudication of a case. Combined with the institutionalised case delay and the strategic use of time by the parties,[44] efforts for improving reasonable time through digital technologies can be rendered ineffective if not carried out systematically and strategically.

AI systems can reveal which courts have the most delays, the duration of these delays and their causes, so judiciaries can form a tailored strategy to mitigate their effects on court users.[45] This can be achieved by AI algorithms processing information on court records, case files and relevant data that reveal the average time of proceedings, from the introduction of a case to the court until the publication of the judgment.[46] Nonetheless, the prior introduction of ICT tools in the judiciary has not been proven to contribute to the improvement of reasonable time, either due to lack of conclusive research or lack of documentation of the transition from paper-based to ICT-based judicial administration.[47] There must be systematic monitoring of AI implementation in courts to understand whether and to what extent court delays are reduced through the automation of judicial tasks.

C. Independence

Independence refers to the functional separation of powers and the protection of the judiciary from receiving instructions or other interventions by the executive and legislative branches or from litigants themselves.[48] This can be the case when private, for-profit actors are outsourced by governmental authorities to design AI applications for courts, such as decision-making algorithms, since these parties pursue economic and political interests, respectively, that do not fully align with the lawful administration of justice.[49]

On the one hand, the outsourcing of external private parties can be more beneficial than the in-house development of AI systems, since companies already have the resources and expertise to efficiently produce AI solutions.[50] The cost of designing an AI application can be considerably high due to the need for a large amount of data for the training of the algorithm to produce accurate outputs, in accordance with data protection and confidentiality rules.[51] The involvement of the executive branch may also have

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[42] *H v France* (European Court of Human Rights, Chamber, Application No 10073/82, 24 October 1989) [58].

[43] Patrick Dunleavy, "Governance and State Organization in the Digital Era" in Chrisanthi Avgerou et al (eds), *The Oxford Handbook of Information and Communication Technologies* (Oxford Handbooks Online, 2009) 3–4.

[44] Mario Procopiuck, "Information Technology and Time of Judgment in Specialized Courts: What Is the Impact of Changing from Physical to Electronic Processing?" (2018) 35(3) *Government Information Quarterly* 491, 500.

[45] Jasper Ulenaers, "The Impact of Artificial Intelligence on the Right to a Fair Trial: Towards a Robot Judge?" (2020) 11(2) *Asian Journal of Law and Economics* 1, 30–31.

[46] Giampiero Lupo, "Evaluating E-Justice: The Design of an Assessment Framework for e-Justice Systems" in Karim Benyekhlef et al (eds), *eAccess to Justice* (University of Ottawa Press, 2016) 59.

[47] Reiling, n 11, 108–109.

[48] *Beaumartin v France* (European Court of Human Rights, Chamber, Application No 15287/89, 24 November 1994) [38].

[49] Ad hoc Committee on Artificial Intelligence (CAHAI), "Towards Regulation of AI Systems" (Council of Europe, 2020) 87 <https://www.coe.int/en/web/artificial-intelligence/-/toward-regulation-of-ai-systems->.

[50] Bill Vassiliadis et al, "From Application Service Provision to Service-oriented Computing: A Study of the IT Outsourcing Evolution" (2006) 23(4) *Telematics and Informatics* 271, 273–274.

[51] Giampiero Lupo, "Regulating (Artificial) Intelligence in Justice: How Normative Frameworks Protect Citizens from the Risks Related to AI Use in the Judiciary" (2019) 8(2) *European Quarterly of Political Attitudes and Mentalities* 75, 83.

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the benefit of exploiting their strategic skills and experience in the procurement of the designing and development of AI algorithms for judicial administration.

On the other hand, outsourcing may interfere with judges' independence since companies are profit driven and want to deliver efficient algorithmic systems that can perform the task determined by their clients, without necessarily embedding values like fairness. Moreover, developers of algorithms assume a state function by making the ultimate choices on the technical parameters of AI applications for judicial administration, especially when the systems contribute to decision-making processes that are reserved exclusively for members of the judicial branch.[52] Contrary to state actors that contract them and assume direct responsibility for the impacts of the system, private companies are not perceived by the public as directly accountable for errors of AI systems that may lead to, for example, the production of discriminatory outcomes.[53]

D. Impartiality

Impartiality of the court requires an unbiased stance by judges when deciding a case, which is absent if they exercise other judicial or extra-judicial functions or if they are in some way related to the litigants or other parties to the proceedings.[54] To eliminate doubts over their impartiality, it is important that procedural safeguards are established to protect their integrity, including removing them from the Bench when they appear to be biased.[55]

The judges' background affects the objectivity of their judgment, as shown by the difference in the types of sentences received by defendants in criminal cases depending on their race and ethnicity.[56] The intuitions and emotions of judges during the trial – for example, by being selectively empathetic towards certain litigants – has also been viewed as a factor threatening their impartiality.[57] Such cognitive biases persist in a way that judges are not aware of and so they cannot subsequently correct them, necessitating judicial authorities to intervene by nudging judges towards an unbiased adjudication of the case, which can be achieved through AI assisting tools.[58] AI algorithms for decision-making can be trained to render objective outputs in accordance with the principle of equality before the law, by excluding pre-existing biases, such as race, as technical parameters.[59]

Nevertheless, if AI algorithms are trained with discriminatory inputs, they can produce biased outputs that can be further reproduced by judges in their final judgment and thus significantly affect the legal and socioeconomic status of litigants. AI systems can demonstrate:

- "pre-existing bias" when they embody existing societal biases;
- "technical bias" due to computational limitations, including non-quantifiable data; and
- "emergent bias" when the algorithm embeds values that become redundant by the time it is used.[60]

A well-known example of biased AI applications, as mentioned above, is the COMPAS, an AI system used by US State courts to predict the risk of recidivism of defendants. Even if the system does not

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[52] Kate Crawford and Jason Schultz, "AI Systems as State Actors Essays" (2019) 119(7) *Columbia Law Review* 1941, 1960–1964.

[53] John D Marvel and Amanda M Girth, "Citizen Attributions of Blame in Third-party Governance" (2016) 76(1) *Public Administration Review* 96, 105–106.

[54] *Micallef v Malta* (European Court of Human Rights, Grand Chamber, Application No 17056/06, 15 October 2009) [93]–[98].

[55] *Mikhail Mironov v Russia* (European Court of Human Rights, Third Section, Application No 58138/09, 6 October 2020) [26]–[28].

[56] Allison P Harris and Maya Sen, "Bias and Judging" (2019) 22 *Annual Review of Political Science* 241, 248–251.

[57] Stina Bergman Blix and Åsa Wettergren, "A Sociological Perspective on Emotions in the Judiciary" (2016) 8(1) *Emotion Review* 32, 33 <https://doi.org/10.1177/1754073915601226>.

[58] Gerd Gigerenzer, "The Bias Bias in Behavioral Economics" (2018) 5(3–4) *Review of Behavioral Economics* 303, 304–305.

[59] Ric Simmons, "Big Data and Procedural Justice: Legitimizing Algorithms in the Criminal Justice System" (2018) 15 *Ohio State Journal of Criminal Law* 573, 577–578.

[60] Batya Friedman and Helen Nissenbaum, "Bias in Computer Systems" (1996) 14(3) *ACM Transactions on Information Systems* 330, 333–336.

process race (a prohibited ground of discrimination), it processes proxies, such as poverty, to raise the accuracy of its outcomes, subsequently discriminating against African Americans where the poverty rate was higher than that of Caucasians accused of the same crime.[61]

E. Adversarial Proceedings and Equality of Arms

Adversarial proceedings take place when parties are given a "genuine opportunity" to comment upon all the statements and evidence submitted during the proceedings by the opposing party.[62] They are closely associated with the principle of "equality of arms" that requires a "fair balance" between the parties so that each can present their claims before the court without inducing a considerable disadvantage in relation to the other party.[63]

The adversarial character of the proceedings may be threatened by the introduction of AI algorithms automating or assisting in the decision-making process. The Ministry of Justice of Estonia mandated the chief data officer to design an algorithm for the adjudication of small claims of up to € 7,000, which will process relevant documents uploaded by the parties to a designated database and then reach a decision, subject to an appeal adjudicated by a human judge.[64] Decision-making systems can operate through neural networks that process the users' archived data or their answers to dispute-related questions and then apply the coded legal rules or case law to the facts of the case.[65] This, in turn, means that the more fact-based the proceedings are, the less lawyers will be able to raise certain defence claims before the Bench,[66] such as the inadmissibility of submitted documents as evidence, thus depriving litigants of a sense of control over their case and trust in the authority of the judges. However, automated procedures for small claims cases can still allow for the submission of arguments and counterarguments to the claims of the other party and further prevent excessive oral arguments of lawyers in the courtroom that might prove unnecessary in standard cases of civil and commercial law.[67] It is difficult to consider such an automation of decision-making in criminal law cases, where the contribution of lawyers to the oral proceedings is fundamental for the defence of the parties, as indicated in Art 6(3)(c) of the *European Convention of Human Rights*.

Moreover, decision-making assisting systems, such as those used by judges to assess the risk for recidivism for the granting of parole,[68] challenge the principle of equality of arms since litigants may not afford equally advanced tools to prove their arguments. They may also be impeded from verifying the accuracy of the outcomes of such a system due to the opacity of the algorithm and the legal protection of its mechanism by proprietary rights.[69] This inability to understand the algorithmic logic that contributed to the judges' final decisions places litigants in a disadvantaged position, since their lawyer cannot construct a convincing defence and apply for an effective remedy without a reasonable ground.

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[61] Kirchner et al, n 25.

[62] *Ruiz-Mateos v Spain* (European Court of Human Rights, Plenary, Application No 12952/87, 23 June 1993) [63].

[63] *Regner v the Czech Republic* (European Court of Human Rights, Grand Chamber, Application No 35289/11, 19 September 2017) [146].

[64] Eric Niiler, "Can AI Be a Fair Judge in Court? Estonia Thinks So", *Wired*, 25 March 2019 <https://www.wired.com/story/can-ai-be-fair-judge-court-estonia-thinks-so/>.

[65] Tania Sourdin, "Judge v Robot? Artificial Intelligence and Judicial Decision-making" (2018) 41(4) *UNSW Law Journal* 1114, 1123.

[66] Richard M Re and Alicia Solow-Niederman, "Developing Artificially Intelligent Justice" (2019) 22(2) *Stanford Technology Law Review* 242, 274.

[67] Susskind, n 1, 232–235.

[68] See, eg, Kirchner et al, n 25.

[69] Arthur Rizer and Caleb Watney, "Artificial Intelligence Can Make Our Jail System More Efficient, Equitable, and Just" (2018) 23 *Texas Review of Law and Politics* 181, 214–215.

F. Public Hearing and Reasoning of Judgments

A public hearing acts as a safeguard against arbitrariness by allowing public scrutiny of the judges,[70] establishing faith in courts as an institution.[71] The reasoning of decisions enables the acceptance of the judgment by litigants since it reassures them that their case has been heard.[72] At the same time, it justifies the activity of judges regarding the handling of arguments and evidence,[73] and provides the opportunity to appeal a decision if litigants feel that their case has not been heard properly.[74]

AI algorithms contributing to the decision-making process, for example in small-claims cases,[75] imply a non-public procedure since litigants upload relevant information and documents on online platforms for further processing by the system. This differs from virtual proceedings that take place through videoconferencing, allowing litigants to remotely participate in a public procedure that is also open to the public. Non-public proceedings hinder the raising of arguments in the courtroom and the active interaction between litigants and judges. Due to the opacity of the proceedings, it is more likely that litigants develop distrust in the administration of justice, refusing to accept the final decision and eventually appealing if they are adversely impacted, thus raising the backlog of cases.[76]

Regarding the reasoning of judgments, the logic of AI algorithms cannot be held to the same standard as the reasoning provided by judges. Law is text driven, in that legal rules and judgments are laid down in written form that allows for multiple interpretations and contestability of the text, reducing legal uncertainty by making law foreseeable.[77] Current AI language-generating systems attempting to replicate human reasoning fail to perform accurately, due to the inability of the system to causally understand the legal terminology and the context of a judgment.[78] AI algorithms using ML can process judgments better if they include a binary decision – for example, violation or no violation of the applicable law.[79] Similarly, even if the inner functions of the algorithm are accepted as part of the reasoning of the judgment, AI systems often lack transparency and their code cannot be easily translated into human-understandable language.[80]

G. Conclusion

AI technology can demonstrate significant benefits for the right to a fair trial of litigants, enhancing access to justice by effectively disseminating information on court proceedings and thus democratising court services. However, the potential risks to the independence and impartiality of judges, as well as to the adversarial and public character of proceedings, demand a risk-based approach when designing and diffusing AI applications. While the right to a fair trial and the rule of law must be the primary benchmarks against which AI algorithms for judicial administration are measured, the technical nature of the algorithms suggests their parallel evaluation under ethical standards. The compliance of the AI system with both legal and ethical standards will ensure that the system is safe as it does not entail

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[70] *Fazliyski v Bulgaria* (European Court of Human Rights, Fourth Section, Application No 40908/05, 16 April 2013) [69].

[71] *Pretto v Italy* (European Court of Human Rights, Plenary, Application No 7984/77, 8 December 1983) [21].

[72] *Magnin v France* (European Court of Human Rights, Fifth Section, Application No 26219/08, 10 May 2012) [29].

[73] *Suominen v Finland* (European Court of Human Rights, Fourth Section, Application No 37801/97, 1 July 2003) [36].

[74] *Hirvisaari v Finland* (European Court of Human Rights, Fourth Section, Application No 49684/99, 27 September 2001) [30].

[75] See, eg, Niiler, n 64.

[76] Simmons, n 59, 574–577.

[77] Mireille Hildebrandt, "A Philosophy of Technology for Computational Law" in David Mangan, Catherine Easton and Daithí Mac Síthigh (eds), *The Philosophical Foundations of Information Technology Law* (OUP, 2020), 3–5.

[78] Gary Macus and Ernest Davis, "GPT-3, Bloviator: OpenAI's Language Generator Has No Idea What It's Talking About", *MIT Technology Review*, 22 August 2020 <https://www.technologyreview.com/2020/08/22/1007539/gpt3-openai-language-generator-artificial-intelligence-ai-opinion/>.

[79] Hildebrandt, n 77, 10.

[80] Rizer and Watney, n 69, 214–215.

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the risk of harm to the rights of litigants, it is in accordance with the principle of equality before the law, and it can be monitored by humans.[81]

IV. DESIGN OF SAFE AI FOR COURT ADMINISTRATION

AI applications must not only comply with the applicable laws but also with ethical standards to be determined as safe for their integration in courts. The High-Level Expert Group's "Ethics Guidelines for Trustworthy Artificial Intelligence", read together with the "European Ethical Charter on the Use of Artificial Intelligence in Judicial Systems and Their Environment",[82] provide four common ethical standards for the regulation of AI: transparency; non-discrimination; human oversight; and technical safety.[83] Contrary to the mandatory legal rules that AI must adhere to, including the right to a fair trial, these standards are optional and are mainly addressed to the developers of AI algorithms. On the one hand, the optional character of the standards leads to lower enforceability rates since their non-implementation is not followed by sanctions. Even when they are implemented, their application is not homogenous due to the variety of existing ethical frameworks worldwide. On the other hand, ethical standards are flexible in that they are not limited by jurisdictional boundaries and can be followed by all types of professionals working in the AI field, irrespective of their location.

A. Algorithmic Transparency

Transparency in the context of AI refers to the documentation of the databases and processes that contribute to the algorithmic outcome, in a manner understandable to humans and without concealment of the nature of the decision-maker as either the machine or the human operator.[84] Transparency regarding the design and functioning of the algorithm is essential to prevent the effect of a "black box" – that is, the opacity of the inner functioning of AI algorithms that prevents the detection of technical deficiencies, such as unfair bias.

While developers are familiar with designing AI systems by building their code and training the algorithm with data inputs, judicial staff and litigants have no technical knowledge to understand the logic behind the system's outputs.[85] Judges would benefit from explainable algorithms to ensure that their outcome is in adherence with legal and ethical standards and reliable enough to be used in the determination of the final judgment.[86] Litigants and their lawyers can apply for an appeal against AI-assisted judgments, if they have sufficient information to substantiate their remedy regarding the factors having primary impact on the algorithmic outcome, the input data used in the present and past cases with the same subject matter, and the frequency of erroneous outputs of the AI algorithm.[87]

For-profit developers have an interest in keeping the source code of the algorithm secret so as to protect their business model, instead of rendering it open access and enable its scrutiny by judicial experts and members of the public.[88] AI algorithms for judicial administration can use open data that are freely obtainable and do not require an operating license, on the condition that their use is in accordance with data protection and confidentiality rules, especially when they consist of case law data including litigants' personal information.[89] Further restrictions of transparency, such as non-disclosure agreements

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[81] High-Level Expert Group on Artificial Intelligence, n 6, 11–13.

[82] CEPEJ, n 6.

[83] High-Level Expert Group on Artificial Intelligence, n 6, 11–13.

[84] High-Level Expert Group on Artificial Intelligence, n 6, 18.

[85] Heike Felzmann et al, "Transparency You Can Trust: Transparency Requirements for Artificial Intelligence Between Legal Norms and Contextual Concerns" (2019) 6(1) *Big Data and Society* 1, 4–5.

[86] Ashley Deeks, "The Judicial Demand for Explainable Artificial Intelligence" (2019) 119(7) *Columbia Law Review* 1829, 1845–1847.

[87] Lilian Edwards and Michael Veale, "Slave to the Algorithm? Why a 'Right to an Explanation' Is Probably Not the Remedy You Are Looking For" (2017) 16(1) *Duke Law and Technology Review* 18, 57–59.

[88] Rizer and Watney, n 69, 213–214.

[89] Lupo, n 51, 83.

and trade secret legislation, cannot be excessive and should be balanced through protective orders or non-disclosure agreements that allow access to the source code.[90] Alternatively, the trade secret obstacle can also be overcome by either assigning intellectual property rights to public administration, including courts, or by drafting procurement contracts that classify AI systems as products used for governmental purposes.[91]

Prior to its acquisition, developers should inform users of the system's characteristics and how to operate it. According to Art 13(2) of the *AI Act*, high-risk AI systems, including AI assisting judicial staff in the administration of justice, must be accompanied by instructions on the use of the system. In particular, they must disclose in a clear and understandable manner the contact details of the provider, the characteristics of the system, any changes to it realised after the initial conformity assessment, the human oversight measures and its expected lifetime.

Transparency is important for the attribution of accountability when AI algorithms are found to be delivering flawed outcomes that might be harmful to litigants' rights. Audits on the design of AI algorithms can be realised through an impact assessment before and after the designing of the algorithm to evaluate its effects on litigants' rights and mitigate its risks.[92] The results of these assessments must be made public in order to notify affected people of the risks or effects on their right to a fair trial and encourage the use of redress mechanisms, such as comment periods or complaint procedures, so detected issues can be reported and resolved through a redesigning process.[93] Besides internal impact assessments, auditing by external experts or auditors may be suitable to ensure an independent review of the designing of AI systems for judicial administration – for example, in regards to the quality of the data used for training and the impact on the rights of users.[94]

B. Exclusion of Unfair Bias

Non-discrimination in reference to AI systems indicates the exclusion of unfair bias, which may occur in AI datasets when they are characterised by "inadvertent historic bias, incompleteness and bad governance models", which can exacerbate discrimination against certain groups of people.[95] AI must not outrightly discriminate based on protected grounds like race (direct discrimination) or by making seemingly neutral but essentially biased decisions (indirect discrimination).[96]

AI systems should have embodied non-discrimination principles that are reviewed regularly, so detected biases can be addressed through a change of use if the intended and embodied values coincide, or via a redesigning process if they differ.[97] Past AI systems, including their ML models, should be widely accessible so their purposes, characteristics and potential biased outcomes can be studied to prevent the building of similarly defective AI algorithms.[98] The establishment of a governmental repository of usable data must be encouraged, since large databases with quality data are needed for the training of efficient algorithms but are currently only affordable for big tech companies.[99]

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[90] Hannah Bloch-Wehba, "Access to Algorithms" (2019) 88 *Fordham Law Review* 1265, 1308.

[91] Bloch-Wehba, n 90, 1307–1308.

[92] See, eg, the Trustworthy AI Assessment List: High-Level Expert Group on Artificial Intelligence, n 6, 26–31.

[93] See, eg, Margot E Kaminski and Gianclaudio Malgieri, "Algorithmic Impact Assessments under the GDPR: Producing Multi-layered Explanations" (2021) 11(2) *International Data Privacy Law* 125, 134–138.

[94] Dillon Reisman et al, "Algorithmic Impact Assessments: A Practical Framework for Public Agency Accountability" (AI Now Institute, 2018) 18–20 <https://ainowinstitute.org/reports.html>.

[95] High-Level Expert Group on Artificial Intelligence, n 6, 18–19.

[96] Frederik J Zuiderveen Borgesius, "Strengthening Legal Protection Against Discrimination by Algorithms and Artificial Intelligence" (2020) 24(10) *The International Journal of Human Rights* 1572, 1576–1577.

[97] Ibo van de Poel, "Embedding Values in Artificial Intelligence (AI) Systems" (2020) 30(3) *Minds and Machines* 385, 389–390.

[98] Margaret Mitchell et al, "Model Cards for Model Reporting" (Proceedings of the Conference on Fairness, Accountability, and Transparency, 2019) 225–228.

[99] James Vincent, "These Are Three of the Biggest Problems Facing Today's AI", *The Verge*, 10 October 2016 <https://www.theverge.com/2016/10/10/13224930/ai-deep-learning-limitations-drawbacks>.

It is important that developers are educated on different forms of bias in algorithmic systems and their impact on court users to be able to detect and amend relevant pitfalls,[100] and more generally on core legal and ethical concepts to embed such values in the system. The training should be extended to judicial staff, so they are more aware of discriminatory outputs of AI systems and avoid relying on them to render their decisions.[101] These trainings can be realised through tutorials on the development and functioning of an AI application given by technical experts or through the appointment of technical advisers in specific cases where the algorithmic outcome can have significant impacts on the litigant's legal and socioeconomic status, including risk assessments in criminal cases.[102]

C. Human Agency and Oversight

The principle of human agency and oversight states that AI should merely assist humans in their decision-making by allowing them to make informed decisions autonomously, while being able to oversee the system's performance and intervene if technical errors are detected.[103] In particular, AI algorithms should not function in a manipulative way by influencing decision-makers' inner beliefs, emotions and desires in a hidden manner and taking authorship of their decisions.[104]

Judges should not be bound by or excessively rely on AI outcomes, risking automation bias and deskilling, but rather they must critically assess the output of AI applications to determine whether it is accurate and applicable in a given case, acting as the "human-in-the-loop" by rendering the final judgment.[105] Because of the inability of AI algorithms to replicate legal reasoning involving interpretation of legal rules and concepts that are abstract and open-ended, their performance must be regularly monitored, especially when they are assisting judges in their decision-making.[106] Consequently, AI applications for judicial administration should be built on a "collaborative agency" basis, where the developers set the goals and rules of the algorithmic system and, together with court users, monitor the outcomes of the system and control it throughout its operation.[107]

D. Technical Robustness and Safety

Technical robustness and safety aim at ensuring the integrity, accuracy and reliability of the system through the establishment of safeguards, such as the appointment of a human operator, the inclusion of diverse data inputs, and the operation of ex post mechanisms that are proportionate to the size of the risk.[108]

AI applications can be adversely impacted by incidents compromising the confidentiality, integrity and availability of both the data and the system, including illegal access and interception, data and system interference, and misuse of devices.[109] These incidents can affect a single AI system that is used in multiple cases, having thus a wider impact on litigants' rights than the decisions of a clerk, judge or prosecutor handling a limited number of cases.[110]

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[100] Solon Barocas and Andrew D Selbst, "Big Data's Disparate Impact Essay" (2016) 104(3) *California Law Review* 671, 731.

[101] Danielle Keats Citron, "Technological Due Process" (2008) 85 *Washington University Law Review* 1249, 1306–1307.

[102] Melissa Whitney, "How to Improve Technical Expertise for Judges in AI-related Litigation" (Brookings, 2019).

[103] High-Level Expert Group on Artificial Intelligence, n 6, 15–16.

[104] Daniel Susser, Beate Roessler and Helen Nissenbaum, "Online Manipulation: Hidden Influences in a Digital World" (2019) 4 *Georgetown Law Technology Review* 1, 16–21.

[105] Rebecca Crootof, "Cyborg Justice' and the Risk of Technological-Legal Lock-In" (2019) 119 *Columbia Law Review Forum* 233, 242–246.

[106] Edwina Rissland, "Artificial Intelligence and Legal Reasoning: A Discussion of the Field and Gardner's Book" (1988) 9(3) *AI Magazine* 45, 46–47.

[107] Sven Nyholm, "Attributing Agency to Automated Systems: Reflections on Human–Robot Collaborations and Responsibility-Loci" (2018) 24(4) *Science and Engineering Ethics* 1201, 1211–1215.

[108] High-Level Expert Group on Artificial Intelligence, n 6, 16–17.

[109] *Convention on Cybercrime*, opened for signature 23 November 2001, ETS No 185 (entered into force 1 July 2004) Arts 2–6.

[110] Eugene Volokh, "Chief Justice Robots" (2019) 68(6) *Duke Law Journal* 1135, 1174.

Developers of AI systems should assess the potential risks of the algorithm and consider mitigating measures to combat attacks that might compromise the safety of the system and the recipients of its outcomes.[111] For instance, to protect the integrity of input data used by the system, developers can employ measures like anonymisation, pseudonymisation and federated learning.[112] High-risk AI systems assisting in the administration of justice must be accompanied by protective measures against attacks by third parties, which can consist of manipulation of the training datasets, data inputs causing the system to make incorrect moves, and model flaws.[113] Certificates can be awarded by independent bodies to verify the reliability of the AI system and the accuracy of its outputs.[114]

E. Conclusion

The compliance with legal and ethical standards must take place throughout the development, deployment and use of AI applications for judicial administration. In this way, AI systems with unreliable outcomes can be redesigned or prohibited from being used so as to prevent further adverse effects on court users. Risks such as the opaqueness, unfair bias and technical vulnerability of AI systems should not discourage the development of applications automating judicial tasks, but instead promote a risk-based approach by developers and court users alike. Further standardisation protocols should be diffused by public bodies and accredited organisations to serve as a benchmark for the designing of safe AI systems in the justice sector.

The *AI Act* explicitly lists additional requirements that must be met by high-risk AI systems assisting judicial staff with the administration of justice. First, risk management systems should be implemented throughout the lifecycle of the AI system that enables the identification and evaluation of foreseeable risks and the establishment of mitigating measures to minimise the harm to the users of the system (Art 9). Secondly, data governance practices should be applied during the training, validation and testing of datasets that must be "relevant, representative, free of errors and complete" (Art 10). Finally, an automatic recording system should be in place to enable traceability of the period of use of the AI system, the databases and input data used, and the responsible individuals for the verification of the outcome (Art 12). The Act also foresees the establishment of standardisation processes and regulatory sandboxes to facilitate innovation. If passed as a Regulation stripped off its current vagueness, the *AI Act* might become an international benchmark for the development of AI applications, having an impact akin to that of the General Data Protection Regulation.

V. Final Remarks

The integration of AI applications in European courts is proceeding slowly, with rural courts still heavily dependent on paper files for their judicial administration.[115] Policy-makers are reluctant to support legislative reforms for the digitalisation of courts since their implementation is slow, they require extensive resources, and they are opposed by legal professionals fearing the transformation of their profession.[116] Above all, policy-makers are aware of the risks that AI systems pose for citizens' rights and safety and do not want to invest in a technology that is relatively new and not widely employed in public administration, let alone in judicial environments.[117]

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[111] High-Level Expert Group on Artificial Intelligence, n 6, 27–28.

[112] ITI, "New ITI Global AI Policy Recommendations Promote Government, Industry, and Stakeholder Collaboration on AI" (News Release, 24 March 2021) 7 <https://www.itic.org/news-events/news-releases/new-iti-global-ai-policy-recommendations-promote-government-industry-and-stakeholder-collaboration-on-ai>.

[113] European Commission, n 24, Art 15 (3)(4).

[114] Serena Quattrocolo et al, "Technical Solutions for Legal Challenges: Equality of Arms in Criminal Proceedings" (2020) 20(1) *Global Jurist* 1, 5.

[115] European Commission, "Enhancing Access to and the Use and Quality of ICT – Successful Good Practice and Measures" (2016) 100 <https://ec.europa.eu/regional_policy/en/information/publications/guides/2016/enhancing-access-to-and-the-use-and-quality-of-ict-successful-good-practice-and-measures>.

[116] Thomas Weers, "Case Flow Management Net-project – The Practical Value for Civil Justice in the Netherlands" (2016) 8 *International Journal for Court Administration* 32, 34–36.

[117] Volokh, n 110, 1151.

Notwithstanding reported risks of AI systems, such as opaqueness and potential for unfair bias, their ability to improve access to justice should be further explored under the rule of law and the right to a fair trial. This would involve multidisciplinary research as judicial staff, academics, computer engineers and policy-makers combine their expertise to empirically investigate ways to improve access to courts and reasonable time. AI applications for case management and knowledge sharing should be prioritised in reform plans. This is because they display lower risk in comparison to, for example, decision-making systems that might impede the objectivity of judges and the integrity of proceedings.

The identified incompatibilities of AI applications with the right to a fair trial must be addressed through compliance with legal, ethical and technical standards. The lack of independence of judges caused by the involvement of the executive power in outsourcing the development of AI systems to external private parties can be overcome through the in-house development of AI applications by computer scientists that are employed by national court administrations. In this way, judicial staff can be in direct communication with developers, expressing their professional needs for the system and potential technical issues during its use that necessitate a redesigning process. Threats to the impartiality of judges can be dissolved through the use of AI systems devoid of unfair biases, provided that no data inputs and proxies associated with protected grounds, like race, are used during the training of the algorithm and that developers and judicial staff are educated on the principle of non-discrimination to detect and avoid relying on biased outcomes.

The risk to the adversarial character of proceedings is not significantly high since there is currently no system automating decision-making in European courts and the ones under discussion concern small claims cases that still allow for the submission of fact-based arguments. In any other case, especially in criminal proceedings, the expertise of lawyers in both substantive and procedural law would be irreplaceable by an algorithmic system due to its present inability to formulate legal reasoning. The principle of equality of arms can also be respected through the explainability of AI systems, so litigants not able to afford similar AI tools can still assess the accuracy of the algorithmic outcomes and request their rejection in the event of errors that have significantly contributed to the final judgment.

In terms of the public character of proceedings, the oral procedure is to be displaced only in the event of automating fact-based cases. That would not, however, deprive litigants from reviewing a publicly accessible judgment and being able to appeal it. Moreover, the technical inability of AI systems to causally understand and reproduce legal terminology means that AI systems cannot provide a legal reasoning and therefore adjudicate complex legal cases, for example, in the criminal field. Nevertheless, they can still assist judges in their decision-making process, on the condition that their logic is transparent and understandable by users.

The improvement of judicial administration through AI systems should not be inhibited so as to deprive court users of improved access to courts and better quality of services. Instead, a risk-based approach must be adopted by establishing appropriate legal, ethical and technical safeguards to prevent and mitigate potential harms to the right to a fair trial. International bodies, such as the European Commission, are drawing up AI regulatory documents to classify high-risk systems and provide recommendations on the safe designing of algorithmic systems. With the rising interest of European courts in AI applications, it remains to be seen if they adopt relevant regulatory frameworks at a national level to support the development of safe AI systems for the automation of their judicial administration.

The establishment of European standards could set a precedent for third states to follow when incorporating similar technologies for the automation of judicial administration. The imposition of regulatory boundaries that are accompanied by effective enforcement mechanisms can induce stronger market monitoring – for example, by obliging developers established in third states to strictly adhere to these standards in order to be able to trade in AI systems destined for European courts. Most importantly, it can contribute to the dissemination of best practices that third-state judiciaries are encouraged to follow to meet court users' expectations regarding a better administration of justice, even inspiring consistent implementation when the adherence to and enforcement of the standards is successful. After all, the right to a fair trial is a human right recognised in many international treaties and national constitutions and should be the primary benchmark that national courts must meet to enable the use of AI applications automating judicial administration.