

Enhancing Efficiency Through Smart Litigation and Automated alternative Dispute Resolution

فعالية التقاضي الذكي والوسائل البديلة المؤتمتة لحل النزاعات



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Abstract:

Artificial intelligence is revolutionizing the legal sector by automating judicial processes, enhancing efficiency, and reducing litigation time. AI-powered systems support case management, legal research, and predictive analytics, enabling judges and lawyers to make data-driven decisions. Additionally, AI is integrated into alternative dispute resolution methods, such as online mediation and arbitration, streamlining conflict resolution. However, this article concerns about transparency, accountability, and potential biases in AI-generated rulings persist.

key words: Artificial intelligence; Predictive Justice; smart criminal justice, algorithms, Automated alternative dispute resolution.

المخلص:

يحدث الذكاء الاصطناعي تحولاً في القطاع القانوني من خلال أتمتة العمليات القضائية، مما يعزز الكفاءة ويقلل مدة التقاضي. تدعم الأنظمة الذكية إدارة القضايا، والبحث القانوني، والتحليلات التنبؤية، ما يساعد القضاة والمحامين في اتخاذ قرارات مستندة إلى البيانات. كما يُدمج الذكاء الاصطناعي في الوسائل البديلة لحل النزاعات، مثل الوساطة والتحكيم عبر الإنترنت، لتسريع التسوية. ورغم فوائده، تظل قضايا الشفافية والمساءلة والانحياز محل جدل، مما يستدعي تنظيمًا دقيقًا لضمان التوازن بين الابتكار والعدالة.

الكلمات المفتاحية: الذكاء الاصطناعي؛ العدالة التنبؤية؛ العدالة الجنائية الذكية؛ الخوارزميات؛ التسوية البديلة للنزاعات المؤتمتة.

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Introduction:

Improving the understanding of how information technology can support the administration of justice and address the major challenges faced by judiciaries is undoubtedly a worthwhile endeavour. In some judicial systems the prevailing perception is that the most pressing issue related to IT is a lack of understanding of the technology itself. However, a deeper understanding of technology is not the correct starting point for researching this subject. The initial focus should be on the other end of the spectrum: understanding court processes and the role of information within them. Secondly, improving these processes necessitates identifying and comprehending the existing problems. Therefore, the first inquiry revolves around determining the most urgent challenges. the second question seeks to explore the role of information within the context of these challenges." three major complaints have been heard that can still be heard today: court processes take too long, courts are difficult to access, and judges are corrupt. The Limitations on the scope of the study is AI support for courts and judiciaries in the light of delay, access and integrity¹. Court systems have developed over centuries, each in its own political, economic and social context. The resulting court systems vary considerably. In a precursor of the use of information technology in the courtroom the war crimes tribunals after World War II employed film material and simultaneous translation. Types of IT Used by the International Criminal Court: video and audio recordings of the court sessions, simultaneous interpretation, electronic court reporting, videoconferencing for witness hearings, and electronic files. Moreover, the tribunals maintain web sites with their decisions, backgrounds information, and sounds and images from the courtroom.

the European Court of Human Rights was burdened with large numbers of complaints about undue delay in court procedures in the Council of Europe (COE) member countries This was one of the reasons for setting up the Council of Europe's program for the efficiency of justice. The program is run by the

¹ - Nawal Bouabdallah, *Electronic Litigation as a Mechanism for Modernizing the Justice Sector*, *Al-Basair Journal for Legal and Economic Studies*, vol. 1, no. 3 (2021): pp. 94-109, <https://asjp.cerist.dz/en/article/183337> Farida Ben Othmane, *Artificial Intelligence: A Legal Approach*, *Notebooks of Politics and Law*, vol. 12, no. 2 (2020): pp. 156-168, <https://asjp.cerist.dz/en/article/115641>.

Boumediene Belbaki, *The Law of Justice Modernization and Its Impact on Achieving the Fundamental Principles of Litigation: A Reading of Law No. 15/03 Dated February 1, 2015, on the Modernization of Justice*, *Journal of Legal and Social Sciences*, vol. 6, no. 4 (2021): pp. 1274-1287, <https://asjp.cerist.dz/en/article/170253>.

European Commission for the Efficiency of Justice, called CEPEJ after its French acronym. the Council of Europe, in particular the European Committee on Legal Co-operation (CDCJ), consider it necessary, todraft new international legal instruments or amendments to existing ones, for adoption by the Committee of Ministers To improve justice systems' efficiency and functioning,and based on this, we will pose the following main question, which we will address in this article:**What are the comparative effectiveness and potential outcomes of using artificial intelligence for preventive legal intervention versus judicial resolution in overburdened court systems?**

To achieve this task, the first step is to better understand and establish a concept for artificial intelligence, exam its limits and liabilities and finally evaluate in which tasks it excels or struggles.

First Title:impacts of artificial intelligence algorithms on judicial decision-making

Many mistakenly believe that AI can replace lawyers and judges, offering flawless legal solutions. However, AI is not infallible, and its capabilities remain evolving. AI primarily automates specific tasks that require intelligence when performed by humans. Key concepts such as Machine Learning (ML)¹, Large Language Models (LLMs)², and Generative AI, while closely related, serve different functions within AI applications. Understanding these distinctions is crucial to assessing AI's role in legal decision-making.

The first requirement:Principles of Quality to smart Litigation

Artificial intelligence lacks the ability to replicate human empathy, which is essential in judicial proceedings, particularly in ensuring a fair trial by a jury of peers or by a natural judge, as seen in the Brazilian legal system. The ability of judges or jurors to place themselves in the position of plaintiffs or defendants

¹ - ML is a specific subset or application of AI that deals with showing systems how they can learn and adapt based on past experience without being programmed for it. ML forms the backbone of many AI systems. ML algorithms are employed to train AI models by supplying them with datasets encompassing labeled examples or historical data. Next, the model learns how to find patterns within the training data, allowing it to make predictions or decisions about new, unseen data.

² - The LLM is just a sort of Generative AI, in which we train on huge data to generate feasible content. Large language models are foundation models, on which a variety of natural language processing (NLP) tasks can be built. An LLM is a language model that can, on input (a passing sentence or a prompt), produce an output — sentences or even paragraphs, consistent and contextual with the input. The model incorporates lots of techniques including neural networks.

is a fundamental aspect of justice that AI cannot achieve. Moreover, delegating such critical judicial responsibilities to AI raises ethical concerns, as Strong AI remains incapable of exercising the nuanced reasoning and moral judgment required in legal decision-making¹.

First section: Achieving Quality Litigation and Ensuring a Fair and Expedited Trial

Quality litigation is fundamental to a fair and efficient legal system, ensuring the integrity of judicial proceedings and the protection of individual rights. At its core, the right to a fair trial encompasses key principles such as impartiality, transparency, and equality. Impartiality guarantees that judges and juries remain neutral, making decisions based solely on evidence, free from bias. Transparency, reinforced by open courtroom proceedings, allows public scrutiny and fosters trust in the justice system. Moreover, equality ensures that all parties, regardless of background or resources, have equal rights and opportunities to present their case, reinforcing the foundation of justice.

Firstly: The Use of Artificial Intelligence in Decision-Making Based on Judicial Precedents.

An example of this application is when a judge presents a new case with its details to an intelligent system that relies on judicial precedents. The AI system predicts the ruling based on prior case law data that was inputted during the program's development². This process is known as "**Predictive Justice**"³, which refers to a set of tools developed through the analysis of large-scale

¹ - JACOBSEN Gilson; DIAS Bruno de Macedo. Smart dispute resolution: artificial intelligence to reduce litigation, *ibid.* ; also **Abdou Mohamed**, *The Electronic Court and Its Role in Achieving Fast and Effective Justice. Journal of the Circle for Legal and Political Research and Studies*, **Vol. 6, No. 2**, 2022, p.p. 226-242; Available at: <https://asjp.cerist.dz/en/article/198025>.

² - Mejdoub, Nawal. *Legal Liability Issues of Artificial Intelligence Systems Applications*. Scientific Publishing Group, Three Friends Publishing and Distribution Group, 2022, p. 13 ; Al-Julaud, Arwa bint Abdulrahman. *The Rulings on the Applications of Artificial Intelligence in the Judiciary*. 1st ed. Riyadh: Qada Center for Research and Studies, Saudi Judicial Scientific Society (Qada), 2022, p. 109.

³ - Omar Abdelmajid Musbah, "The Use of 'Predictive Justice' Algorithms in the Criminal Justice System: Prospects and Challenges," *International Journal of Law*, Vol. 10, Regular Issue 1, College of Law, Qatar University, p. 240 in: Al-Harithi, Abdulrahman Ahmed, & Al-Droubi, Ali Mohammed Mohammed. "Litigation Procedures Using Artificial Intelligence: A Jurisprudential and Legal Approach." *Ijtihad Journal for Legal and Economic Studies*, Vol. 14, No. 1, 2025, p.p. 395-419. [Online] Available at: <https://asjp.cerist.dz/en/article/261107>.

judicial data to estimate the likely outcome of legal disputes, such as the **Dalloz predictive computation model**¹.

A)- Difference Between Electronic Litigation and Smart Litigation:

Electronic litigation significantly differs from smart litigation, as the latter serves as an assistant to judges, supporting them in handling all types of disputes and enhancing their decision-making process. Smart litigation involves programming legal data using specific algorithms to make decisions and predict court rulings. AI can analyse legal issues, provide legal advice, summarize case documents, and present relevant legal precedents to administrative judges when resolving disputes². Law 22-13 has advanced electronic litigation, yet smart litigation remains underdeveloped despite global progress in some countries. Algeria has gradually built its administrative judicial infrastructure, establishing the Council of State, administrative courts, and six Administrative Courts of Appeal, later expanding to 58 courts under Executive Decree 22-435 to improve accessibility. To enhance efficiency, modern technology was integrated, distinguishing electronic administrative litigation through digital documents, virtual proceedings, online fee payments, and electronic evidence, streamlining processes and reducing physical court visits³. Law 22-13, aligned with Law 15-03 on justice modernization, officially permits electronic administrative

¹ - Dondero, Bruno. *Justice Predictive: The End of Judicial Uncertainty*. Affaires | Civil, Dalloz, 2017, p. 532.

² - Iria Giuffrida highlights critical risks in AI, including coding flaws, biased training data, and unpredictable self-modifications, which complicate error tracing and liability assignment. In the legal sector, AI's growing role in litigation and judicial procedures raises concerns about transparency, accountability, and regulatory oversight Giuffrida, Iria; Lederer, Fredric; and Vermeys, Nicolas, "A Legal Perspective on the Trials and Tribulations of AI: How Artificial Intelligence, the Internet of Things, Smart Contracts, and Other Technologies Will Affect the Law" Faculty Publications, 2007: <https://scholarship.law.wm.edu/facpubs/2007>). Similar discussions have been explored by scholars such as Sabrine Jebaili and Souheila Ben Omran, who analyze AI's role in proposing litigation strategies in the justice sector (Journal of Human Sciences, Oum El Bouaghi University, vol. 9, no. 2, 2022, pp. 716-733, <https://asjp.cerist.dz/en/article/190798>), and Abdulrahman Ahmed Al-Harthi and Ali Mohammed Mohammed Al-Droubi, who examine litigation procedures using AI from a jurisprudential and legal perspective (Al-Ijtihad Journal for Legal and Economic Studies, vol. 14, no. 1, 2025, pp. 395-419, <https://asjp.cerist.dz/en/article/261107>).

³ - Houchet Fouzia. *Artificial Intelligence: What Impact on Administrative Justice?* Al-Mi'yar. Retrieved from <https://asjp.cerist.dz/en/article/258966>, vol. 29, no. 1, 2024, pp. 833-844.

litigation, reinforcing Algeria's commitment to a technologically advanced legal system¹.

B) predictive justice:

The integration of AI in the judiciary enhances decision-making by simplifying case analysis, enabling faster rulings, and ensuring consistency through a unified system based on judicial precedents. However, AI systems must maintain transparency by clarifying their reasoning. Beyond adjudication, AI supports translation, documentation, legal advocacy, and enforcement, adhering to the principle that "everything beneficial is permissible², while harmful things are prohibited." A notable example is China's "Internet Courts,"³ introduced in December 2019, where AI-powered judges handle cases online, eliminating the need for physical court attendance and demonstrating AI's potential in modernizing legal systems.⁴

The "DataJust" algorithm in **France** was developed to establish guideline principles for personal injury compensation. This system has been made available to judges, lawyers, insurance companies, and individuals with personal injuries to calculate and propose the appropriate compensation amount. It also aims to encourage the settlement of such cases outside the courtroom⁵. The **Data**

¹ - Law No. 15-03 of February 1, 2015, relating to the modernization of justice, **Official Gazette of the People's Democratic Republic of Algeria n° 06**, 2015, pp. 3-7.

² - Tara Vasdani, Robot Justice: China's use of Internet Courts, The Lawyer's Daily, LexisNexis, Canada; Benjamin Minhoo Chen & Zhiyu Li, How will Technology Change The Face of Chinese Justice? Columbia Journal of Asian Law, Volume 34, Number 1, Fall 2020, Page1; in: **Fatima Abdelaziz Hassan Ahmed Bilal** (2023). **Smart Litigation in Qatari Courts: Between Reality and Aspirations**. *Journal of Legal and Political Research*, Vol. 3, No. 3, pp. 80-144. <https://asjp.cerist.dz/en/article/230381>.

³ - these courts handle a variety of cases, including intellectual property disputes, e-commerce conflicts, financial disputes, property-related cases, and product liability claims arising from online purchases, As well as some administrative disputes. The People's Republic of China is working to revolutionize its judicial institutions through information technology. Many lawsuits and judicial rulings have been published online as part of efforts to promote greater transparency. Courts are also experimenting with artificial intelligence systems that promise to streamline judicial processes and expand access to justice. see: OkbaBouamara and Abdelkader Mebarek, *Intelligent Systems in Criminal Litigation: The Balance Between Speed and Judicial Application Issues*, *Journal of Legal Studies*, vol. 11, no. 1 (2025): pp. 35-55, in: <https://asjp.cerist.dz/en/article/262271>; <https://asjp.cerist.dz/en/article/262271>; Fatima Abdelaziz Hassan Ahmed Bilal, *Smart Litigation in Qatari Courts: Between Reality and Aspirations*, *Journal of Legal and Political Research*, vol. 3, no. 3 (2023): pp. 80-144, HYPERLINK "<https://asjp.cerist.dz/en/article/230381>" <https://asjp.cerist.dz/en/article/230381>.

⁴ - Al-Harithi Abdulrahman Ahmed, & Al-Droubi Ali Mohammed Mohammed, *ibid*.

⁵ - **Decree No. 2020-356 of March 27, 2020** establishing an automated processing system for personal data named "DataJust." **JORF n° 0077 of March 29, 2020, Text n° 2**; Access the

Just algorithm offers several benefits, including **reducing court congestion** by decreasing the number of disputes and promoting **fairer and more consistent compensation** across courts. Research has shown that decision-making tools exist but are not uniformly applied, leading to discrepancies in rulings¹. However, despite these advantages, there are risks. Fewer court cases may **weaken the position of litigants** in compensation negotiations with insurers, as they would lose the **protection of an impartial third party**. While the full impact of this system remains uncertain, it represents a **step toward judicial modernization**².

Secondly: Artificial Intelligence on Achieving the Efficiency of Justice

The utilization of big data, cloud computing, natural language processing, and video recognition technologies is facilitating the establishment and operation of "internet courts". The utilization of machine learning and cognitive computing is being employed to assist public safety and court personnel in the authentication of evidence and the formulation of trial arguments. Employing AI within judicial operations presents a striking avenue for amplifying the efficiency of legal procedures.

A)-The Use of Artificial Intelligence in Writing, Archiving, and Organizing

In this case, there is no objection to judges or court staff utilizing intelligent systems for writing, archiving, or organizing, provided that such assistance remains under the supervision of the judge or one of their assistants. However, it is essential that this assistance does not extend to drafting or writing the judicial

consolidated

<https://www.legifrance.gouv.fr/eli/decret/2020/3/27/JUST1930979D/jo/texte>

version:

<https://www.legifrance.gouv.fr/eli/decret/2020/3/27/2020-356/jo/texte> ; Alias:

¹ - Mohammed Irfan Al-Khatib, "Predictive Justice" and Judicial Justice: Opportunities and Challenges – A Critical In-Depth Study of the Anglo-Saxon and Latin Stances, *Journal of Law and Human Sciences*, vol. 12, no. 1 (2019): pp. 11-48, <https://asjp.cerist.dz/en/article/89775>.

² - Countries like Estonia and Canada have integrated AI into their legal systems to streamline dispute resolution. Estonia has implemented an AI judge to handle small claims, such as contract disputes under €7,000, reducing case backlogs efficiently since these claims require minimal judicial discretion. Similarly, in Canada, AI is used in strata property disputes and motor vehicle claims below a certain amount. In British Columbia, the Civil Resolutions Tribunal (CRT) employs an expert system called the "Solution Explorer," which guides users through the claims process, helping them assess their cases and facilitating online dispute resolution. Additionally, machine learning algorithms analyze large volumes of judgments to identify patterns, such as compensation trends for specific injuries or property division outcomes in divorce cases, further enhancing legal decision-making, in: <https://www.unsw.edu.au/newsroom/news/2021/10/can-ai-replace-judge-courtroom>

ruling itself, given the significance and status of judicial decisions. The ruling is the ultimate purpose of litigation, and delegating its preparation, drafting, or structuring to an artificial intelligence system would be inconsistent with the dignity and importance of judicial rulings¹.

B) - The Use of Artificial Intelligence in Judicial Evidence

The acceptance of digital evidence, defined as a collection of data in the form of images, audio, or video recordings that can be analysed using specialized programs, has been recognized by some legal systems as having the same legal weight as written documents. From an Islamic jurisprudence perspective, there is no restriction on adopting new methods of proof. Ibn al-Qayyim emphasized that justice is not confined to specific forms of evidence but should rely on the clearest and strongest proofs available². However, when relying on AI-generated evidence, certain safeguards must be met, including the use of high-quality AI systems to ensure accuracy and prevent bias, as well as maintaining transparency and interpretability so that the evidence can be understood and verified.

C)- The Use of Artificial Intelligence in Judicial Notifications and Announcements:

Several countries have adopted electronic notifications for judicial purposes, recognizing text messages, emails, and registered accounts in government electronic systems as legally valid means, as seen in Saudi Arabia through a royal decree. If traditional electronic notifications are legally accepted, AI-based systems could further enhance efficiency³. In the United States, the adoption of case disposition time standards by organizations such as COSCA (1983), CCJ, and ABA (1984) aimed to improve judicial efficiency. However, traditional litigation has long faced delays due to administrative bottlenecks and manual case processing. The integration of AI in litigation has revolutionized case management, streamlining procedures and expediting legal proceedings across various categories⁴.

¹ - Kandeel Moustafa; ElrefaeGhaleb, *The Impact of Artificial Intelligence on Achieving the Efficiency of Justice: "AI & Speedy Justice"*, 2023, p.p. 01-05. <https://doi.org/10.1109/ACIT58888.2023.10453918>.

² - Ibn al-Qayyim, *Al-Turuq Al-Hukmiyyah fi Al-Siyasah Al-Shar'iyah* (The Judicial Methods in Islamic Governance), Dar Alam Al-Fawa'id, p.48.

³ - Royal Decree No. 14388, dated 25/3/1439 AH, approving the use of electronic means for judicial notifications.

⁴ - Dory Reiling, *Technology for Justice: How Information Technology Can Support Judicial Reform*, Leiden University Press, 2009,p.92.

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<i>Case Type</i>	<i>CCJ and COSCA</i>	<i>ABA</i>
<i>Criminal</i>		
<i>Felony</i>	180 days	90% in 120 days 98% in 180 days 100% in 12 months
<i>Misdemeanor</i>	90 days	90% in 30 days 100% in 90 days
<i>Civil</i>		
<i>Jury trials</i>	18 months	
<i>Non-jury trials</i>	12 months	
<i>General civil</i>		90% in 12 months 98% in 18 months 100% in 24 months
<i>Summary proceedings, small claims, landlord/tenant</i>		100% in 30 days
<i>Domestic relations</i>		
<i>Uncontested</i>	3 months	
<i>Contested</i>	6 months	90% in 3 months 98% in 6 months 100% in 12 months
<i>Juvenile</i>		
<i>Detention/shelter hearings</i>	24 hours	24 hours
<i>Adjudication/shelter hearings</i>	15 days	15 days
<i>1. In a detention facility</i>	15 days	15 days
<i>2. Not in a detention facility</i>	30 days	30 days
<i>Disposition hearings</i>	15 days	15 days

The Second section: normative requirements for smart criminal justice

Technology-based predictive policing is increasingly shaping criminal justice by enabling law enforcement to anticipate and prevent offenses. In the US, police departments use applications like PredPol and Hunchlab to predict

crime hotspots, while algorithm-based tools like COMPAS assess recidivism risks and influence sentencing decisions. The digitization of criminal justice is expanding, with automation potentially streamlining penalty orders for minor offenses by generating offender data and drafting penalties based on police reports. However, discretion remains essential to uphold fairness in sentencing. The Code of Criminal Procedure reinforces principles of legality, fair trial, and timely case resolution to prevent undue delays in justice. Machine learning and deep learning have further advanced crime prediction, analysing vast datasets to identify patterns and assist in resource allocation¹. While AI-driven predictive policing enhances crime prevention, concerns regarding data bias, ethical implications, and algorithmic reliability persist, underscoring the need for careful regulation and oversight².

Firstly: Forensic Investigation and AI

Artificial intelligence plays a crucial role in forensic investigations by leveraging big data analysis to map bullet trajectories in complex firearm-related homicide cases. Forensic science utilizes CT scans to detect the precise locations of bullets within a victim's body, and AI-driven algorithms compile a database of these images to identify patterns and reconstruct the trajectory. These advanced systems help forensic experts determine entry and exit points, shooting angles, bullet calibers, and distances with greater accuracy. By integrating machine learning with forensic imaging, AI enhances both the speed and precision of crime scene reconstruction, providing law enforcement with more reliable investigations and stronger legal evidence³.

Secondly: Digitization of Judicial Procedures and the Emergence of Automated Responses:

¹ - See Article 1 of Law No. 71-71, dated 28 Jumada al-Thani 1347 (corresponding to 18 March 1977), amending and supplementing Ordinance No. 66-155, dated 27 Safar 1386 (corresponding to 2 June 1966), relating to the Code of Criminal Procedure. Published in the *Official Algerian Gazette*, issue 87, p. 71, on 26 March 1977.

² - Predictive Policing: How Can Scientists Anticipate Crimes Before They Happen," *Al Jazeera*, July 16, 2023, last updated July 27, 2023, accessed February 28, 2024, 17:32, <https://www.aljazeera.net/> ; Faiq Awadain, "The Uses of Artificial Intelligence Technologies Between Legitimacy and Illegitimacy, Part One: The Nature of AI and Its Security Applications," *National Criminal Journal*, vol. 61, no. 1 (March 2023), p. 87.

³ - Isabelle Sayn, Vanessa Perrocheau, Yann Favier, Nathalie Merley, Marianne Cottin, et al.. Les barèmes (et autres outils techniques d'aide à la décision) dans le fonctionnement de la justice. [Rapport de recherche] Mission de recherche Droit et Justice. 2019. <https://shs.hal.science/halshs-02283040v2/document> ; Desfontaines, Charlotte.(2020, April 22). **DataJust: Towards a Predictive Justice?***Soulier Avocats*. Retrieved from <https://www.soulier-avocats.com>.

The integration of AI in judicial procedures accelerates public prosecution through smart digital platforms, enhancing investigations and ensuring swift, fair trials. Judicial systems now balance efficiency with legal safeguards, providing citizens access to legal regulations and updates while simplifying litigation. This transformation also fosters legal awareness. In Algeria, since November 2004, the judiciary has leveraged high-quality internet services to support the Ministry of Justice, courts, and related institutions, advancing digital legal processes.

The official Ministry of Justice website (www.mjustice.dz) serves as a legal portal, offering updates on judicial activities, legal frameworks, and remote services for litigants. As part of Algeria's judicial digitization efforts, a "Legal Portal" was launched to provide legal professionals and experts with extensive insights into national and international legal principles. The country has also implemented remote video conferencing for investigations and trials, reducing reliance on paper-based case files and improving efficiency. This transition to electronic litigation enables specialized judicial authorities to manage cases digitally, integrating advanced information systems, global network technologies, and electronic file management to streamline legal procedures and ensure swift enforcement of rulings. To further accelerate trials, the Algerian Ministry of Justice has introduced electronic response mechanisms, including an automated system for direct interaction with litigants. Key digital resources include **contact@mjustice.dz** for legal inquiries, the "**Cellule de traitement des doléances des citoyens**" for processing public complaints, and **infocasier@mjustice.dz** for handling criminal record certificate requests and other legal documents. These **electronic tools significantly reduce time and effort**, fostering a transition toward **artificial intelligence-driven legal proceedings**, particularly in **criminal litigation**¹.

¹ - Bouhental, Yassine, **Remote Video Communication Technology as a Mechanism to Simplify Criminal Procedure**. *Tabanat Journal for Scientific and Academic Studies*, vol. 4, no. 3, 2021, pp. 674-695. <https://asjp.cerist.dz/en/article/173129> ; Jebbari, El Aid. **Remote Video Communication Technology in Criminal Procedure Law: Between Accepting the Use of Technology and Rejecting the Violation of Guarantees**. *Afaq Journal for Research and Studies*, vol. 8, no. 1, 2025, pp. 632-644. <https://asjp.cerist.dz/en/article/264466> ; Benazza, Mohamed Hamza. **The Use of Remote Video Communication Technology During Criminal Trial Procedures: A Study of the French and Algerian Judicial Systems**. *Journal of Legal and Economic Research*, vol. 6, no. 2, 2023, pp. 139-165.

The second requirement: Balancing Human Rights and AI in Digital Litigation

The use of smart algorithms in electronic litigation raises concerns about fair trial guarantees, particularly regarding procedural rights under Article 6 of the European Convention on Human Rights. AI-driven judicial processes risk privacy breaches, algorithmic biases, and potential surveillance. Moreover, replacing physical presence with remote attendance and automated data processing may impact a judge's ability to form a personal conviction in criminal cases. While advanced video communication has reshaped courtroom procedures, reliance on intelligent systems challenges fundamental rights outlined in the Code of Criminal Procedure, such as court access, trial participation, and the balance between defense rights and judicial independence. The concept of the "robot judge" further heightens these concerns, as rigid programming may limit case flexibility and undermine defendants' rights if decision-making lacks human oversight.

First section: the Risks to Human Rights in Digital Litigation

The United Nations High Commissioner for Human Rights has examined the impact of artificial intelligence—such as classification, automated decision-making, and machine learning—on fundamental rights, particularly privacy¹. The expansion of AI in processing large-scale data can lead to judicial errors, such as mistakes in names or birth dates, affecting litigants and requiring corrections to ensure proper legal proceedings. In the digital environment, individuals are identified not by physical presence but through electronic records, confirming their virtual existence². However, the widespread use of

<https://asjp.cerist.dz/en/article/224737> ; Cherki Mounir. **The Use of Remote Video Communication Technology in Criminal Procedures in Light of Law No. 15-03.** *The Legal Analyst Journal*, vol. 1, no. 2, 2019, pp. 117-129.

<https://asjp.cerist.dz/en/article/200600>.

¹ - *Human Rights Council*, Forty-eighth session, 13 September–1 October 2021, Agenda items 2 and 3, *Annual Report of the United Nations High Commissioner for Human Rights*, Promotion and Protection of All Human Rights, Civil, Political, Economic, Social, and Cultural Rights, including the Right to Development—*The Right to Privacy in the Digital Age*, in: <https://www.ohchr.org/en/calls-for-input/2021/right-privacy-digital-age-report-2021>

² The misuse of digital identities through fraudulent accounts threatens privacy, especially when personal data protection is overlooked. The Dutch Data Protection Authority warns that contact-tracing applications violate privacy rights, exposing litigants to digital risks. Similarly, the UN High Commissioner for Human Rights highlights that smart systems integrated with advanced technologies heighten concerns over data collection, leading to potential breaches and unlawful interference with fundamental rights. Smart algorithms further amplify these risks by analyzing extensive datasets. To prevent judicial errors,

intelligent technologies raises concerns about human rights violations, including digital defamation, discrimination, privacy breaches, and impersonation. Reports by the Human Rights Council emphasize the risks of neglecting personal data protection, which can lead to serious legal and ethical consequences¹.

Second section: Regulatory and Ethical Frameworks for AI in Criminal Justice

The integration of artificial intelligence into litigation presents significant challenges, particularly due to the rapid advancements in technology that surpass human intelligence. While AI streamlines judicial tasks and reduces workload, its use in digital litigation necessitates a well-defined legal framework to protect digital privacy and establish ethical, civil, and criminal liability. A key issue is determining responsibility when AI assists in managing criminal proceedings—should accountability lie with the AI system or the human judge?

The lack of a standalone legal framework governing AI in judiciary raises concerns, especially as AI's speed and data-processing capabilities may lead to hasty judicial decisions. Without proper regulations, AI-driven legal proceedings risk violating essential procedural safeguards, potentially resulting in errors and misjudgement's that undermine justice² A crucial issue in AI regulation is the recognition of its legal status, with growing discussions on granting AI legal personality. Supporters cite European Parliament resolutions, particularly the 16 February 2017 resolution, which recommended legislative initiatives on robotics and AI, urging the development of a legal framework addressing liability based on robots' evolving autonomy and human control³.¹.

ensuring data accuracy and security is essential, requiring digital legal frameworks to evolve while maintaining procedural safeguards in criminal law. In: Haïti Fatima and Heroual Nabila Hiba. "Procedural Protection of the Right to Digital Privacy in Confronting Cybercrime." *Journal of Legal Studies*, vol. 7, no. 2, 127–144, 2021, <https://asjp.cerist.dz/en/article/156203> ; Dutch Data Protection Authority (*Autoriteit Persoonsgegevens*). "Dutch DPA: Contact-Tracing Apps Pose Long-Term Privacy Risks." <https://autoriteitpersoonsgegevens.nl>. ; also see Human Rights Council, Forty-eighth session, 13 September–1 October 2021, *ibid*.

¹ - Human Rights Council. (2021). *Report of the Human Rights Council on its 46th session*. United Nations, Geneva, in: https://www.ohchr.org/en/hr-bodies/hrc/regular-sessions/session46/regular-session?utm_source=chatgpt.com

² -Bharati, Rahul K. (Ethical Implications of AI in Criminal Justice: Balancing Efficiency and Due Process. *RESEARCH REVIEW International Journal of Multidisciplinary*, vol. 9, issue 7, 2024, p.p. 93–105. <https://doi.org/10.31305/rrijm.2024.v09.n07.014>.

³ - It is noteworthy that some legal scholars reject the recognition of legal personality for artificial intelligence, arguing that AI systems and robots are neither natural nor legal persons. This raises a critical issue regarding which legal rules should apply in cases where AI systems

Second Title:Automate alternative dispute resolution

AI is transforming judicial systems globally, but its adoption in Arab courts remains limited. Qatar, however, has the infrastructure to integrate smart litigation. Online Dispute Resolution (ODR) is a key advancement, streamlining consumer dispute settlements through automated or human-assisted mediation and arbitration, enhancing access to justice. Another crucial aspect of legal technology is e-discovery, particularly in litigation and alternative dispute resolution (ADR). The automation of document exchange significantly accelerates legal proceedings, reduces costs, and streamlines case management. In countries like the USA, e-discovery has evolved into a major sector, demonstrating how AI-driven processes can enhance judicial efficiency and fairness.

First section:alternative dispute resolution (ADR) mechanisms

Arbitration is a form of private justice, whereby certain disputes are removed from the jurisdiction of ordinary courts and entrusted to arbitrators chosen by the parties. It is the power to settle disputes through one or more arbitrators selected by the disputing parties, whose decisions are binding upon them².

A) - Distinguishing Arbitration from the Judiciary

exceed the permissible boundaries of their operation. The absence of a clear legal framework regulating AI liability in judicial matters further complicates the debate.

¹ - Moreover, the absence of an independent and comprehensive legal framework for artificial intelligence may be attributed to its rapid and continuous evolution. Implementing rigid legislation in such a dynamic field could lead to inconsistencies and excessive legal complexity. Instead of leveraging AI to expedite judicial procedures, judges may find themselves navigating conflicting regulations, ultimately delaying rather than accelerating criminal justice processes.

² - The French legal framework defines arbitration as a special procedure for settling disputes through an arbitral tribunal, entrusted with the task of adjudication under an arbitration agreement.

The Algerian legislator does not provide a clear and precise definition of arbitration. However, various provisions addressing international commercial arbitration are found in **Legislative Decree 93-09** and **Law 09-08 of February 25, 2008**, which regulate both domestic and international arbitration within the framework of the **Code of Civil and Administrative Procedure**. This is largely because many of these laws are inspired by the

UNCITRAL Model Law on International Commercial Arbitration (1985), which refrains from defining arbitration to accommodate national differences in conceptualizing arbitration.

The judiciary exercises general and permanent jurisdiction over all disputes and parties, whereas arbitration has a special and temporary jurisdiction, limited to specific private legal disputes. While the judiciary upholds the principle of public and free justice, arbitration represents private justice, funded by the involved parties. Despite these differences, both aim to resolve disputes through legally binding decisions, with the arbitrator, like a judge, issuing rulings that hold legal force upon issuance.

B)- Distinguishing Arbitration from Conciliation:

Conciliation is a voluntary legal act where parties resolve existing or potential disputes through mutual agreement, making it an alternative dispute resolution mechanism like arbitration. Both require the parties' consent, but they differ fundamentally: conciliation involves mutual concessions to reach a compromise, while arbitration results in an imposed decision by arbitrators, independent of the parties' preferences. Moreover, conciliation remains a contractual agreement under the parties' control, whereas arbitration leads to a binding ruling like a judicial decision¹.

C)- Distinguishing Arbitration from Mediation:

Mediation, like arbitration, is an alternative dispute resolution mechanism recognized by the Algerian legislator, applicable only to disputes that do not involve public order issues and requiring the parties' agreement to initiate. However, they differ in how disputes are resolved: in mediation, the mediator facilitates negotiations, but the final solution is determined by the parties and recorded in a "minute of agreement," whereas in arbitration, the final decision is made solely by the arbitrator in the form of an authoritative arbitral award.²

Second requirement: The Evolution of ADR From Traditional Methods to Technological Integration

This shift towards AI-driven dispute resolution reflects the broader evolution of ADR, from conventional methods to cutting-edge technological integration.

¹ - Ben Halima Leila, *International Commercial Arbitration Standards*, (Online Lectures) 2nd Year Master Business Law, Third Semester, , University of M'sila , 2022-2023.

² - Cherifa Ould Cheikh, **Les modes alternatifs de règlement des litiges : Procès-verbaux de conciliation et de médiation en tant que titres exécutoires selon le Code de procédure civile et administrative algérien**. *Revue Critique de Droit et Sciences Politiques*, Vol. 7, No. 2, 2012, pp. 90-134. <https://asjp.cerist.dz/en/article/132411>

Firstly: The core technologies

Distributed Ledger (DL) is a decentralized database where transactions are securely stored in a shared, synchronized record, independently verified by nodes without mutual trust. A key feature of DL is Smart Contracts—predefined rules encoded as computer programs that govern transactions and agreements, ensuring the ledger serves as the authoritative record of their evolution. Blockchains, a form of DL technology, enhance resilience by eliminating single points of failure, ensuring integrity through open-source protocols, and providing transparency, as all changes are visible to participants. Their immutability secures records against unauthorized alterations, fostering trust in digital transactions. This feature is particularly relevant in legal and dispute resolution processes, where transparent and immutable records are crucial for maintaining accuracy and accountability without reliance on third parties. Additionally, AI-driven argumentation enhances legal reasoning by analyzing complex information, evaluating evidence, and structuring legal arguments. Computational argumentation systems are increasingly applied in fields like law and medicine, where traditional logic falls short, further reinforcing the role of technology in modern legal frameworks. Proponents of Online Dispute Resolution (ODR) view technology as the "trusted fourth party." By combining blockchain's transparency with AI-driven argumentation, ODR platforms can enhance fairness and efficiency, paving the way for algorithmic dispute resolution¹.

Secondly: three principal areas of automated dispute resolution

A key reference on Consumer Online Dispute Resolution (ODR) is the book *Digital Justice* by Ethan Katsh², which explores the technology required to address disputes arising in the digital economy, such as social media harassment or negative online reviews. The use of ODR for consumer disputes, particularly in e-commerce, is now well established, with both the European Union³ and the United Nations Commission on International Trade¹ working to

¹ - Barnett, Jeremy, Treleaven, Philip: Algorithmic dispute resolution: The automation of professional dispute resolution using AI and blockchain technologies. *Computer Law Journal*, vol.34, issu.2, 2018, p.p. 399-408.

² - Katsh, Ethan, Rabinovich-Einy; Orna, *Digital Justice: Technology and the Internet of Disputes*, Oxford University Press, Oxford, 2017 cited in: Barnett, Jeremy, & Treleaven, Philip, Algorithmic dispute resolution: The automation of professional dispute resolution using AI and blockchain technologies, op.cit.

³ - EU Alternative and Online Dispute Resolution (ADR/ODR), (2017)
http://ec.europa.eu/consumers/solving_consumer

Enhancing Efficiency Through Smart Litigation and Automated alternative Dispute Resolution

facilitate cross-border ODR adoption. According to the EU, a Consumer ODR² platform is an interactive website that provides a single-entry point for consumers and traders to resolve disputes out of court. It enables users to submit complaints electronically, attach relevant documents, and manage cases efficiently through a digital platform. ODR platforms, such as the EU ODR platform and eBay Resolution Center, utilize electronic negotiation to facilitate dispute resolution. These platforms can be *closed*, requiring users to follow predefined rules, or *open*, allowing unrestricted participation³. eBay, a leading Consumer ODR service, resolves around 60 million disputes annually by encouraging direct negotiation. If unresolved, disputes are escalated to staff members who issue binding decisions under the Money Back Guarantee, often within 48 hours. Beyond consumer disputes, Judicial ODR is used in legal conflicts like personal injury, employment, and family law, where arbitration or mediation occurs online. Katsh and Rifkin conceptualized judicial technology as the "fourth party," emphasizing automation's role in streamlining resolution⁴. Judicial ODR includes online courts and private services, such as Virtual Courthouse, which connects users with mediators, arbitrators, and legal experts for efficient dispute settlement. Virtual hearings, such as those conducted via IOCOM Visimeet, enable remote dispute resolution by simulating real courtroom dynamics. These systems facilitate multi-party mediation through virtual rooms, document sharing, private chats, and session recordings⁵. AI-driven mediation does not determine right or wrong but instead identifies areas of consensus. By leveraging concepts like BATNA (Best Alternative to a

¹ - UNCITRAL Model Law on International Arbitration (2006)

<https://www.newyorkconvention.org/resources/uncitral/uncitral-model-law#:~:text=The%20Model%20Law%201986-2006%20is%20designed%20to%20assist,particular%20features%20and%20needs%20of%20international%20commercial%20arbitration.>

² - EU Alternative and Online Dispute Resolution (ADR/ODR), (2017) http://ec.europa.eu/consumers/solving_consumer

³ - Beam, C. and Segev, A. (1996) Automated Negotiations, A Survey of the State of the Art. University of California Berkley, in: www.cs.uu.nl/docs/vakken/vm/agents-negotiation.pdf

⁴ - Katsh, Ethan, Rifkin Janet, *Online Dispute Resolution: Resolving Conflicts in Cyberspace*. Jossey-Bass Wiley, New Jersey, 2001, p.p. 228.

⁵ - Rule Colin, *Online Dispute Resolution for Business*. Jossey-Bass Wiley, New Jersey, 2002, cited in: Jeremy Barnett, Philip Treleaven, *Algorithmic Dispute Resolution-The Automation of Professional Dispute Resolution Using AI and Blockchain Technologies*, op.cit.

Negotiated Agreement) and WATNA (Worst Alternative to a Negotiated Agreement)¹.

Conclusion :

The results emphasize the significant impact of AI in litigation, showcasing its benefits while also pointing to the challenges that need to be overcome for successful adoption, and for that we put Recommendations for Implementing Smart Litigation in Algeria:

- Develop a National AI Judicial Strategy;
- Enhance digital infrastructure requires strategic investment in AI-powered case management systems, digital courts;
- secure cloud storage, also Provide specialized AI training for judges, lawyers, and court staff to ensure smooth adoption and minimize resistance;
- Implement robust cyber security measures and legal frameworks to protect sensitive case data and maintain trust;
- Test AI in limited domains like administrative or civil disputes for gradual adaptation and refinement;
- Conduct awareness campaigns and engage stakeholders to build confidence in AI-assisted legal processes.

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