



ROLE OF TECHNOLOGY IN A SOCIAL, ECONOMIC AND ETHICAL ENVIRONMENT: JURISPRUDENCE APPROACHES TO LEGAL REASONING

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ABSTRACT: *Technology has dramatically transformed legal reasoning and impacted social, economic, and ethical frameworks. This article explores the evolving role of technology in the law and analyses its impact from different legal perspectives. From digital communication tools and automation to artificial intelligence and forensic advances, technology is improving legal efficiency, access to justice, and decision-making processes. Digital case management systems, blockchain smart contract technology, and virtual courts have revolutionized legal practice, making legal services more efficient and convenient. However, the integration of technology into legal argumentation also raises significant ethical questions. Issues such as data privacy, cybersecurity threats, and algorithmic bias in AI-driven legal systems challenge the fairness and accountability of legal decision-making. The potential for job loss or displacement, particularly among younger legal professionals, further complicates the economic situation. The rise of technology-based legal services requires a rethinking of traditional billing structures and legal education in order to prepare future legal practitioners for digital careers. Legal theory, including legal positivism, natural law, and critical legal studies, offer different perspectives on how legal reasoning adapts to technological change. Legal positivists focus on the written rules governing technology, while natural law theorists emphasize ethical considerations and critical legal scholars criticize technology for its role in exacerbating power imbalances. This study argues that while technology offers many benefits, its regulation and ethical application remain essential to maintaining justice, fairness, and accountability. A balanced approach is necessary to align technological progress with legal principles, ensuring that legal systems remain adaptable yet firmly rooted in fundamental rights and due process. By adopting a proactive and ethically guided framework, legal institutions can harness technology's potential while mitigating its risks in a rapidly evolving digital world.*

KEYWORDS: Technology, Legal Reasoning, Jurisprudence, Artificial Intelligence, Ethics, Economy, Digital Law, Virtual Courtrooms.



INTRODUCTION

Technology has increasingly become a central component of contemporary legal systems that is altering the way that laws are interpreted, applied, and enforced. The accelerated pace of digital technologies, AI, blockchain, and automation is affecting legal thinking significantly with both opportunities and challenges at the social, economic, and normative levels.¹ Courts of law, lawyers, and policymakers are increasingly embracing technology to improve the efficiency of legal work, simplify the legal process, and enhance access to justice. Yet this increased usage of technology also provokes significant jurisprudential considerations about fairness, responsibility, and the dynamic character of legal interpretation.² The confluence of law and technology means that a closer look at the way that legal thinking adjusts to the latest technologies is necessary with a specific reference to the tension between innovation and the bedrock of legal principles.

From a social perspective, the accessibility of the administration of justice and the delivery of legal services have been revolutionized by the advent of technology. Online courtrooms, virtual hearings, and online systems of resolving disputes have made the administration of justice speedier and less expensive while avoiding delays and promoting access to justice among individuals that might otherwise face hurdles like location or economic limitation.³ AI-driven legal aid software also exists to provide individuals with automated advice on the law and document drafting functions. However, while they promote inclusion, they also introduce the question of access disparities to technologies.⁴ Exclusion by digital means is a serious question, particularly among the developing regions or economically disadvantaged groups that do not have access to the stable net or the digital skills necessary to access digital systems of justice. The digital divide might lead to a distorted representation of justice where the privileged are the individuals with access to innovative legal technologies that obtain the best out of them while the question of equality before the law is raised.⁵

Economically, the practice of law has experienced a paradigm shift with automation and digital innovation. Routine legal work like document review, analysis of contracts, and research of case law is increasingly being undertaken by AI-powered platforms at a much lower cost and time compared to traditional legal work.⁶ Law firms and company legal departments increasingly use technology to improve their output to allow lawyers to work on complex analytical work instead of mundane administration work. The advent of smart contracts—autonomous contracts built into blockchain technology—has also disrupted the traditional law

¹ McKamey, M., 'Legal Technology: Artificial Intelligence and the Future of Law Practice, Appeal: Review of Current Law and Law Reform' [2017] 42 *Can LIIDocs* 70; Gul, R., El Nofely, and A.M.O., 'The Future of Law from the Jurisprudence Perspective for Example: The Influence of Science and Technology to Law' [2021] *AI Law* Available at <<https://www.ejournal.warmadewa.ac.id/index.php/elg>> accessed 18 February 2025.

² Friedman, B. and Nissenbaum, H. 'Bias in Computer Systems' [1996] 14 *ACM Transactions on information Systems*, 330-347.

³ Ferreira, A. 'The (un)ethical womb: The promises and perils of artificial gestation' [2022] 19(3) *Journal of Bioethical Inquiry* 341-430

⁴ Microsoft Corporation (2022) The Future Computed: Artificial Intelligence and Its Role in Society. <https://www.amazon.com/Future-Computed-Artificial-Intelligence-Society/dp/1980234434>

⁵ Delgado et al., 'Bias in algorithms of AI systems developed for COVID-19: A scoping review' [2022] 19(3) *Journal of Bioethical Inquiry* 193.

⁶ Suherlan, S. and Okombo, M.O. 'Technological Innovation in Marketing and its Effect on Consumer Behaviour' [2023] 1 *Technology and Society Perspectives (TACIT)* 94-103.



of contracts by eliminating the need for third parties and lowering the cost of a deal.⁷ Yet while automation increases efficiency, the loss of entry-level legal work and the work of paralegals to AI-powered automation creates economic and ethical implications regarding the stability of work and the implications of legal training. In addition, the increased usage of AI-powered research tools has also introduced novel billing models to the industry to change the traditional hourly rates to performance-related or fixed payments.⁸ All this creates the need for a dynamic regulatory environment to avoid economic efficiencies undermining the quality of legal work or the ethics of legal professionals.

Ethical considerations are central to the debates regarding the role of technology in legal deliberation. Expanded uses of AI in judicial deliberation and the deployment of predictive analysis pose the question of potential biases within algorithms and the need to provide transparency. AI systems that learn from the record of past legal judgments can perpetuate biases within earlier judgments with the potential to lead to legal injustices.⁹ Transparency of AI algorithms also poses a problem with the inability of legal experts and courts to understand or contest AI-driven judgments. Responsibility is also a question if the AI-driven legal system produces a prejudiced or inaccurate judgment since AI systems do not possess the faculty of moral judgment, the exercise of judgmental choice, or the understanding of complex human lives within legal judgments.¹ Implications of the ethics of protection of personal information and cybersecurity within legal technologies also have to be critically evaluated. The digitalization of case histories and court documents amplified the threat of cybersecurity breaches that call for robust legal frameworks to preserve confidential legal information away from breaches of confidentiality and illegal access.¹

Jurisprudentially, the embedding of technology within legal argumentation challenges classic theories of law. Legal positivism, with its stress on the rigorous enforcement of legislated laws, is challenged to accommodate the fast-paced change of technological realities that can outstrip the response of legislatures.¹ Legal positivists can argue that the legislatures must develop specialized legal frameworks to manage emerging technologies to keep the laws current with modern challenges.¹ In contrast, natural law³ thinkers, with their call to have laws rooted in principles of morality, question the compatibility of AI and automated legal argumentation with intrinsic human values of justice, fairness, and responsibility.¹ From the standpoint of the

⁷ Ibid

⁸ Pirson, M., Martin, K. and Parmar, B. 'Public Trust in Business and Its Determinants' [2016] 58 *Business & Society*, 132-166.

⁹ Jaldi, A. (2023) Artificial Intelligence Revolution in Africa: Economic Opportunities and Legal Challenges' [2023] 6 *Policy Center for the New South, Benguerir*, available at <https://www.policycenter.ma/sites/default/files/2023-07/PP_13-23%20%28Jaldi%20%29.pdf> accessed on 18 February 2025.

¹ Brey PAE. 'Anticipatory ethics for emerging technologies' [2012] 6(1) *NanoEthics* 1-13

¹ Gouvea R, Linton J, Montoya M, Walsh S. Emerging technologies and ethics: A race-to-the-bottom or the top?' [2012] 109(4) *Journal of Business Ethics* 553-567.

¹ McKamey, M., 'Legal Technology: Artificial Intelligence and the Future of Law Practice, Appeal: Review of Current Law and Law Reform' [2017] 42 *Can LIIDocs* 70

¹ Mittelstadt, B. D., Stahl, B. C., and Fairweather, N. B. 'How to shape a better future? Epistemic difficulties for ethical assessment and anticipatory governance of emerging technologies' [2015] 18 *Ethical Theory and Moral Practice* 1027-47

¹ The Rubric Law Review, 10 Common Legal Issues Faced by Tech Businesses. (2023). Available at <https://www.linkedin.com/pulse/10-common-legal-issues-faced-tech-businesses-rubric-law?utm_source=share&utm_medium=member_android&utm_campaign=share_via> accessed on 18 February



critical legal studies movement, the role of technology within the legal institution is put into question with respect to the exercise of power and the perpetuation of systemic inequities. The worry that the deployment of technology will perpetuate existing inequities—like biases within AI-powered policing or automated sentencing algorithms—requires a critical analysis of the question of whether the advancements of technology actually serve to promote justice or reinforce social inequities.¹⁵

In navigating the intersection of technology and legal reasoning, a balanced approach is essential. While technology offers significant benefits in improving legal efficiency, access to justice, and economic sustainability, its integration must be carefully managed to uphold ethical principles and ensure fairness.¹ The development of legal frameworks that regulate AI, blockchain, and automation must be grounded in both jurisprudential theory and practical realities. Legal education and professional training must also evolve to equip future legal practitioners with the skills necessary to engage with technology while maintaining critical legal reasoning.¹⁷

As legal systems continue to adapt to the digital age, a multidisciplinary approach—combining law, ethics, economics, and technological expertise—will be essential in shaping a legal landscape that harnesses technological advancements while preserving the core principles of justice and human rights. This paper examines the problems of this kind by means of various approaches to the philosophy of law that are represented by legal positivism, natural law, and the critical legal studies to consider the ways of the development of legal rationality with the aid of advancements of the time.

Technology's Influence on Legal Reasoning

Technology has revolutionized the social landscape of legal systems with regards to access to justice, reducing the cost of justice, and streamlining the legal process. The most significant innovation is the introduction of online sites of dispute resolution (ODR) that allow individuals to solve legal disputes without the need to go to court. Online sites utilize AI-driven mediating software, automated document processing functions, and virtual conferencing software to carry out the negotiations, making the delivery of legal service easier to access by individuals with financial or geographical impediments.¹⁸

Virtual courtrooms are another innovation that is central to facilitating remote access to legal hearings. Online courtrooms were a norm during the COVID-19 crisis and have since served

2025.

¹ Ibid

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¹ Arakpogun, E.O., Elsahn, Z., Olan, F. and Elsahn, F., 'Artificial Intelligence in Africa: Challenges and Opportunities' In Hamdan, A., Hassanien, A.E., Razzaque, A. and Alareeni, B., Eds., *The Fourth Industrial Revolution: Implementation of Artificial Intelligence for Growing Business Success. Studies in Computational Intelligence* (Springer, 2021) 375-388.

¹ Arakpogun, E.O., Elsahn, Z., Olan, F. and Elsahn, F., 'Artificial Intelligence in Africa: Challenges and Opportunities' In Hamdan, A., Hassanien, A.E., Razzaque, A. and Alareeni, B., Eds., *The Fourth Industrial Revolution: Implementation of Artificial Intelligence for Growing Business Success. Studies in Computational Intelligence* (Springer, 2021) 389.

¹ Kendal E. Ethical, Legal and Social Implications of Emerging Technology (ELSIET) Symposium' [2022] 19(3) *J Bioeth Inq.* 363-370.



to complement traditional face-to-face hearings.¹ With the potential to allow lawyers, judges, and litigants to access legal hearings remotely, virtual courtrooms reduced delays, cost savings, and convenience to all the parties involved. AI-driven legal aid software also facilitates access to justice by allowing automated legal advice, document drafting functions, and legal research capabilities.² AI systems assist individuals to access complex legal procedures without the need to engage the services of expensive lawyers, bringing the delivery of legal knowledge and service to the masses.

Despite these benefits, digital exclusion is a major issue with respect to the potential of technology to deliver legal services. Not everyone is equal to the access to the internet, digital devices, or the necessary digital skills to interact with AI-powered legal services. It is this digital divide that is likely to impact disproportionately the marginalized communities, the poor, and the residents of the countryside, potentially creating a two-tier justice system where the digitally privileged are the sole beneficiaries of digital legal innovation.² In addition to this, the increasing usage of technology within the legal systems also runs the risk of excluding the digitally illiterate, ultimately negating the doctrine of equal access to justice. Policymakers and the legal systems need to bridge this divide by making the technologies that are being implemented sufficiently inclusive, easily accessible to all, and supported by parallel legal support systems to cater to the digitally challenged.² Another critical social issue is the impact of AI on judgment-making within the legal domain and the implications of fairness, transparency, and the involvement of humans within justice.²

AI models are being increasingly applied to legal analysis, anticipatory law enforcement, and judgment-making within the courts to judge the outcome of a case on the basis of current legal information. However, the AI models are not prejudice-free since they are trained on prior legal information that might reproduce ingrained biases within the justice system or prejudiced practice.² Unless regulated properly, AI judgment-making can perpetuate and even strengthen biases to generate unfair or unjust results. For instance, AI systems applied to recommend penalties or to set bail might unwittingly favor or discriminate against specific groups of people according to historical patterns of judgment by the courts. This creates deep social and ethical implications regarding the limits of entrusting the legal judgment-making to technology, especially where judgment needs empathy, judgment call-making by humans, and a sense of the surroundings. Safeguards need to be put into practice by the legal systems to ensure that AI applications within the legal frameworks are aligned with the principles of justice and fairness.²

¹ Delgado et al. 'Bias in algorithms of AI systems developed for COVID-19: A scoping review' [2022] 19(3) *Journal of Bioethical Inquiry* 200.

² Hannes Westermann et al., 'Artificial Intelligence in the Legal Domain: The Challenges of AI Hallucinations and Their Ethical Implications' [2023] 30(2) *Artificial Intelligence and Law* 125

² Ferreira, A. 'The (un)ethical womb: The promises and perils of artificial gestation' [2022] 19(3) *Journal of Bioethical Inquiry* 223.

² Ibid

² Gouvea R, Linton J, Montoya M, Walsh S. 'Emerging technologies and ethics: A race-to-the-bottom or the top?' [2012] 109(4) *Journal of Business Ethics* 553–567

² Klein, A.Z. (2022) 'Ethical Issues of Digital Transformation' [2022] 28 *Organizacoes & Sociedade Journal*, 443-448; Friedman, B. and Nissenbaum, H. 'Bias in Computer Systems' [1996] 14 *ACM Transactions on Information Systems*, 330-347.

² Grunwald A. The objects of technology assessment. Hermeneutic extension of consequentialist reasoning'



Beyond algorithmic prejudice, AI-powered legal systems also undermine the traditional human-oriented character of legal rationality. Law is not a mere apparatus of rules and procedures; law is embedded with human ethics, morality, and changing social mores. Interpretation of law and the administration of justice often call upon a comprehension of the emotions of individuals, their intent, and their culture, all of which AI is not equipped to fully appreciate.² AI can readily sort out legal information and forecast the outcome of a case with ease, but AI is not equipped to appreciate the ethics, morality, and social sensitivities that enter into the administration of justice by the judge and lawyer. The increasing use of AI to aid legal judgment thus creates apprehension about the erosion of the role of human judgment in the administration of justice.² Legal experts must find a way to exploit the strengths of AI to enhance the speed of justice while maintaining the elements of human judgment that are central to a just and equitable justice delivery system.

As technology increasingly influences the social landscape of the law, its potential to improve access to justice needs to be managed with caution to avert unwanted side effects. Where digital courtrooms, AI-powered legal software, and web-enabled systems of dispute resolution are of considerable value, digital exclusion, the potential of algorithms to discriminate, and the erosion of the role of judgment by humans are considerations that need to be addressed with care.² To preserve an equitable justice system, legal institutions need to craft inclusion-oriented policies, introduce ethics-oriented safeguards, and find a harmonious balance between the advancements of technology and the very human principles that inform legal rationalism.

Economic Implications of Technological Integration

Technology has transformed the economic landscape of the legal sector to the very root of the delivery of legal services, their organization, and their pricing. Perhaps the most significant change is the automation of a number of legal processes by way of AI and machine learning technologies. AI-driven analysis of contracts can quickly scan, decode, and distill key clauses of contracts with a considerable reduction of time involved compared to the traditional hand-driven examination.² Similarly, AI-powered research software can scan extensive legal databases within seconds to provide lawyers with applicable case law, legislation, and precedents quicker than traditional research methodologies permit.³ Case management software is also being increasingly AI-powered to automate back-end functions, track case status, and manage paperwork. All this innovation is not only increasing the productivity of law firms but also reducing the cost of operations to enable the firms to deliver price competitiveness to their clients. However, the greater usage of AI and automation also generates apprehension about the quality of results, ethics involved, and the excessive usage of

[2020] 7(1) *Journal of Responsible Innovation*. 96–112.

² Ibid

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² Grunwald A. *Technology assessment in practice and theory* (Abingdon, Oxon: Routledge; 2019) 66.

² Grunwald A. The objects of technology assessment. Hermeneutic extension of consequentialist reasoning' [2020] 7(1) *Journal of Responsible Innovation*. 96–112.

² Nagar, P., The Power of Technology: Driving Efficiency and Productivity in Business.(2024). Available at <<https://www.linkedin.com/pulse/power-technology-driving-efficiency-productivity-business-nagar>> accessed on 18 February 2025; Soni, A., Technology in Business Communication: Examples, Advantages & Types (2023). Available at <<https://clearinfo.in/blog/technology-in-business-communication/>>accessed on 18 February 2025

³ Kendal E. Ethical, Legal and Social Implications of Emerging Technology (ELSIET) Symposium' [2022] 19(3) *J Bioeth Inq*. 363-370.



technologies in judgment-making by lawyers.³

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While automation is good in efficiency, it affects employment more. In fact, many legal tasks are taken over by AI systems and the former Junior Associates, Paralegals, and Legal Researchers now seem unneeded. With such a change, there arise questions concerning the displacement of jobs and the changing functions in firms.³ The assumption that entry-level legal positions create a way for law practice newcomers to acquire experience now seems increasingly replaced by automation tools, which may impede further entrance into the profession for recent graduates. Technology is also altering the billing system in the legal industry. Lawyers in the past billed their clients based on hours of work because they used to make mistakes perfectly. However, with the effectiveness of AI tools, the shift has been toward fixed-fee or value-based pricing models.³ Clients now expect faster turnaround times and lower costs due to automation, prompting law firms to rethink their pricing strategies and service delivery models. Additionally, legal professionals must adapt their skill sets to remain competitive in a tech-driven environment. Lawyers are increasingly required to develop technological proficiency, including familiarity with AI-driven tools, data analytics, and cybersecurity measures.³ Legal education is also evolving to incorporate courses on legal technology, ensuring that future lawyers are prepared for the digital transformation of the legal sector.

Another major technology that is affecting the economic landscape of the legal sector is blockchain technology and smart contracts. Blockchain, a digital ledger that is distributed and cannot be altered, is revolutionizing legal transactions by making them more transparent, secure, and efficient. Its most significant impact on the practice of law is the deployment of smart contracts—autonomous contracts with the terms and conditions embedded directly into code.³ Smart contracts carry out the terms of the contracts upon the occurrence of certain conditions being satisfied without the need for the intervention of lawyers, notaries, or escrow agents. It significantly minimizes the cost of the transaction and the time involved to carry out the contracts, especially in the financial sector, real estate sector, and supply chain management sector. Nevertheless, the advent of smart contracts also challenges the traditional law of contracts.³ Given that smart contracts are autonomous, legal challenges that arise due to mistakes, deception, or the emergence of certain unforeseen events might not easily be

³ Maderis, G., Top 22 Benefits of Chatbots for Businesses and Customers. <https://www.zendesk.com/blog/5-benefits-using-ai-bots-customer-service/> accessed on 18 February 2025; The Upwork Team (2023) The Impact of AI on Data Analytics (2023). Available at <<https://www.upwork.com/resources/ai-data-analytics>>accessed on 18 February 2025; FasterCapital, What Are the Challenges of Using Technology in Business (2024). Available at <<https://fastercapital.com/questions/What-are-the-challenges-of-using-technology-in-business.html>>accessed on 18 February 2025

³ Susser, D., Roessler, B. and² Nissenbaum, H. 'Online Manipulation: Hidden Influences in a Digital World' [2018] 4 *SSRN Electronic Journal*, 1-45.

³ Ibid

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³ Trevino, L.K. 'Ethical Decision Making in Organizations: A Person-Situation Interactionist Model' [1986] 11 *Academy of Management Review*, 601-617.

³ PNJ Technology Partners, Top Challenges Faced by Businesses Adopting New Technology (2024). Available at <<https://www.pnjtechpartners.com/top-challenges-faced-by-businesses-adopting-new-technology/>>accessed on 18 February 2025; Strong, T., Navigating the Risks: How Technology Poses Threats to Your Business (2024). Available at <<https://www.reacpa.com/insight/navigating-the-risks-how-technology-poses-threats-to-your-business/>>accessed on 18 February 2025

³ Kendal E. Ethical, Legal and Social Implications of Emerging Technology (ELSIET) Symposium' [2022] 19(3) *J Bioeth Inq.* 363-370.



addressed by traditional legal means. Additionally, the issue of jurisdiction, enforceability, and liability of smart contracts is still pending, requiring novel frameworks of regulation to regulate blockchain-enabled contracts.³

As technology increasingly influences economic change within the legal domain, the various constituents must balance the imperative to enhance efficiency with the imperative to uphold ethics and professionalism. While automation, AI, and blockchain are extremely beneficial with regards to cost savings and the delivery of service, they present unique challenges to the domains of work, legal education, and regulation.³ Policymakers, law schools, and law firms must work together to develop adaptive strategies that capitalize on the strengths of the technology while also addressing its potential disruption. In embracing the innovations of technology with responsibility, the legal domain can deliver economic benefits without undermining fairness, responsibility, and access to justice.

Ethical Considerations in Technological Adoption

Technology has introduced complex ethics into the legal arena with regards to AI-driven decision-making, confidentiality of information, cybersecurity, and responsibility within automated legal processes. While technologies have made legal service delivery more efficient and accessible, their ethics must be critically assessed to deliver fairness, justice, and transparency. One of the most urgent ethics concerns is AI and algorithmic bias within legal decision-making. AI systems are increasingly being applied to predictive policing, risk assessment of individuals to grant them bail or impose a sentence upon them, and the analysis of contracts.³ AI systems are built⁹ upon large datasets to find patterns and provide recommendations. Yet, since AI models are being trained on historical court data, they can perpetuate existing biases unintentionally and even exaggerate them.

However, if historical court decisions have had built-in racial, gender, or socio-economic biases within them, AI-driven systems can perpetuate prejudiced patterns instead of eliminating them. For instance, certain AI systems applied to the justice sector have been shown to systematically tag individuals belonging to vulnerable communities with a "high-risk offender" tag without proper reasons, causing fairness concerns regarding due process. The "black box" issue of AI decision-making also worsens this issue.⁴ Many AI models work with intricate algorithms that are hard to decode, making it hard to know the logic of the resultant decisions. It becomes hard to question the fairness of the AI-driven decisions due to the inability to know the logic of the resultant decisions. It is necessary to have continuous scrutiny of AI systems to ensure fairness within AI-driven legal decisions by being transparent about the algorithms being built,

³ Kaniemozhi A/P Katheravan, Puvanamathi A/P Mathiallahan, Nabeel Mahdi Althabhwai, 'Science and Technology's Influence on Law: The Perspective of Jurisprudence' [2022] 1(2) *Economic Growth and Environment Sustainability* 32-35.

³ Kang, D. 'The Impact of Artificial Intelligence on Investment Bank in Central Africa-Cameroon (2022). Available at <<https://www.researchgate.net/publication/358711677>>accessed on 18 February 2025

³ Mittelstadt, B. D., Stahl, B. C., and Fairweather, N. B. 'How to shape a better future? Epistemic difficulties for ethical assessment and anticipatory governance of emerging technologies' [2015] 18 *Ethical Theory and Moral Practice* 1027-47.

⁴ Vizion (2024) The Role of Technology in Regulatory Compliance: Leveraging Analytics to Meet Global Standards (2024). Available at <<https://www.vizionapi.com/blog/the-role-of-technology-in-regulatory-compliance-leveraging-analytics-to-meet-global-standards>>accessed on 18 February 2025



providing means of scrutiny by humans to overcome the threat of automated prejudice.⁴

Another ethical issue that arises in the digitization of law is data privacy and cybersecurity. With increasing reliance on cloud storage, digital records, and internet communication in legal procedures, protecting sensitive legal information is essential.⁴ Law firms, courts, and government agencies maintain billions of pages of confidential client information, including personal, financial, and proprietary data. This information, if exposed by a cybersecurity incident or unauthorized access, can compromise legal proceedings and destroy attorney-client privilege while exposing individuals to significant harm. Increasing access to AI for legal research raises questions about the ownership of data used and the ethics surrounding its use.⁴

Large datasets are needed for many AI-powered legal platforms to perform well, but questions remain regarding who owns that data and how it is safeguarded. Data breaches in the legal sector have already demonstrated the risks associated with insufficient cybersecurity measures, emphasizing the need for stringent data protection protocols. Legal professionals must adopt advanced encryption technologies, multi-factor authentication, and strict data governance policies to protect sensitive information from cyber threats. Additionally, regulatory frameworks such as the General Data Protection Regulation (GDPR) and other data protection laws must be continuously updated to address emerging cybersecurity risks in the legal industry.⁴

Another critical ethics issue is responsibility and transparency of AI-powered legal analysis. With AI systems increasingly involved in legal analysis and decision-making, holding AI-powered legal decisions accountable becomes increasingly problematic. Compared to lawyers, lawyers, or legal experts, AI is without the exercise of moral judgment and ethics analysis—it functions strictly according to programming logic and probabilistic calculations.⁴ If the AI-powered system comes to a wrong or unjust judgment, holding responsibility is problematic. Is the responsibility to fall on the designers of the AI, the legal experts that deploy the AI, or the institutions that deploy AI-powered decision-making? The issue is largely unresolved and poses serious ethics challenges. Transparency is central to the purpose of ensuring that AI-powered legal analysis is compatible with the foundations of justice.⁴ Judicial institutions must develop transparent protocols regarding the involvement of AI in the making of decisions, introduce systems of reviewing AI-powered legal judgments, and avoid the exercise of AI-powered analysis replacing the exercise of judgment in the case of judgments that must consider morality and the circumstances of a case.⁴

As technology becomes a growing impact on the ethics of the law, a proper balance between ethics and innovation is imperative. AI-driven legal software must be developed with fairness,

⁴ Moor JH. 'Why we need better ethics for emerging technologies' [2005] 7(3) *Ethics and Information Technology* 111–119

⁴ Ibid 2

⁴ Palm E, Hansson SO. 'The case for ethical technology assessment (eTA)' [2006] 73(5) *Technological Forecasting and Social Change*. 543–558.

⁴ Ibid 4

⁴ Kendal E. 'Ethical, Legal and Social Implications of Emerging Technology (ELSIET) Symposium' [2022] 19(3) *J Bioeth Inq*. 375.

⁴ Ibid 6

⁴ Kendal E. 'Ethical, Legal and Social Implications of Emerging Technology (ELSIET) Symposium' [2022] 19(3) *J Bioeth Inq*. 380.



responsibility, and transparency at their centre while robust measures of protection of the data must be implemented to preserve confidential legal information.⁴ The legal fraternity must remain constantly engaged with the development of ethics frameworks and regulation to ensure that the law is served by the technologies rather than being compromised by them. With the proactive management of the ethics involved, the legal systems can avail the potential of the technologies while preserving the integrity of the law intact.

Jurisprudential Perspectives on Technology Integration

Legal Positivism

Legal positivism stresses that legislation must be made by way of formal legislation and judiciary without reference to morality or ethics. In the age of technology, legal positivism is supportive of the belief that novel technologies like AI, blockchain, and automated legal services need to be regulated by well-delineated legislation and legal frameworks.⁴ With the speed at which the technologies are evolving, the legislatures are challenged with the responsibility of coming up with legislation and regulations that can keep up with the pace of change while maintaining consistency and determinability of legal determinations.⁵

One of the key areas of worry with respect to legal positivism is the potential legal vacuum that can arise due to technological advancements. Conventional legal systems might fail to comprehensively deal with the implications of AI-powered legal analysis, digital contracts, or automated decision-making.⁵ Codified legislation is needed to provide definitive legal principles of liability, responsibility, and fairness within technology-driven legal systems. For instance, AI-powered sentencing software applied to the justice sector needs to work within established legal frameworks to avoid infringing on key legal rights or principles of due process.⁵ In the opinion of legal²positivists, codified legislation offers a disciplined way of dealing with the threats of technology like algorithmic prejudice, breaches of personal information, and illegal access to legal documents.⁵

Despite its emphasis on codified legislation, legal positivism also accounts for the inability of inflexible legal codes to adapt to the disruption of innovation. Breakneck innovation often outgrows the law, leaving loopholes that can be exploited to the law's detriment. To solve this problem, some legal positivists urge dynamic and adaptive legal systems that allow regular updates and reinterpretation by the judiciary. In this manner, legal systems are kept dynamic while maintaining the determinability and consistency that is the hallmark of justice.

Natural Law Theory

Natural law theory argues that the law should have its foundations in morality principles and

⁴ Hannes Westermann et al., 'Artificial Intelligence in the Legal Domain: The Challenges of AI Hallucinations and Their Ethical Implications' [2023] 30(2) *Artificial Intelligence and Law* 130.

⁴ Grunwald A. 'The objects of technology assessment. Hermeneutic extension of consequentialist reasoning' [2020] 7(1) *Journal of Responsible Innovation*. 96–112.

⁵ Ibid

⁵ Grunwald A. *Technology assessment in practice and theory* (Abingdon, Oxon: Routledge; 2019) 123.

⁵ McKamey, M., 'Legal Technology: Artificial Intelligence and the Future of Law Practice, Appeal: Review of Current Law and Law Reform' [2017] 42 *Can LIIDocs* 70

⁵ Klein, A.Z., 'Ethical Issues of Digital Transformation' [2022] 29 *Organizacoes & Sociedade Journal*, 443-448.



principles of man's universal rights rather than statutory provisions. In the case of AI-driven legal analysis and the emergence of technologies, the theory of natural law is interested in the ethics of automated judgment-making and the impact that this will have upon justice, fairness, and man's dignity.⁵

One of the major ethical challenges raised by AI in legal analysis is that AI systems are without a sense of morality. AI systems operate on logic and information but without a sense of considering the emotions of humans, the ethics of a case, or the circumstances of a case that can inform a legal judgment.⁵ For example, AI-driven systems of risk analysis applied to the justice system could predict the likelihood of a repeat of a crime by taking into account statistical information without considering personal attempts to reform, mental illness, or socio-economic status.⁵ Philosophers of natural law argue that the reduction of legal judgment to algorithms can undermine the morality of justice by potentially giving way to arbitrary conclusions.⁵

Another ethical issue with the theory of natural law is the intrinsic prejudice of AI models. AI systems are educated by learning about past legal information, so they can perpetuate existing biases within society and discriminate accordingly. If the past legal judgments are racially, gender-wise, or economically prejudiced, then AI models that are educated on the basis of this information will perpetuate the existing inequities instead of eliminating them. It goes against the very principles of the theory of natural law that promote justice, fairness, and equality.⁵ To overcome this issue, the theory of natural law stresses the need to have ethics to guide AI models to promote fairness, equality, and justice at all levels of the legal apparatus.

Natural law theory also complements this view by supporting the idea that legal decisions should place greater emphasis on human dignity and social justice than on the mechanical application of law. AI may help make the process more productive, but judgment in cases where empathy, ethical reflection, or a discretion choice is needed should remain with humans. Legal systems must develop codes of ethics that will incorporate into AI-inspired legal reasoning elements of morality so that technology will aid justice and not be detrimental to it.

Critical Legal Studies

Critical legal studies (CLS) challenge the traditional image of law as a value-neutral and objective institution by arguing that legal systems have a propensity to reinforce current

⁵ Lon L. Fuller, *The Morality of Law* (revised edn, Yale University Press 1969) 108.

⁵ John Finnis, *Natural Law and Natural Rights* (2nd edn, OUP 2011); Dove, I.L., 1996. Legal Expert Systems: The End of Jurisprudence (1996). Available at <https://journaloflegalstudiesinbusiness.files.wordpress.com/2015/09/les_1996_1to28.pdf> accessed on 18 February 2025.

⁵ Kaniemozhi A/P Katheravān, Puvanamathi A/P Mathiallahan, Nabeel Mahdi Althabhwari 'Science and Technology's Influence on Law: The Perspective of Jurisprudence' [2022] 1(2) *Economic Growth and Environment Sustainability*, 32-35.

⁵ Susskind, R.E., 1986. Expert Systems in Law: A Jurisprudential Approach to Artificial Intelligence and Legal Reasoning (1986). Available at <<https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1468-2230.1986.tb01683.x>> accessed on 18 February 2025.

⁵ Timothy Endicott, 'The Logic of Natural Law' [2001] 20(3) *Oxford Journal of Legal Studies* 431; Frank Pasquale and Glyn Cashwell, 'Prediction, Persuasion, and the Jurisprudence of Behaviourism' [2018] 68(1) *University of Toronto Law Journal* 63; Mireille Hildebrandt, 'Algorithmic Regulation and the Rule of Law' [2018] 376 *Philosophical Transactions of the Royal Society A* 1



structures of power, inequities, and social hierarchies. For the case of technology and legal argumentation, CLS examines the means by which AI, automation, and digital legal technologies can end up favoring certain groups to the detriment of others.⁵

9

One of the central concerns of the CLS thinkers is the digital divide and the question of unequal access to legal technologies. AI-driven legal services, web-enabled courtrooms of justice, and digital courtrooms have facilitated access to justice among a segment of the society while also being a challenge to others with no digital skills, financial capabilities, or stable access to the web.⁶ Marginal groups like the poor, the aging, and the residents of the periphery can find the digital-driven justice systems inaccessible to them, increasing the prevailing disparities of access to justice and representation by lawyers. CLS emphasizes the need to have equal access to technologies to prevent the exclusion of vulnerable groups of individuals from digital justice systems.⁶

Another critical aspect is the commercialization and privatization of legal technology. Numerous AI-powered legal instruments are being built by and owned by private entities, with implications of a loss of transparency, the undue influence of the corporation, and the commodification of justice.⁶ CLS thinkers argue that if legal decision-making instruments are owned by the technology sector, then the potential exists that the pursuit of profits will supersede fairness and neutrality. For instance, the algorithms of predictive policing by law enforcement agencies are usually owned by the company that built them, meaning that their internal logic is not open to public examination.⁶ It is this loss of transparency that compromises the responsibility of AI-powered legal systems and creates the question of who ultimately gains from the technologies of law.

CLS also criticizes the way AI perpetuates biases within the institutions of the law. AI-powered automated systems could unintentionally privilege major social groups at the expense of the oppressed communities. For example, certain AI-powered hiring systems have been shown to discriminate against minorities and women by perpetuating the biases that are present within the existing hiring patterns of the past.⁶ In the legal sphere, according to CLS thinkers, AI could reproduce the patterns of prejudice that are present within the current systems of criminal justice, immigration law, and litigation by the companies if they are not properly monitored.⁶

Case Studies and Implications

The integration of AI into the practice of law yielded both positive innovations and serious challenges, documented by actual case studies. Of particular note is the case of AI-caused legal gaffes, with lawyers being disciplined due to submitting AI-generated, falsified case citations

⁵ Grunwald A. *Technology assessment in practice and theory* (Abingdon, Oxon: Routledge; 2019) 109.

⁶ Ibid

⁶ Davis, J.P., *Artificial Wisdom? A Potential Limit on AI in Law (and elsewhere)* (2019). Available at <<https://digitalcommons.law.ou.edu/cgi/viewcontent.cgi?article=1377&context=olr>> accessed on 18 February 2025.

⁶ Ibid

⁶ Frank Pasquale and Glyn Cashwell, 'Prediction, Persuasion, and the Jurisprudence of Behaviourism' [2018] 68(1) *University of Toronto Law Journal* 63; Mireille Hildebrandt, 'Algorithmic Regulation and the Rule of Law' [2018] 376 *Philosophical Transactions of the Royal Society A* 1

⁶ Hannes Westermann et al., 'Artificial Intelligence in the Legal Domain: The Challenges of AI Hallucinations and Their Ethical Implications' [2023] 30(2) *Artificial Intelligence and Law* 137.

⁶ Ibid



to the court.⁶ In a number of documented events, lawyers relying on AI software to carry out legal research unwittingly included falsified case law into court paperwork. It exposed the perils of AI outputs without the reins of checking by humans and the potential to introduce deceptive or inaccurate legal premises into the court of record. These kinds of cases serve to caution about the dangers of excessive reliance on AI without the intervention of humans, stressing the need to thoroughly crosscheck AI-generated legal material.⁶ The implications of the errors go well beyond the involved legal professionals to potentially undermine the legitimacy of legal proceedings and the trustworthiness of AI-powered legal research.⁶

Judicial responses to the deployment of AI have increasingly moved toward the regulation and minimization of the threats of AI-produced legal documents that cannot be verified. Courts have begun to implement measures to authenticate the validity of legal submissions, such as the requirement of lawyers to sign off the authenticity of their reference material.⁶ Jurisdictions have also made requirements to disclose the use of AI within their submissions to reinforce the need to have transparency within AI-powered legal analysis. These interventions by the judiciary are a sign of growing recognition that while AI can enhance legal research and the speed of the process, AI cannot replace the intrinsic role of man-in-the-loop authentication and ethics responsibility.⁷ The institution of stricter protocols of authentication is a protection measure to preclude abuses of AI within the legal process or inaccuracies introduced by AI within the legal process.

Despite these challenges, AI has had a considerable impact on legal scholarship. AI-powered software is revolutionizing legal research by identifying emerging patterns, analyzing vast case law, and drawing conclusions that could take human researchers much longer to discover. Scholars and lawyers have applied AI to conduct comparative legal analysis, predict case outcomes, and ease complex legal drafting. However, while AI-enhanced legal scholarship maximizes effectiveness and access to legal information, AI also serves to reinforce the value of human judgment. Ethical management is central to ensuring that AI-driven conclusions are valid, impartial, and context-sensitive. With AI increasingly re-engineering the legal landscape, a harmonious blend of technological innovation and human expertise will be central to preserving the validity of legal scholarship and practice.

Balancing Technology and Legal Principles

As technology is re-engineering legal systems, striking a balance between innovation and the principles of law is imperative. While technologies like AI, blockchain, and automation have increased the speed of justice delivery and access to justice, they also pose challenges that need to be addressed by prudent legal regulation. Strong regulatory frameworks are necessary to deal with emerging legal challenges of the technologies. Conventional legal frameworks might

⁶ *Mata v Avianca, Inc* (SDNY, No. 22-cv-1461, 2023) –

⁶ Ibid

⁶ Schroeder, M.J., The Case of Artificial vs. Natural Intelligence: Philosophy of Information as a Witness, Prosecutor, Attorney or Judge? (2017). Available at <<https://www.mdpi.com/2504-3900/1/3/111/pdf>> accessed on 18 February 2025.

⁶ Surden, H., Artificial Intelligence and Law: An Overview (2019). Available at <<https://core.ac.uk/download/pdf/228315501.pdf>> accessed on 18 February 2025.

⁷ American Bar Association, 'Artificial Intelligence and Legal Ethics: Guidelines for Responsible Use' (ABA, 2023). Available at <https://www.americanbar.org/groups/professional_responsibility/> accessed 20 February 2025



not fully support the intricacies of AI-driven judgments, smart contracts, or digital evidence, causing potential legal vacuums.⁷ In the absence of well¹-delineated legal frameworks, AI-generated contracts-related disputes or biases of algorithms within the judgments of the courts could turn out to be hard to solve. Governments and the judiciary need to frame the necessary regulatory measures that will keep the technologies aligned with the key principles of law like fairness, responsibility, and transparency.⁷ Legal frameworks need to provide normative frameworks of ethics of AI usage within the legal environment, impose human intervention within automated judgments, and provide well-delineated rules of data protection and cybersecurity. Laws need to remain dynamic to accommodate periodic amendments to keep them aligned with the pace of the emerging technologies.⁷ ³

Another critical aspect of harmonizing technology with legal principles is the reform of legal training and continuing professional development. With digital technologies being increasingly applied to the practice of law, lawyers and judges must have the skills to work within a technology-enabled legal environment. Traditional legal training is directed toward doctrinal law and case analysis with minimal focus on the skills of working technologies.⁷ To bridge this knowledge divide, law schools must include courses on legal tech, AI ethics, and cybersecurity in their curricula. Continuing professional training courses must also be instituted to provide practicing lawyers with information about emerging technologies that touch upon legal processes. Knowledge of AI-driven legal research, automated drafting of contracts, and digital evidence authentication will enable legal specialists to work with technology properly and support the proper usage of the latter within the legal environment.⁷ ⁴

A multidisciplinary approach is called upon to ensure that the law is served by the technology rather than undermined by the latter. Where law ethics meet technology is where legal scholars, technologists, policymakers, and ethicists need to collaborate. Technical expertise needs to feed into the legal frameworks to ensure that the law is both practicably enforceable and implementable with existing technologies. AI within the legal systems also needs to have ethics guide its development and deployment to prevent prejudice and discriminatory outcomes. Moreover, collaboration between legal and technological experts can lead to the development of tools that enhance justice, such as AI systems designed to detect unfair treatment or improve access to legal assistance for marginalized communities. By integrating these perspectives, the legal system can harness technological advancements while upholding justice, fairness, and the rule of law. ⁵

CONCLUSION

Technology has inevitably revolutionized legal thinking, affecting the social, economic, and

⁷ Moor JH. 'Why we need better ethics for emerging technologies' [2005] 7(3) *Ethics and Information Technology*. 111–123.

⁷ Stahl, B. 'Ethical Issues of Information and Business' In: Himma, K.E. and Tavani, H.T., Eds., *Handbook of Information and Computer Ethics* (John Wiley & Sons, Inc., 2009) 311–335.

⁷ Palm E, Hansson SO. 'The case for ethical technology assessment (eTA)' b[2006] 73(5) *Technological Forecasting and Social Change*. 543–558.

⁷ Ibid ⁴

⁷ Martin, K., Shilton, K. and Smith, J. 'Business and the Ethical Implications of Technology: Introduction to the Symposium' [2017] 169 *Journal of Business Ethics*, 307–317.



normative aspects of the legal sphere. While the advancements of AI, automation, and digital technologies have increased efficiency, access to justice, and legal decision-making capabilities, they have also raised major challenges. Challenges like the potential of algorithms to perpetuate biases, threats to personal information due to digital technologies, and the displacement of workers within the legal sector underscore the intricacies of incorporating technologies into the legal systems. Jurisprudential theories are insightful into the change with legal positivism promoting the codified law to govern technologies, the theory of natural law focusing on ethics and morality considerations, and the critical legal studies revealing the perpetuation of power disparities and the embedded inequities by digital legal technologies.⁷

Given the two-pronged nature of the advancements of technology—both positive and disrupting—it is imperative to have a well-balanced approach to integrating the technology into legal reasoning. The frameworks of the regulation must change to accommodate emerging challenges to permit the laws to remain dynamic while preserving the bedrock of the principles of law intact. Guidelines must be established to regulate AI-powered legal decision-making to preclude biases and enhance responsibility. Training of lawyers and judges must change to equip them with the skills to navigate a constantly changing digital landscape. It is crucial that a multi-disciplinary approach is followed with the participation of legal experts, technologists, ethicists, and policymakers to craft legal systems that exploit the strengths of the technologies without undermining justice and fairness.⁷

The future of legal reasoning will be defined by the capacity of legal institutions to adapt to continuous innovation. With increasingly complex AI capabilities, blockchain changing the terms of contracts, and automation of legal processes, the legal frameworks must also remain dynamic and adaptive. The solution will lie in the ability to have the advancements of technology aligned with the very principles of justice, the protection of human rights, and the integrity of the law. Technology can enhance legal reasoning without replacing the judgment of humans, the ethics of reflection, and the social considerations that are the hallmark of a justice-oriented legal system. An innovative approach that integrates the best of the technology while preserving the principles of the law will have to shape a legal environment that is highly technological while being inherently equitable.

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⁷ Ibid



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