

ARTIFICIAL INTELLIGENCE AS A TOOL FOR APPLYING EVALUATIVE CONCEPTS IN CRIMINAL PROCEEDINGS: LEGAL AND ECONOMIC ASPECTS

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Abstract. The rapid integration of artificial intelligence into legal practice raises fundamental questions about its compatibility with criminal justice, a field that has traditionally been based on human judgment and discretion. This relevance becomes particularly acute with regard to evaluative concepts, which are indispensable for context-sensitive decision-making but at the same time create risks of inconsistency and unpredictability. Against this backdrop, this article aims to assess whether artificial intelligence can function as an auxiliary tool for the application of evaluative concepts in criminal proceedings and whether such use is legally and economically justified. The object of the study is the application of evaluative concepts in criminal justice, and the subject is the economic and legal consequences of applying artificial intelligence to evaluative concepts. The study is based on doctrinal legal analysis, comparative legal reasoning, and the methodology of law and economics as a theoretical and methodological basis. By synthesising legal theory and economic analysis, the article considers artificial intelligence as a normative problem and as a tool for optimising economic efficiency. The article demonstrates that artificial intelligence can enhance analytical capabilities in criminal proceedings by systematising large volumes of case law, identifying patterns in the application of evaluative concepts, and highlighting deviations from established trends in decision-making. As a result, artificial intelligence can contribute to greater consistency and predictability in judicial practice. At the same time, the study reveals structural limitations of algorithmic approaches, in particular reduced sensitivity to unique contextual factors, difficulties in providing normative justification, and the risk of reinforcing existing interpretative patterns. From an economic perspective, the analysis shows that artificial intelligence has the potential to reduce transaction costs, optimise the allocation of judicial resources and speed up procedural decision-making, provided that its use remains auxiliary rather than substitutive. The practical value of the study lies in substantiating a balanced model for integrating artificial intelligence into criminal justice, in which algorithmic tools serve as analytical aids, while final decisions remain under human control, ensuring both efficiency and compliance with fundamental legal guarantees.

Keywords: artificial intelligence in criminal justice; evaluative concepts; judicial discretion; decision support systems; algorithmic transparency; law and economics; criminal procedure efficiency.

JEL Classification K14, K41, K42, O33, D81

1. Introduction

The twenty-first century has been a time of significant progress in science and technology. People's lifestyles are undergoing significant changes under the influence of mobile communications, high-speed internet, communication technologies and access to information. Modern lawyers cannot be effective in the labour market without sufficient proficiency in computers, email, and

instant messaging. Lawyers of the future may well be unable to compete with other professionals if they do not know how to apply artificial intelligence (hereinafter referred to as AI) technologies.

The term "AI" is a complex one. It is evident that a singular approach to the concept of AI is non-existent. A number of definitions can be found in scientific literature. AI is defined as the ability of a computer

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system to correctly interpret external data, learn from this data, and then use the knowledge gained to achieve specific goals and objectives through flexible adaptation (Bartneck et al., 2021). AI is commonly defined as the ability of machines to perform tasks that traditionally require human intelligence, including learning, reasoning, decision-making, and problem-solving (Gignac & Szodorai, 2024). AI is the specific, real ability of non-human machines or artificial beings to perform tasks, solve problems, communicate, interact and act logically in the same way as biological humans, and is determined on the basis of the levels of actions performed and the degree of autonomy (Gil De Zúñiga et al., 2024). AI is typically used to denote particular software that facilitates the execution of a multitude of tasks. AI is predicated on tools – that is to say, services that facilitate the utilisation of mobile phones and personal computers by end-users to access the aforesaid technologies. The advent of artificial intelligence has empowered individuals to generate a plethora of content, encompassing text, image, audio, and video formats, while also facilitating the exploration of voluminous informational resources.

Jurisprudence is an extremely complex and rather conservative field of human activity. The use of AI to resolve legal issues provokes heated debate among professionals. In this article, an exploration of several ideas is planned, including: whether AI can become a tool for applying evaluative concepts; and whether such use of AI is appropriate from a legal and economic perspective.

2. Evaluative Concepts in Criminal Justice

As noted by Pohoretskyi M.A., criminal justice should be considered as an independent type of legal activity of the parties to criminal proceedings (prosecution and defence), the court and other participants in the criminal process, regulated by the norms of criminal procedural law, which consists in establishing the circumstances of a criminal offence, making procedural decisions and resolving procedural issues related to their implementation, with the aim of resolving the conflict that has arisen in connection with the commission of such an offence (Pohoretskyi, 2021). Criminal justice serves to enforce human rights, ensure law and order, and bring to criminal responsibility persons whose guilt in committing a criminal offence has been proven. Criminal procedural law forms the basis of criminal justice.

An important component of criminal procedural law is evaluative concepts. The authors define evaluative concepts as concepts embedded in legal terms that are broad in meaning and formally undefined, which are specified and clarified in the process of intellectual analysis and assessment of the context of specific circumstances of a case or legal relationship, carried

out by a law enforcement agency on the basis of its discretionary powers and may involve differentiation/variability of legal consequences or substantive characteristics for objects of law enforcement.

The issue of evaluative concepts in criminal justice has been a topic of discussion in academic circles for a long time. In particular, the legal theorist G.L.A. Hart described law as having an "open texture": there is a core of unambiguous cases of the norm's application, alongside an element of uncertainty. In such cases, judges are forced to act at their own discretion when choosing how to apply a particular concept. However, judicial discretion is not an arbitrary choice, but a rational decision within the limits of the law (Dajović, 2023). Ronald Dworkin argued that even principles that seem vague at first glance have a "correct answer" that the judge must seek through a holistic interpretation of the law (Dworkin, 2001).

Interpreting norms is an art: judges give meaning to norms based on their understanding of social values and context (Gadamer & Gadamer, 2003). The ability to choose one of several possible solutions, i.e., discretion, is a natural consequence of the impossibility of complete legal certainty (Reyes Molina, 2020).

Nevertheless, evaluative concepts always involve certain risks. The downside of flexibility is the danger of uneven or unpredictable application of the law. If different judges or prosecutors interpret evaluative concepts differently, this can lead to inconsistency and a sense of injustice. American legal realism once emphasised that judges' personal biases or intuition often influence the application of vague standards, calling into question the thesis that the law always produces one objectively correct result. For example, Jerome Frank noted that due to such uncertainty, judges' decisions may even depend on "what the judge had for breakfast", hinting at the significant risk of subjectivity (Frank, 2017).

At the same time, a certain degree of vagueness is often accepted as necessary in order for the law to cover a variety of life situations. Classic approaches to the application of norms with evaluative concepts can be divided into several groups:

- **Legal positivism** recognises that, while the core meaning of a legal norm is determined by authoritative sources, there is still a 'grey area' of uncertainty that judges must fill in as a matter of "secondary" discretion. Positivists seek to limit discretion with clear rules and control procedures.

- **Legal realism**, on the other hand, argues that in practice the law is often uncertain, and that what the courts do (the actual decision) is the real law; thus, evaluative concepts effectively delegate to judges certain powers to develop legal approaches.

- **Hermeneutic and phenomenological theories** emphasise that understanding legal text is always an

act of interpretation, coloured by the interpreter's attitudes, and that the meaning of norms unfolds through context. Accordingly, vague terms require judges to exercise practical wisdom and take specific circumstances into account.

It is evident that artificial intelligence is becoming increasingly embedded within the legal sector on a daily basis. This necessitates a more detailed analysis of the relationship between AI and law.

3. The Use of Artificial Intelligence in Jurisprudence

AI is increasingly being used as a tool in the legal sphere, from automating routine tasks to supporting complex court decisions. In legal practice, AI systems help with legal research, processing electronic evidence, verifying contracts and predicting the outcomes of court cases. In the judicial system, systems such as decision support tools are emerging to help judges or lawyers analyse data (e.g., find relevant precedents or assess the range of penalties), as well as the first attempts at "predictive justice", where algorithms predict the likelihood of certain outcomes (e.g., the risk of recidivism or the chances of winning a case).

For example, machine learning models have been used to predict decisions by the US Supreme Court and the European Court of Human Rights (Kleinberg et al., 2018). The introduction of AI into court proceedings is still experimental, but there are pilot projects. Some US jurisdictions use algorithmic risk assessment tools in criminal proceedings (e.g., COMPAS for bail decisions or sentencing), while EU countries are testing AI systems for case allocation or to assist judges (e.g., projects in Estonia for small claims, or in France for analysing case law with a view to standardising sentencing).

It is important to distinguish between different levels of AI integration (Zhou, 2024). Automation means that AI performs a specific task entirely without human involvement. In law, this could include, for example, the automatic issuance of rulings in simple cases or the recording of traffic violations by traffic cameras with automatic fines. Decision support systems provide recommendations or analytical information to the decision maker, but do not determine the outcome themselves; an example is a judicial analytics platform that suggests a probable range of penalties based on past cases, leaving the final decision to the judge. Automated decision-making assumes that the AI itself generates a decision or verdict with minimal human control. In practice, fully automated court decisions are currently rarely used due to legal and ethical restrictions. The vast majority of implementations emphasise AI as an advisory tool (the term "augmented intelligence" is often used for judges). For example, a judge may use an algorithm to

calculate a guideline sentence based on typical rules, but still adjust the sentence based on their own assessment of the circumstances (Levmore & Fagan, 2019). The current trend in Western legal systems is not to grant AI the right to make final decisions in court proceedings, especially in criminal cases where fundamental rights are at stake. EU policy documents explicitly state that AI should assist, not replace, human judges (Mizaras, 2025).

In the United States, the use of AI in criminal justice focuses on risk assessment tools, predictive analytics for the police, and data analysis by prosecutors. Risk assessment algorithms are used at the pre-trial stage (to determine the appropriateness of release on bail) and at sentencing (to assess the risk of reoffending) in a number of states. For example, the COMPAS algorithm was introduced to predict the likelihood of recidivism by the accused and to take this into account when determining the severity of the sentence.

The courts have permitted the use of such tools with reservations: the Wisconsin Supreme Court in *State v. Loomis* (2016) found it acceptable to consider COMPAS when sentencing, provided that it is not the sole determining factor and the defendant is given the opportunity to challenge the accuracy of the algorithm. There is considerable interest in the European Union in the potential of AI to improve the efficiency of justice, but at the same time there is a noticeable focus on ethical boundaries. In 2018, the European Commission for the Efficiency of Justice (CEPEJ) of the Council of Europe adopted the European Ethical Charter on the Use of AI in Judicial Systems, which establishes principles such as respect for fundamental rights, non-discrimination, (Oberto, 2024) quality and safety, transparency and user control (i.e., under the control of a judge) (Franguloiu, 2024).

The introduction of AI into the justice system is accompanied by a number of challenges. Lawyers emphasise that any use of AI in criminal justice must be thoroughly tested for disproportionate impact and fairness (European Parliament, 2021). The key problem is explainability: court decisions require justification, while many AI models (especially deep neural networks) operate as a "black box" that does not provide a clear explanation of the logic behind its conclusion. This lack of transparency conflicts with the need for transparent justification of court decisions. Research is currently underway in the field of explainable AI to create models capable of providing human-understandable explanations of their results.

Transparency also means informing parties that AI is being used in the process and how. The 2021 European Parliament resolution calls on Member States to disclose which AI tools are used by their law enforcement and judicial authorities, and even requires the publication of information on the false

positive and false negative error rates of these systems (European Parliament, 2021).

Without transparency, the defendant may not realise that the court's decision was influenced by an algorithm, meaning they will be unable to appeal it. Although AI offers the promise of efficiency and objectivity, Western legal discourse emphasises that its implementation must not undermine fairness, and that safeguards must be in place to maintain trust in the judicial system. These safeguards include eliminating bias, ensuring explainability, and proper oversight.

4. Artificial Intelligence for the Application of Evaluative Concepts

The key question is whether AI can help make the application of evaluative legal concepts more consistent or objective. These concepts are often difficult to define precisely, but in theory they can be operationalised by training AI on how courts have decided many similar cases.

The previous approach was to use rule-based systems: in the past, expert systems attempted to embed legal standards into code in the form of sets of "if-then" rules. For example, a knowledge-based system could be programmed for certain conditions by listing the necessary factors. However, such attempts encountered difficulties because evaluative concepts require consideration of context and subtle circumstances that are difficult to reduce to predetermined rules. The modern approach focuses on machine learning: instead of predetermining what "reasonable" or "proportionate" means, an AI model can be trained on a large set of precedents where courts have already assessed behaviour as reasonable or unreasonable, and then predict the likely outcome for new cases. In theory, this could create an empirical model of judicial practice and indicate when the outcome of a new case deviates significantly from established practice.

Indeed, researchers have already achieved some success. For example, there are machine learning models that can accurately predict court decisions in areas where balance tests or multi-factor standards are applied. AI can also analyse databases of court decisions to find patterns in the application of concepts. For example, it can identify the range of sentences imposed 'in the interests of justice' (outside the standard recommendations) or the typical circumstances in which a "significant risk" to society is recognised. This use demonstrates the role of AI as an "assistant" in case law research, which can provide judges with empirical context for exercising discretion.

One of the potential advantages of AI in this area is increased consistency. It is well known that humans are prone to inconsistency in decision-making (the problem of "judicial lottery") when random or

subjective factors influence the verdict. AI, which generalises data from a large number of cases, could reduce such arbitrary deviations. For example, if one judge's idea of "fairness" is significantly stricter than that of other judges in similar circumstances, the AI system can highlight this difference, drawing attention to a possible inconsistency and prompting a review of the approach. By analysing large sets of court decisions, AI can promote the principle of "similar cases, similar decisions", reinforcing equality before the law.

A strictly algorithmic approach may fail to recognise when a case is truly exceptional and deserves a result that goes beyond the "statistical norm". In other words, a system based solely on past data may neglect unique human factors that are essential to the administration of justice in a particular situation.

In certain areas, AI is already being used to quantitatively assess what was previously done intuitively.

Despite these possibilities, many researchers are sceptical that AI can fully replace or even reliably reproduce the subtle human judgement required to apply evaluative concepts (Heri, 2021).

A critical tenet of reductionism posits that the reduction of complex moral and legal assessments to numerical values or binary categories serves to simplify the qualitative dimensions of justice. For instance, ascertaining "reasonableness" frequently necessitates empathy and moral analysis of motives and circumstances – a feat that a purely statistical approach is incapable of replicating (Heri, 2021).

Another caveat is the lack of normative justification: a judge must not only render a decision, but also justify it. If an algorithm suggests a certain outcome based on correlations ("90% of similar cases resulted in a guilty verdict"), this in itself is not a legal argument. By accepting it without consideration, the court effectively bypasses the traditional legal justification expected by the parties and society. Context sensitivity is another important aspect: legal assessment often depends on the subtleties of a particular situation (e.g., the behaviour of witnesses, the personality of the defendant, the position of the victims, etc.). Not all of these factors can be formalised or even represented in the data on which the algorithm is trained.

Ultimately, there is a risk of preserving the status quo: if judges begin to rely on AI recommendations, the initial data (which may contain certain flaws) will be reproduced unchanged, and the content of evaluative concepts will effectively be fixed in the form produced by the algorithm, slowing down the dynamics of legal discussions. It is evident that, whilst artificial intelligence (AI) has the potential to function as a valuable aid, such as improving practice, research, identifying patterns and potentially flagging inconsistencies, the prevailing consensus within the relevant doctrine is that it should be regarded as a supplementary resource.

5. The Economic Feasibility of Using Artificial Intelligence in Criminal Proceedings

The introduction of AI into the criminal justice system can have a positive effect not only from a legal point of view, but also from an economic one. Criminal justice is directly linked to significant financial costs. The main costs of criminal proceedings are borne by the state. These costs include: 1) the need to finance the law enforcement system and the courts; 2) financing the conduct of criminal proceedings. In addition, the costs may be indirect. Criminal proceedings have a significant impact on the persons against whom they are brought. The application of preventive measures in the form of detention or house arrest can significantly reduce the potential economic activity of the person against whom the proceedings are brought.

In theory, AI systems can optimise financial expenditures, which can lead to significant budget savings for courts, law enforcement agencies, and society as a whole. For example, automating clerical tasks – such as processing documents, sorting evidence, and preparing draft procedural decisions – can reduce the workload on court staff and speed up case processing. Faster resolution of cases means lower costs per case and a reduction in the problem of court congestion (which in itself has economic implications, including the prolonged detention of persons awaiting trial).

The debate on the potential for reducing costs in criminal justice has been actively ongoing for the past few years. In order to gain a more profound understanding of the issue, it is recommended that the positions of leading global scholars on the economic aspects of applying artificial intelligence in criminal proceedings be analysed.

There is a view that integrating artificial intelligence into economic assessment tools in criminal justice improves resource allocation efficiency by reducing transaction costs and improving the accuracy of forecasting potential costs and benefits. Using machine learning techniques, such systems transform cost-benefit analysis from a static, expert-driven tool into a dynamic, data-driven mechanism capable of learning from previous proceedings. This approach allows for more rational prioritisation in criminal justice and procedural measures in conditions of limited public resources. At the same time, the economic benefits of artificial intelligence-assisted decision-making must be balanced with legal safeguards, including due process and accountability, to prevent the replacement of justice with technical optimisation (Manning et al., 2018).

The economic efficiency of criminal justice can be significantly improved by integrating heterogeneous cost-benefit analysis based on AI. Going beyond average effects and using machine learning methods, AI allows the distribution of costs and benefits for specific groups to be determined, enabling more accurate procedural

measures to be taken. This approach increases the efficiency of resource allocation by prioritising measures that bring the greatest social benefits to vulnerable groups, while avoiding economically unproductive outcomes. AI-based analytical tools strengthen evidence-based decision-making and optimise the use of limited criminal justice resources (Manning et al., 2023).

Concerns about economic losses and fairness in artificial intelligence systems used in criminal justice are often exaggerated. Analytical and empirical assessments have shown that implementing adjustments aimed at achieving fairness often involves minor additional costs, while preventing significant further social and legal costs associated with biased decision-making. Fairness and efficiency are not mutually exclusive; on the contrary, fair AI systems can increase long-term economic efficiency by improving the legitimacy of decisions, reducing the costs associated with errors, and lowering the risk of costly lawsuits. Investments in AI fairness should be viewed as economically rational components of sustainable criminal justice management (Cofone & Khern-am-nuai, 2025).

Assessing the economic efficiency of new technologies in law enforcement, such as automatic number plate recognition (ALPR) systems, cannot be separated from the organisational and strategic context in which they are implemented. While ALPR systems undoubtedly increase technical efficiency by automating and accelerating data processing, empirical evidence shows that such benefits do not necessarily translate into improved public safety. Technology brings economic benefits only when it is integrated into evidence-based law enforcement models. Accordingly, investments in law enforcement technology without simultaneous institutional and cultural reforms risk leading to illusory increases in efficiency and may result in the inefficient use of public resources (Lum et al., 2025).

Machine learning models used to predict recidivism achieve consistently high levels of prediction accuracy, demonstrating their potential to improve decision-making in criminal justice. Based on a synthesis of empirical studies, it has been shown that even relatively simple models can produce reliable results, calling into question the assumption that algorithms need to be increasingly complex. At the same time, it is emphasised that the economic and practical benefits of such tools depend largely on data quality, pre-processing and transparency. AI-based risk assessment can improve resource allocation and support human judgement in criminal proceedings, provided that it is carried out within a system that guarantees fairness, transparency and procedural legitimacy (Travaini et al., 2022).

Preliminary results indicate that artificial intelligence tools can expand the scope of evidence analysis in criminal proceedings. However, problems arise due to insufficient reproducibility of evidence. Courts

demonstrate varying degrees of acceptance of evidence obtained using artificial intelligence due to limited technical literacy and the lack of standardised protocols for verifying such evidence. In the case of evidence obtained using AI technologies, there is a need for independent validation and the development of criteria for its admissibility (Singh & Devi, 2026).

According to certain economists, a productivity revolution in law is imminent. Michael Abramowicz hypothesises that the integration of AI has the potential to significantly reduce the financial burden of legal services, thereby enhancing accessibility to justice (Abramowicz, 2024).

If routine matters or procedural actions can be resolved with minimal human involvement, the limited resources of the judicial system can be directed towards truly complex proceedings, which will ultimately increase the efficiency of the entire system. From a public expenditure perspective, AI has the potential to optimise the allocation of law enforcement and judicial resources. For instance, predictive models can identify cases that are highly likely to result in a guilty plea or plea bargain, thereby allowing focus to be placed on those that truly require a full trial. This, in turn, has the potential to reduce the costs of lengthy proceedings.

From a utilitarian point of view, it can be argued that automating part of the process is justified if it reduces costs and does not lead to a significant increase in the number of errors. Economic models take into account both the cost of crimes that are prevented and the resources saved thanks to faster case resolution. If AI can speed up the judicial process, the system can handle a larger volume of cases with the same resources, increasing the inevitability and speed of punishment (which, according to Becker's theories, strengthens crime deterrence). Also, by reducing uncertainty about the outcome, AI can encourage plea bargaining, avoiding costly trials.

However, scientists warn about unforeseen effects: Abramowicz notes that the reduction in costs thanks to AI may change the behaviour of those involved in the process (Abramowicz, 2024). On the other hand, automated tools can also help the defence: for example, AI that quickly analyses large amounts of evidence and case law provides defence lawyers with a resource that was previously lacking, potentially improving the quality and effectiveness of defence at the systemic level.

Some studies model optimistic scenarios: in particular, (Kleinberg et al., 2018) showed that using machine predictions to decide on pretrial detention can significantly reduce the number of prisoners awaiting trial and at the same time reduce crime rates, i.e., achieve better results on both criteria compared to human decisions (Fagan & Levmore, 2019). This shows that the algorithm can balance risks more effectively than many judges who act intuitively: society benefits

both from fewer wrongful convictions and from crime prevention. However, such models depend on the specified optimisation criteria. There is a moral principle that false convictions should be avoided much more than false acquittals (Blackstone's formula). If the algorithm minimises the total number of errors in purely numerical terms, but at the same time slightly increases the risk of convicting innocent people, society is unlikely to find this acceptable, despite the nominal gains in efficiency.

Every false prosecution (false positive result) entails significant costs: both for the convicted person (lost years of freedom, psychological and reputational damage) and for the state (compensation, costs of keeping an innocent person in prison) and society (undermining trust in the justice system). False acquittal or release of a dangerous offender (false negative result) also has its price: possible new victims, a sense of danger in the community, and a weakening of the preventive effect of punishment. AI systems can influence the frequency and ratio of such errors. If an algorithm is configured to avoid one type of error, it is likely to cause more errors of another type (detaining or convicting more people who do not actually pose a threat). Economic analysis seeks to find the optimal compromise based on the cost of errors (how much a false conviction "costs" society compared to a false acquittal) (Berk, 2011). It is argued that concerns about the high price of improving algorithmic fairness are exaggerated; that is, algorithmic fairness can often be improved without significant harm to accuracy or efficiency (Cofone & Khern-am-nuai, 2025). This suggests that the objectives of economic efficiency and fairness are not inherently incompatible. Conversely, certain costs are challenging to evaluate, such as the erosion of legal authority or public confidence in the justice system following an unfavourable decision made with AI assistance. A decline in trust can have economic consequences (reduced co-operation between citizens and law enforcement agencies, higher enforcement costs), but these are difficult to quantify accurately. Therefore, a narrow calculation of "benefits and costs" in monetary terms may overlook important long-term effects. AI implementation policy must take into account both tangible and intangible factors (such as human rights and the social legitimacy of decisions).

Infrastructure and investment issues must also be considered: developing and implementing AI systems in courts requires substantial funding, staff training and support, and selecting the wrong technology can be expensive. From a macroeconomic perspective, if AI can take over a significant proportion of straightforward cases, this could free up judges to focus on more complex cases, making more efficient use of human capital within the justice system. However, if the public perceives "algorithmic justice" as less legitimate, this

could lead to a wave of additional appeals, refusals to settle, and an overall increase in transaction costs at higher levels of the system. These dynamic effects indicate that economic feasibility should be assessed comprehensively and in the long term. At present, many of the expected benefits of AI (e.g., saving court time or reducing recidivism through better release decisions) still need empirical confirmation, while the potential costs (bias, errors, the need for additional oversight) are obvious. Therefore, when implementing AI, it is necessary to conduct a thorough cost-benefit analysis, including factors that are difficult to measure (such as fairness and trust), and to implement innovations gradually, through pilot projects and experiments. There is a need for further research: there is a noticeable lack of data on the long-term impact of algorithms on the behaviour of participants in the process, on the level of appeals against court decisions, and on the actual costs and benefits for the system. Identifying and addressing these gaps is an important area for future legal analysis to ensure that the use of AI in criminal proceedings is both cost-effective and compatible with the requirements of the rule of law.

6. Conclusions

Proponents of AI in criminal justice often emphasise its potential to reduce the burden on courts and correctional institutions. There are ideas for using AI to predict crime and streamline police work, which, if successful, would reduce the social costs of crime. However, when evaluating such initiatives through the lens of the Law & Economics approach, it is important to ensure that increased productivity does not come at the expense of justice values. Many legal economists point to the need for institutional safeguards: if judges begin to rely on algorithms, it is important to maintain their motivation and qualifications to independently identify and correct possible AI errors (so as not to create an "autopilot effect"). Infrastructure and investment issues must also be taken into account: the

development and implementation of judicial AI systems requires significant funds, staff training, and support – and choosing the wrong technology can be costly. From a macroeconomic perspective, if AI can truly take over a significant portion of minor and routine cases, including interpreting evaluative concepts, this could free up judges' time for complex cases, which is a more efficient use of human capital in the justice system.

Importantly, concerns about the high cost of algorithmic fairness appear to be exaggerated, as fairness-oriented adjustments often involve limited additional costs while preventing significant long-term social and legal costs associated with biased or erroneous decisions. However, purely utilitarian cost-benefit calculations are insufficient, as unfair verdicts, loss of public trust, and the perception of "algorithmic justice" as illegitimate cause significant, albeit difficult to quantify, social costs. Therefore, the introduction of AI into criminal justice must be done cautiously, through pilot projects and careful empirical evaluation, balancing economic efficiency with fundamental legal guarantees, human rights, and the long-term legitimacy of the justice system.

Economic feasibility must be assessed comprehensively and in the long term. At present, many of the expected benefits of AI (e.g., saving court time or reducing recidivism through better release decisions) still need empirical confirmation, while the potential costs (bias, errors, the need for additional oversight) are obvious. Identifying and addressing these gaps is an important area for future legal analysis to ensure that the use of AI in criminal proceedings is both cost-effective and compatible with the requirements of the rule of law.

The application of evaluative concepts still requires the active participation of law enforcement officials. Only a moderate, logical assessment based on personal life experience can fully reveal the meaning of an evaluative concept. Nevertheless, AI can be used as a source of additional analytics and information gathering to help form approaches to understanding a particular concept.

References:

- Abramowicz, M. (2024). The Cost of Justice at the Dawn of AI. *SSRN Electronic Journal*. DOI: <https://doi.org/10.2139/ssrn.4543803>
- Bartneck, C., Lütge, C., Wagner, A., & Welsh, S. (2021). What Is AI? In C. Bartneck, C. Lütge, A. Wagner, & S. Welsh, *An Introduction to Ethics in Robotics and AI* (pp. 5–16). Springer International Publishing. DOI: https://doi.org/10.1007/978-3-030-51110-4_2
- Dajović, G. (2023). Hart's judicial discretion revisited. *Revus*, 50. DOI: <https://doi.org/10.4000/revus.9735>
- Dworkin, R. (2001). *Taking rights seriously*. Harvard Univ. Press.
- European Parliament. (2021, July). *Report on artificial intelligence in criminal law and its use by the police and judicial authorities in criminal matters. 13 July 2021 (2020/2016(INI)), committee on civil liberties, justice and home affairs, rapporteur: Petar vitanov*.
- Franguloiu, S. (2024). Principles for the Use of Artificial Intelligence (Ai) in the Judiciary as derived from the European Ethics Charter. Justice Efficiency and Limitations. *Bulletin of the Transilvania University of Braşov. Series VII: Social Sciences - Law*, 39–46. DOI: <https://doi.org/10.31926/but.ssl.2023.16.65.3.5>
- Frank, J. (2017). *Law & the modern mind*. Routledge. DOI: <https://doi.org/10.4324/9780203787533>

- Gadamer, H.-G., & Gadamer, H.-G. (2003). *Truth and method* (2., rev. ed). Continuum.
- Gignac, G. E., & Szodorai, E. T. (2024). Defining intelligence: Bridging the gap between human and artificial perspectives. *Intelligence*, 104, 101832. DOI: <https://doi.org/10.1016/j.intell.2024.101832>
- Gil De Zúñiga, H., Goyanes, M., & Durotoye, T. (2024). A Scholarly Definition of Artificial Intelligence (AI): Advancing AI as a Conceptual Framework in Communication Research. *Political Communication*, 41(2), 317–334. DOI: <https://doi.org/10.1080/10584609.2023.2290497>
- Heri, C. (2021). *Responsive Human Rights: Vulnerability, Ill-treatment and the ECtHR* (1st edn). Hart Publishing. DOI: <https://doi.org/10.5040/9781509941261>
- Kleinberg, J., Lakkaraju, H., Leskovec, J., Ludwig, J., & Mullainathan, S. (2018). Human Decisions and Machine Predictions. *The Quarterly Journal of Economics*, 133(1), 237–293. DOI: <https://doi.org/10.1093/qje/qjx032>
- Levmore, S., & Fagan, F. (2019). The Impact of Artificial Intelligence on Rules, Standards, and Judicial Discretion. *SSRN Electronic Journal*. DOI: <https://doi.org/10.2139/ssrn.3362563>
- Mizaras, V. (2025, January 31). *Artificial intelligence and the right to a fair trial: Speech at the judicial seminar, 31 January 2025*.
- Oberto, G. (2024, October 20). *Artificial intelligence and judicial activities: The position of the european commission for the efficiency of justice (CEPEJ)*. International Association of Judges (IAJ) / Council of Europe.
- Reyes Molina, S. A. (2020). Judicial Discretion as a Result of Systemic Indeterminacy. *Canadian Journal of Law & Jurisprudence*, 33(2), 369–395. DOI: <https://doi.org/10.1017/cjlj.2020.7>
- Pohoretskyi, M. A. (2021). The concept of criminal process and its scientific and practical significance. *Herald of Criminal Justice*, 1–2, 28–51. DOI: <https://doi.org/10.17721/2413-5372.2021.1-2/28-51>
- Zhou, S. (2024). Analyzing the justification for using generative AI technology to generate judgments based on the virtue jurisprudence theory. *Journal of Decision Systems*, 1–24. DOI: <https://doi.org/10.1080/12460125.2024.2428999>
- Abramowicz, M. (2024). The Cost of Justice at the Dawn of AI. *SSRN Electronic Journal*. DOI: <https://doi.org/10.2139/ssrn.4543803>
- Berk, R. (2011). Balancing the costs of forecasting errors in parole decisions. *Albany Law Review*, 74(3), 1071–1085.
- Cofone, I., & Khern-am-nuai, W. (2025a). The overstated cost of AI fairness in criminal justice. *Indiana Law Journal*, 100(4). Available at: <https://www.repository.law.indiana.edu/ilj/vol100/iss4/4>
- Cofone, I., & Khern-am-nuai, W. (2025b). The overstated cost of AI fairness in criminal justice. *Indiana Law Journal*, 100(4), Article 4. Available at: <https://www.repository.law.indiana.edu/ilj/vol100/iss4/4>
- Fagan, F., & Levmore, S. (2019). The impact of artificial intelligence on rules, standards, and judicial discretion. *Southern California Law Review*, 93(1), 1–35. Available at: https://southerncalifornialawreview.com/wp-content/uploads/2020/01/93_1_Levmore.pdf
- Kleinberg, J., Lakkaraju, H., Leskovec, J., Ludwig, J., & Mullainathan, S. (2018). Human Decisions and Machine Predictions. *The Quarterly Journal of Economics*, 133(1), 237–293. DOI: <https://doi.org/10.1093/qje/qjx032>
- Lum, C., Koper, C. S., Lee, H., Nagin, D. S., & Sherman, L. (2025). Measuring the Cost-Effectiveness of New Technologies in Policing: The Case of Automatic License Plate Readers (ALPR). *Cambridge Journal of Evidence-Based Policing*, 9(1), 4. DOI: <https://doi.org/10.1007/s41887-025-00099-y>
- Manning, M., Wong, G. T. W., Graham, T., Ranbaduge, T., Christen, P., Taylor, K., Wortley, R., Makkai, T., & Skorich, P. (2018). Towards a 'smart' cost-benefit tool: Using machine learning to predict the costs of criminal justice policy interventions. *Crime Science*, 7(1), 12. DOI: <https://doi.org/10.1186/s40163-018-0086-4>
- Manning, M., Wong, G. T. W., Mahony, C., & Vidanage, A. (2023). A method and app for measuring the heterogeneous costs and benefits of justice processes. *Frontiers in Psychology*, 14, 1094303. DOI: <https://doi.org/10.3389/fpsyg.2023.1094303>
- Singh, S., & Devi, L. (2026). *Reliability and Admissibility of AI-Generated Forensic Evidence in Criminal Trials* (Version 1). arXiv. DOI: <https://doi.org/10.48550/ARXIV.2601.06048>
- Travaini, G. V., Pacchioni, F., Bellumore, S., Bosia, M., & De Micco, F. (2022). Machine Learning and Criminal Justice: A Systematic Review of Advanced Methodology for Recidivism Risk Prediction. *International Journal of Environmental Research and Public Health*, 19(17), 10594. DOI: <https://doi.org/10.3390/ijerph191710594>
- Abramowicz, M. (2024). The Cost of Justice at the Dawn of AI. *SSRN Electronic Journal*. DOI: <https://doi.org/10.2139/ssrn.4543803>
- Berk, R. (2011). Balancing the costs of forecasting errors in parole decisions. *Albany Law Review*, 74(3), 1071–1085.
- Cofone, I., & Khern-am-nuai, W. (2025a). The overstated cost of AI fairness in criminal justice. *Indiana Law Journal*, 100(4). Available at: <https://www.repository.law.indiana.edu/ilj/vol100/iss4/4>
- Cofone, I., & Khern-am-nuai, W. (2025b). The overstated cost of AI fairness in criminal justice. *Indiana Law Journal*, 100(4), Article 4. Available at: <https://www.repository.law.indiana.edu/ilj/vol100/iss4/4>
- Fagan, F., & Levmore, S. (2019). The impact of artificial intelligence on rules, standards, and judicial discretion. *Southern California Law Review*, 93(1), 1–35. Available at: https://southerncalifornialawreview.com/wp-content/uploads/2020/01/93_1_Levmore.pdf

- Kleinberg, J., Lakkaraju, H., Leskovec, J., Ludwig, J., & Mullainathan, S. (2018). Human Decisions and Machine Predictions. *The Quarterly Journal of Economics*, 133(1), 237–293. DOI: <https://doi.org/10.1093/qje/qjx032>
- Lum, C., Koper, C. S., Lee, H., Nagin, D. S., & Sherman, L. (2025). Measuring the Cost-Effectiveness of New Technologies in Policing: The Case of Automatic License Plate Readers (ALPR). *Cambridge Journal of Evidence-Based Policing*, 9(1), 4. DOI: <https://doi.org/10.1007/s41887-025-00099-y>
- Manning, M., Wong, G. T. W., Graham, T., Ranbaduge, T., Christen, P., Taylor, K., Wortley, R., Makkai, T., & Skorich, P. (2018). Towards a 'smart' cost-benefit tool: Using machine learning to predict the costs of criminal justice policy interventions. *Crime Science*, 7(1), 12. DOI: <https://doi.org/10.1186/s40163-018-0086-4>
- Manning, M., Wong, G. T. W., Mahony, C., & Vidanage, A. (2023). A method and app for measuring the heterogeneous costs and benefits of justice processes. *Frontiers in Psychology*, 14, 1094303. DOI: <https://doi.org/10.3389/fpsyg.2023.1094303>
- Singh, S., & Devi, L. (2026). *Reliability and Admissibility of AI-Generated Forensic Evidence in Criminal Trials* (Version 1). arXiv. DOI: <https://doi.org/10.48550/ARXIV.2601.06048>
- Travaini, G. V., Pacchioni, F., Bellumore, S., Bosia, M., & De Micco, F. (2022). Machine Learning and Criminal Justice: A Systematic Review of Advanced Methodology for Recidivism Risk Prediction. *International Journal of Environmental Research and Public Health*, 19(17), 10594. DOI: <https://doi.org/10.3390/ijerph191710594>

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