

Frontiers in AI Judiciary: A Contribution to Legal Futurology

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Abstract: The article responds to the recent evolution in AI judiciary, especially as presented in China. The authors compare the basic methodological background of Western and Eastern legal systems, concluding that the West is rather inclined to post-positivist methodology in law, which seems incompatible with the full use of AI in legal decision-making. In China, with its more pragmatic approach, the actual process of decision-making might be closer to a new form of technological legal positivism, distinct from Western trends in jurisprudence. Finally, various forms of applicability of AI in law and judiciary are pondered upon, so as to use at least some positive aspects of AI in this sector—albeit with reservations regarding the decision-making proper.

Keywords: *AI, judiciary, justice, legal positivism, post-positivism*

Introduction

Data management, automation, and the use of AI, etc. are currently vital in almost every field (Andraško *et al.*, 2021). If they are not, the area is considered backward. Accordingly, legal tech is growing to effectuate modern ways of lawyering. We may assume that some law graduates do not wish to be confined to patronising law firms and instead explore alternatives with more exciting perspectives, such as launching crowdsourced start-ups for legal services. At the same time, most of the leading law firms are investing in competitive technologies to remain attractive in the market. Besides Ross and IBM Watson, more success stories are emerging in the business scene. For instance, the e-discovery company Everlaw, a recent legal technology unicorn, is an example of this trend. According to Statista, the value of the North American legal tech market in 2022 was *ca.* 13 billion US dollars, surpassing the European market, which was almost half its size (Alsop, 2023).

These revolutionary changes also affect judicial systems, although the impetus for innovation is not often coming from, nor is it even welcomed by, courthouses, and are rather driven by IT architects who seek to convince governments to test their inventions. The expectation here, again, is to save resources (namely, money and time). For example, in just five years, the average length of civil proceedings in Estonian courts has fallen from 156 days to 99 days, while the number of judges has stayed the same for years, despite the upward trend in the number of cases. This is mostly thanks to digitalisation and automation projects.

Of course, we should draw a clear line between digital court management and an AI-boostered robot judge, authorised to take decisions autonomously. This is demonstrated by a case described in Simon Chesterman's paper and a book chapter titled "All Rise for the Honourable Robot Judge? Using Artificial Intelligence to Regulate AI" (Chesterman, 2022), which opens with a colourful description of digital court proceedings in China. Chesterman (2022) calls the Hangzhou trial video as "part propaganda, part evangelism," implying that the ambition to replace flesh-and-blood judges with algorithms still has a futuristic flavour for many reasons. One might question whether the prestige and reverence of the society and its stakeholders would respect a fully digital adjudicator, an avatar that clearly does not meet the criteria of Posner, who claims that "judging is a mix of skills, including research, language, logic, creative problem solving and social skills" (Posner, 2010, p. 19).

Reality or futurism?

Estonia gave up its loud promise of developing a robot judge (see below), while Chinese digital courts continue to remain mysterious. According to China's national strategy, AI technologies are leveraged for judicial reform and modernisation and several authors are promoting a bright future for this process (Wang & Tian, 2023). However, public knowledge of Chinese robot judges remains limited or controversial—some authors seriously doubt the existence of autonomous judicial decisive systems (Soltau, 2020). Soltau argues that the “robot judges” should rather be labelled as “judge assistants,” as these algorithms only help human judges with repetitive tasks—a view confirmed also by the Beijing Internet Court, at least in 2019 (Beijing Internet Court, 2019).

What type or kind of a superintelligent agent or tool is actually used in China is simply not known. In his masterpiece *Superintelligence. Paths, Dangers, Strategies*, Bostrom divides superintelligence into the following categories: “oracles,” “genies and sovereigns,” and then “tool-AI-s,” describing the “competences” of these sub-divisions and comparing them in the context of human control (Bostrom, 2014). We do not have clear evidence on how the “robot judges” in the world operate and no technically sufficiently explained intentions to launch AI judges in other jurisdictions.

Years ago, the Estonian Robot Judge was heralded without hesitation to the world as a PR product by government tech enthusiasts. Most members of the legal community, however, were astonished and suspicious until they understood that there was no e-judge as such, but rather something like a “tool-AI,” to use Bostrom's terminology. The Estonian “AI-powered judge,” as presented in the international media, was claimed to analyse legal documents and other relevant information and then reach a decision. In reality, the algorithm created for a pilot project was designed to handle only small uncontested claims, such as parking tickets or child benefit cases with claims of up to 6,400 euros (Nyman-Metcalf & Kerikmäe, 2021). As the international media campaign was neither coordinated with the Ministry of Justice nor with the judiciary, lawyers felt amazed, betrayed, and even horrified, if only by the fact that the Robot Judge label was mercilessly implanted into the context of Estonia's carefully developed e-justice system.

The official website of the Ministry of Justice today, almost four years after the campaign, states: “As there have been a lot of questions relating the topic of AI Judge, we have to explain that the article about Estonian project of designing

a “Robot/Judge” in *Wired* from 25th of March 2019, is misleading. There hasn't been that kind of project or even an ambition in Estonian public sector,” and that “there is a plan to automatise Estonian national order for payment procedure, which is adjudicated only in one specific department of one specific courthouse” (Ministry of Justice, 2022). Thus, using the robots for something beyond assisting court administration and judges seems irrelevant for Estonia.

“Justice must also be seen to be done”: Law as a means, or law as an end?

There are many expectations crystallised within the rules or ethical charters related to the judiciary. We find expected qualities, such as compassion, empathy, patience, high ethics, honesty, integrity, and fairness, to name but a few. Thus, the perception of fair justice encompasses, besides legal knowledge, a lot of human characteristics. Any robot judge would thus most likely not become honoured and respected but rather mistrusted, as it may, through public perception, change the rule of law into an algorithm decision field. As Ryberg and Roberts (2022) recently highlighted, “sentencing is not only about the judge making moral decisions, but also about a moral message being communicated to the offender—and to the victim and society as well.” Therefore, the known and essential maxim of “justice must not only be done, but must also be seen to be done,” laid down by Lord Chief Justice of England almost a hundred years ago, may be under serious threat.

It is possible that there are also different theoretical and practical challenges for different types of legal systems (continental vs. common law vs. communist China's legal system). What would be the idea behind a robot jury as part of the deliberation process? How would it be constructed to guarantee the representation of society? In several common law countries, if a jury fails to reach a verdict by the end of the day, the members of the jury can be sent to a hotel to remain sequestered from outside contact. This is also a guarantee for independence of judicial decision-making. If replaced by robots, the transparent process of deliberation would be lost.

Recent legal experiments in China have revived interest in the Chinese idea of law being perceived as “only” a means, a tool to solve regulatory issues (Chesterman, 2021). This view allegedly stands in contrast with the perception

of law in Western legal civilisation, where law is supposed to be perceived as an end—especially when speaking about human rights and fundamental freedoms, or when embracing the idea of “natural law,” reflecting the idea of justice and morality being necessarily embodied in law (Finnis, 2011). That is the reason why lawyers view with suspicion the experiments of using AI for the purposes of judicial dispute resolution, which is traditionally expected to prioritise the purpose of law—justice and fairness—over strict adherence to the rules of (legal) algorithms. Justice must hence take precedence over legal wording, making it acceptable to decide even *contra verba legis*, should the idea of justice require so (Prümm, 2011). Precisely because of that, the preference for dialectics over formal logic in adjudication may raise doubts as to the possibility of AI, in its current forms and shapes, to replace human judges—at least in systems where law is considered as an end rather than a tool. It is namely the human judge who is believed to be able to hold back from applying rules that would cause utmost injustice, if taken literally. Already Aristotle in *The Art of Rhetoric*, as well as Thomas Aquinas in *Summa Theologica* claimed that legal rules may fail in circumstances not considered when drafting the general rule, and human intervention is therefore necessary, as it allows paying attention to principles and common sense where the strict rule leads to unacceptable conclusions. To what extent this is possible to be guaranteed by the AI judges, remains doubtful.

On the other hand, human judges are often criticised for failing to meet their obligations and the expectations of justice as well. Their personal traits can influence their decision-making in both positive terms, by developing a sense of “intuition for justice” (Hutcheson, 1929, p. 285), as well as in negative ones, by forming prejudices and biases (Frank, 2009). In this regard, law and justice with their authority are perceived as compensating for any personal failures harming the authority of judge, which is probably why law is presented as an end goal rather than as a tool.

In contrast, where AI is free from personal failures of a human being (Tsybulenko & Kajander, 2022; Kajander, Kasper & Tsybulenko, 2020), the authority may be rather vested in the AI judge, and law may hence be perceived only as a tool to have the dispute settled by a mechanism relying on the trust among the addressees of law (Kerikmäe *et al.*, 2020). The case was likely similar to medieval ordeals (e.g., trial by hot iron or trial by battle, see Bartlett, 1999), where the intervention of a higher power (God) resolved the case at issue without the parties contesting the outcome reached by this mechanism (be it, in fact, accident or chance). Blackbox-imbued decision-making in a society, where this is reached by

a generally accepted mechanism of administering justice, thus apparently enjoys the trust, accepting whatever decision might be made at the end of the day. The authority of the robotic judge is hence higher and more important than the law as such, even if the legal rules in their strict “AI” application prove detrimental to one of the parties. *Dura lex, sed lex*, as the famous Latin paroemia succinctly phrases this approach—accepting every given situation without any internal reservations, allegedly influenced by stoic philosophy.

A similar attitude was hoped to be introduced in the 20th century in Central and Eastern Europe and in Soviet Russia, where collectivist interests were to take precedence and priority over individual goals and feelings of (in)justice. Individual hopes and dreams were to be subjugated to the collective goals. However, this line of thought proved to have failed at least in Central and Eastern Europe, where return to individualism and liberalism occurred in 1989. Western civilisation, including Central and Eastern Europe, hence favours individual perceptions of justice and fairness above any collectively established goals, and therefore perceives rights and freedoms and their legal attainment to be at the core of legal systems. This is in contrast with collectivist societies, where this is not the case and which prioritise the common good set by the sovereign (be it the ruling class, the ruling party, or the ruling individual), despite any possible limitation of individual interests, which are perceived as inferior. Law is therefore indeed considered a tool to reach the set goals, instead of being an end aimed at attaining and implementing of individual rights and freedoms, as each and every individual deems best for them—with limits set to prohibit interfering with the rights and freedoms of others.

Hence, even today there are societies who tend to see the secret of the authority of the judgment in its harmony with the rules set by the society to reach the goals of the society. On the other hand, there are societies that seek the authority of judgment in its harmony with the higher principles of law and justice, taking into account the needs and interests (rights and freedoms) of the very individuals (Rawls, 1971). Still, even in such individualistic societies, the idea of individual preference is a collectively accepted value, just as it is accepted in collectivist societies that individual needs are not decisive. Perhaps it is therefore not even possible to compare and evaluate these two stances or paradigms of law and justice (that is, Kuhnian paradigms, see Kuhn, 1962) mirroring two types of the generally accepted “social contract” in the respective societies—provided that the social contract is indeed freely accepted by the society and is not imposed.

Crisis of legislation: Justice before positive legal rules?

The Western tradition believes that a fair solution is only possible by considering the circumstances of the case. Therefore, casuistry was at the heart of jurisprudence in ancient Rome (Otte, 2006) and the art of argumentation rather than interpretation of texts retained its dominance even later (Schröder, 2012). Even today, in times of crisis of legislation, similarly positioned post-positivism (Dworkin, 1986) has emerged as the next evolutionary step, acting against the strict positivism that has influenced jurisprudence since the 19th century.

With the introduction of AI decision-making in law, however, a question arises whether instead of “legal post-positivism” we are not returning to positivism, specifically to a sort of a “technological positivism” where all the “gains” of sceptical post-positivism, in the form of emphasising principles and values of goodness and justice, are to be erased and reversed back to formalism—this time in the form of technological algorithms.

This is in clear breach with the contemporary post-positivist shift in Western legal paradigm, which has recently leaned rather towards discursive and communicative jurisprudence of an argumentative and rhetorical nature (Habermas, Gadamer), and to neo-constitutionalism (Carbonell) and principlism (weighing of principles, proposed by Alexy). Law has recently gradually distanced itself from strict rules (norms), as originally suggested by legal positivists such as Weyr and Kelsen, or from the factual outcomes of legal practice as advocated for by legal realists (Llewellyn, Frank, or currently Guastini) and legal sociologists (Ehrlich, Sorokin, etc.), and is instead perceived closer to the actual practice of seeking justice in a sort of a return to the Aristotelian concept of *praxis*—seeing jurisprudence and law more as a dialectical act of searching for the most acceptable solution rather than applying a mechanism of formal legal syllogism.

This was identified as a shift from the prominence of legislation back to the dominance of judges—albeit in a return from formalistic positivism to a less predictive decision-making influenced by the judges’ internalised individual perception of justice. Mauro Barberis, a contemporary Italian legal theorist and philosopher, speaks in this regard about the “crisis of legislation,” whereby he explains this evolution from the historical aspect: laws perceived as a sole source of law started to prevail in legal orders of the states of continental Europe only because they were applied by courts which enshrined and embodied the authority of law. The courts thus enforced them, lending their own authority

to the laws. Currently, however, courts are reclaiming their authority from laws and legislators, which can be explained also by the more widely visible failure of legislation (Barberis, 2016).

The second reason why legislation gained popularity in the 20th century was the codification projects, which were considered particularly useful in times of problematic data processing of a large body of law, dispersed in numerous laws and case-law. Finally, the third reason for the popularity of legislation, starting in the late 19th century, was that laws were enacted by democratic parliaments representing voters, who thus themselves became indirect legislators. Democratic ideology thus legitimised the authority of law and legal norms in comparison with the non-democratic system of appointment of judges (Barberis, 2016).

However, now that the actual functioning of legislation created by parliaments faces flaws and failures, and judges have become much closer to the everyday life of broad masses of society, the usefulness of the priority of legislation has started to be questioned (Barberis, 2016). Thereby, besides the failures of rule-making, Barberis sees also internal, structural transformations in the functioning of the legislation in continental European legal systems, where legislation is recently perceived only as a tool and process of application of constitution, similar to what the judges are actually doing when applying laws—searching for the best ways to reach the values and principles enshrined in the constitution and international law instruments which guarantee the basic human rights and freedoms.

In this situation, the popularity of renewed legal realist thought is resurging even in continental Europe and Latin America, represented especially by contemporary Italian legal realists, among whom Barberis also counts himself. This view emphasises the importance of bodies of applications of law in general, and the actual role of judges in particular, claiming that legislator only presents the general instructions (normative dispositions), which in the very end need to be given content and meaning by the authorities of application of law—specifically, the courts and judges (Guastini, 2006). They are at the same time inevitably influenced by the current societal discourse, but also institutional discourse (within the judicial system as such, but also within individual courts), and also undoubtedly by their own personality and experience (expertise).

In continental Europe, this is actually a move towards the perception of law present in common law systems, where the turn towards legislation and the related positivistic shift in the methodology of legal thought never fully materialised, with American legal realism having a strong footing in emphasising the societal

and individual contexts of legal decision-making. Still, this is not a simple return to legal realism. Instead, law starts to be seen as an activity, a practice governed by values and principles, not only by legal rules or norms. Rather than traditional legal realism which was very much “factual,” equating factual case-law and law proper, the newer approaches are rather closer to perceiving law as an act (Schreier, 1924) rather than a simple fact or a norm (legal text). Actual law, therefore, lies in the process of day-to-day legal deliberation in legal practice—as the already mentioned return to the Aristotelian *praxis* (as advocated for in social sciences in general by Flyvbjerg, 2001).

Western tradition is hence jointly questioning the exclusive position of positive law (legal regulation) as the sole source or embodiment of law. Definitions and concepts from the 19th and 20th centuries are currently being renegotiated. This is why current books on law gradually keep including new sources of non-state or supranational law (European Union law, Council of Europe law), but also new types of standards expressed in written legal texts (teleological norms in the EU law), as well as emphasising tasks entrusted to bodies applying law. Based on their regained position, new sources of legal systems are being reconsidered—in addition to sources of legal order (legal texts), there are renewed attempts to revive the idea of customary law or judicial case-law in continental European legal systems, or to perceive, once again, even the doctrine as a source of law (*Juristenrecht*). These are the ideas that were abandoned in continental Europe’s jurisprudence mostly in connection with the nineteenth-century ideas of legal positivism. Now, however, they once again play an extremely important role in today’s legal systems.

To sum up, while the advancements of the 19th and 20th centuries led to the law being identified solely with legal regulations, primarily with written laws, the crisis of legislation at the beginning of the 21st century introduced the need for this development to be reassessed. Emerging post-positivist views are expanding above and beyond “written law” (legislation), as if they were paradoxically returning to the pre-positivist era. However, instead of the pre-modern religious values and principles of natural law, legal thinking of today is manifested especially in an obvious dominance of constitution (or principles and values enshrined therein explicitly or expressed implicitly) and other similar supranational and international sources of values and principles which are to be balanced against each other (Alexy, 1995). One speaks, in this regard, about so-called neoconstitutionalism (Carbonell, 2007), where the main sources of law are values enshrined in the constitution, to be directly applied by courts

(primarily constitutional courts)—a task which is hard to be entrusted to and comprehensively taken over by algorithms embodying the positivist stance to law.

Post-positivism or technological positivism?

Post-positivism in law, a contemporary direction of legal thought, can be traced back to the second half of the 20th century. It is most often associated with the authors such as Norberto Bobbio, Ronald Dworkin, Robert Alexy, Ota Weinberger, Neil MacCormick, or a contemporary author Manuel Atienza. It is therefore a relatively broad and internally stratified movement, with representatives who would probably be reluctant to align themselves with one camp. Some of the mentioned authors even speak of non-positivism instead of post-positivism, or they are categorised into other strands and trends (e.g., argumentative concept of law, etc.). In our view, what all these authors (and many others not mentioned here) have in common is that they challenge the formalism of positive law.

Nevertheless, there are still some open supporters of positivism, whether in more traditional forms of positivism (Joseph Raz) or in its newer forms, such as guarantism (Ferrajoli, 2004). A special kind of positivism emerges in the latest trends of technological positivism based on AI algorithms that we are analysing here. Of course, the strand of natural law (e.g., by John Finnis) also remains alive and is, in fact, also clearly directed against positivism in its very essence.

Post-positivism or non-positivism, in the sense of the rejection of legal positivism, (often equated with legal formalism) is clearly the dominant trend today, whether we classify its supporters among legal realists, neo-constitutionalists, iusnaturalists, or supporters of argumentative-rhetorical, neo-institutionalist, discursive-communicative, or rhetorical and argumentative approaches to law. There is no doubt that traditional teachings about law, its functioning, and individual institutions are increasingly being challenged by practitioners, but also by legal scholars themselves—this manifests quite tangibly, for example, in polemics about the sources of law or in discussions about the meaning of principles in law, or in disputes about various forms of interpretation of law and legal argumentation, etc.

In this context, the contemporary Polish legal theorist Tomasz Gizbert-Studnicki boldly formulates nine theses of post-positivism, as a kind of generalised

expression of doubts about the correctness of the positivist approach in jurisprudence (Gizbert-Studnicki, Dyrda & Grabowski, 2016, pp. 417–419). These features of contemporary law and jurisprudence are the following:

1. Dual nature of law, i.e., the authoritative and value character of law—in addition to the command essence of law, its values and principles are at play;
2. Non-external view of law (i.e., internal, focused on dogmatics)—legal theory and legal science should still remain focused on practical problems of the creation and application of law, not on broader views of law “from the outside”;
3. Value character of the theory of law—i.e., the theory of law itself should focus on questions of values and principles in law;
4. Interdisciplinarity—i.e., the need to take other scientific knowledge into account, e.g., in commercial law knowledge of economics, in social security law and in family law knowledge of sociology and psychology, etc.;
5. Moderate cognitivism—in the sense of the possibility of objective knowledge of certain basic values on which the given society can agree;
6. Weighing/measuring principles and values should take precedence over logical legal syllogisms;
7. Connection of law and morality—in the sense of taking into account values and principles in legal theory and also in legal practice;
8. The practical role of legal theory—legal theory as a science should serve to formulate guidelines for legal practice;
9. Regionalism of the theory of law—jurisprudence, similarly to valid law, shows its regional and national specificities, which must be accepted. (Gizbert-Studnicki, Dyrda & Grabowski, 2016, pp. 417–419)

Gizbert-Studnicki’s conception of post-positivism thus clearly represents a kind of a compromise between legal positivism and an effort to correct it in those areas in which it has obviously failed by removing legal formalism and emphasising values and principles that can never be fully (neither logically nor legally) formalised, as it goes against their very essence and meaning.

Given this implied understanding of legal post-positivism, it must also be contextually stated that it is, in fact, “only” a kind of legal expression of a trend generally present in the current methodological paradigm in all the sciences—questioning of scientific faith in positivism dating back to the turn of the 19th and 20th centuries. That is, beliefs in the empirically proven infallible possibility

to trace the basic laws of the functioning of the world—both nature and society—being the same and equally and unchangeably valid worldwide. Positivism understood in this way is generally abandoned in the current methodology and philosophy of science (Fraassen, 1980; Ladyman, 2002), and it is therefore likely to be abandoned also in the still conservative legal science, where it has taken the form of legal positivism. Albeit positivism is still strongly present in law, emphasising its positive aspects of the knowledgeability of legal norms from the text of legal regulations, and rejecting any external elements outside the closed system of norms construed in a Kelsenian way, however, current views on the methodology and philosophy of science question this view, both for the natural sciences, as well as, understandably, *a maiore ad minus* also in the social sciences and humanities.

Contrary to this approach, however, the AI-imbued forms of new positivism have recently emerged, which might be perceived as an open call for return back to positivism, emphasising its positive aspects, being embraced particularly in societies perceiving law as a tool (means) rather than an end (goal).

Positive and negative traits of positivism: consistency of judgements vs. the judge's independence

The aspiration to consistency, according to Chesterman, is one of the main rationales of using AI in (Chinese) courts. The situation and the argument were the same with regard to legal positivism in the 20th century, though. Quite naturally, a robot judge at least can be assumed to act as a radical positivist. Sunstein (2001) suggests that computers and AI cannot reason by analogy “because they are unable to engage in the crucial task of identifying the normative principle that links or separates the cases.”

Positivism in general (as a special direction within methodology of sciences) has often been associated with a popular understanding of law. For a positivist, deriving predictive knowledge is a very natural aim. However, legal research and reasoning are related to and influenced by numerous societal variables, including legal policy—therefore, automatisisation of decision making is complex, as also described by Chesterman who refers to several great legal thinkers of the recent period (Dworkin, Raz, and Hart). Even the most positivist legal societies are influenced by quasi-legal opinions, trends, statements by business sectors and

cultural and social communities, etc. Therefore, the evolution of law by judges who wish to broaden the scope of *stare decisis* (offering teleological interpretation) might be strongly restricted by positivism.

In this vein, Bostrom explains that a programmer may wish to insert a value or a set of values that he wants an AI agent to promote, such as “happiness,” but also “justice” or “democracy” (Bostrom, 2014). However, the problem lies in the fact that notions like “justice” or “rule of law” lack unified and uniform definitions even among humans; they are, perhaps, “living phenomena” with a certain history and principles constructed over time. Also, as Bostrom brings out, the value (such as “justice”) should then appear in a programming language so as to become understandable for an algorithm. The difficulties of language processing that Chesterman refers to, do not even seem to represent the biggest challenge. We all know the story of King Solomon who suggested cutting a child in two, giving each half to the woman claiming to be the mother. He did so, expecting that the true mother would rather give her child to the other woman than see the death of the newborn. We do not expect such radical experiments nowadays, but the story can be used as a metaphor in the current context. If a robot judge misunderstands human perception of justice, if human nature is left behind and only positivism is prioritised, we will miss other extra-legal components of justice, especially the values related to the work of judiciary.

Moreover, a robot judge would certainly be “bewildered” by managing a multi-layered legal system (municipal or state law, EU law, international law) as the level of positivism varies substantially across these layers. We may also be in trouble when a robot judge starts to solve cross-border cases. Also, the norm hierarchy can be sometimes contested—for example, unconstitutional laws that were applied for years, or secondary EU law (directives) which, at some point, clash with EU primary law.

Also, integrating the AI into the justice system may endanger the separation of powers as a principle—namely, the algorithms are created, maintained, and owned by the executive power rather than judicial power.

Furthermore, let us also assume for a moment that AI-powered judges exist alongside human judges (albeit Chesterman refers to the AI prediction technologies being prohibited in France, which in fact seems rather as a symbolic protection of judicial independence, since their use in practice may not be publicly known). Compared to AI judges, human judges may have a wider set of variables than the algorithm that the AI judges focus on. The independence

of both human and robot judges would certainly be threatened by a constant comparison of the judicial “quality” of judgements delivered by both “species” of judges (even in dealing with different legal branches and different types of cases).

Finally, the lack of transparency and uncanny nature of the black box can be seen as a problem for the independence of judges, as the legal society would become comfortably numb due to the secrecy surrounding coding, as pointed out by Lord Sales, Justice of the UK Supreme Court a few years ago, who claimed that using AI in legal decision-making may lead to “ignorance among lawyers and in society generally about coding and its limitations and capacity for error” (Sales, 2021).

“Should we automate just because we can?”

In 2004, Washington University tested their algorithm’s accuracy in forecasting US Supreme Court decisions (628 argued cases in 2002). AI proved to be a better predictor, forecasting 75% of the outcomes against the 59% accuracy of human experts. In 2017, Michigan State University researchers expanded the study and achieved an accuracy rate of more than 70%.

Recently, an AI “judge prototype” has accurately predicted most verdicts (79%) of the European Court of Human Rights from among 584 cases relating to torture and degrading treatment, fair trials, and privacy (Nyman-Metcalf & Kerikmäe, 2021).

Although it appears as a proof of AI reliability, the EU Parliament claims that use of AI raises concerns regarding the right to a fair trial, and stated *expressis verbis* that the justice system which underpins the social contract must remain in the hands of judges and prosecutors and not become a performance indicator for computer processors (Šišková, 2019). The Ethical Charter on the use of Artificial Intelligence in Judicial Systems (Council of Europe, 2018) highlights the principle of “under user control,” precluding a prescriptive approach and ensuring that users are informed actors in control of their choices. Perhaps the lack of enthusiasm from the EU Parliament is also caused by several difficult cases that condemned biased (the COMPAS case in the USA) and privacy-violating (the SyRI case in Europe) use of AI.

Then what actually determines the pace and extent of automation in the public sector? Is it or should it be technology, law, policy, or ethics (Gábriš & Hamulák, 2021)? If technology does not set limits, is there a point at which governments nevertheless should insist on stopping automation and maintaining a human role? This is a territory that transgresses a number of disciplines and requires an ability to understand disciplines as different as philosophy, psychology, technology, and law, and contains questions that every government will increasingly have to deal with (Andraško, Mesarčík & Hamulák, 2021).

Chesterman gives a great overview on how automation is already a part of lawyering and legal tech. Still, weighing the opportunities, one should also take into account the essence of different legal branches and forms. Certain activities, such as document automation (law firms use software templates to create filled out documents based on data input), intellectual property (AI tools guide lawyers in analysing large IP portfolios and drawing insights from the content) or, the most necessary, but boring for us, electronic billing (lawyers' billable hours can be computed automatically), seem harmless. Legal technology can also be quite specific, such as SplitUp from Australia, which deals with property division in divorce cases. However, as a rule, legal analytics related to criminal law is avoided or excluded from AI-supported tools (e.g., *Prédicte* in France) although risks of reoffending (HART in the United Kingdom) are widely present.

Latvia's initiative in exploring the possibilities of machine learning for the administration of justice seems controversial. Its main purpose would be to process court statistics to draw up provisional estimates of human and financial resources to be allocated. However, this may raise suspicions of possibly biased judgements (for example, avoidance of finding a government liable when it is too costly for a state).

Regarding legal decision-making proper, procedural law coping with digital phenomena can be perceived as a limitation to the judicial system itself rather than to policymakers, who are much more interested in material law—that is, extending the scope of permissible activities, services, and products. This assumption also fits with a widely used approach of digital or Boolean logic (named after computer pioneer George Boole) with the “true” and “false” answers that can be well tested in procedural law. As explained by Casey and Niblett (2020), even “legal decisions concerning liability are typically binary in nature—negligent or not negligent; guilty or not guilty. However, algorithmic assessments of liability are typically provided in probabilistic terms (for example, a 70% likelihood).” Therefore, judicial settlements and litigation

outcomes could be still quite different when using a robot judge (Casey & Niblett, 2020).

Then, what would be the actual aim of introducing AI into judiciary? Perhaps reliability but, given the scope of factors that a human judge should take into account in decision-making, speed might be the actual aim. Deadlines would not be relevant as the robot does not require 24 or 48 hours to familiarise itself with the circumstances and facts. But does the time factor play a decisive role in procedural law at all? Perhaps only if it concerns human activities in the legal process? However, humans would most likely feel pressured when, after our carefully planned legal move, a robot judge responds immediately. In general, should fair trial and justice be compromised for speed?

Conclusion

Legal futurology, the paths of which we set out in this paper, currently lacks an answer to what will be the end of the post-positivist evolution in jurisprudence and legal practice. In order to take into account the values of goodness and justice, instead of formalism, a post-positivist approach that examines each individual case and its circumstances in the casuistic light of the stated value ideals of goodness and justice seems to be desirable instead of formalism. This is being materialised mostly in casuistic proceedings before bodies for the protection of constitutionality and human rights and freedoms, which tend to take into account and argue specifically with values and ideals perceived by the public as timeless, but paradoxically, still subject to changes and development that any formalisation and fixation would probably cause more harm than good (e.g., Kocharyan, Hamulák & Vardanyan, 2022). Therefore, it also seems risky and impossible at least as of now to entrust decision-making in the post-positivist concept of law to robot judges.

The risks and unresolved questions still remain numerous, as shown also in our article, and are also dependent on the concepts of jurisprudence and justice, and the role of law as such. Let us also not forget that substantial turns in making justice in any society should be approved not only by lawyers but by society at large, whose members expect the rule of law and values that balance individual liberty against state coercion. All these discussions clearly cannot be resolved at once with some grandiose convention or regulation. Still, besides several

serious initiatives by the Council of Europe aiming to establish a common understanding of ethical principles related to AI, there is currently the first universal attempt underway—the UNESCO Recommendation on the Ethics of Artificial Intelligence. We also have the EU AI Act, which is currently in the consultation phase. It is thus plausible to assume that after adoption and a decade of practical implementation, humankind gets wiser in its interaction with AI and the new level of discussion broadens our horizons in this respect (Serikbay & Mürsepp, 2023). However, we must keep in mind that, in the end, AI is not making decisions but rather calculates and finds the suitable option according to algorithm design. Although law can be likened to a code, it may still be considered and implemented differently by humans. As stated by the American Bar Association: “Wisdom will require the ability to use artificial intelligence to enhance integrity and impartiality, tempered by human judgment” (Greenstein, 2020).

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