

The Impact of Predictive Justice on the Stability of Economic Transactions for Businesses: Towards a Prospective Vision for Dispute Resolution in the Era of Artificial Intelligence

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Abstract:

This research explores the concept of "Predictive Justice," which relies on artificial intelligence algorithms to analyze past judicial decisions and forecast the outcomes of future disputes. The study highlights the significance of understanding how economic entities can leverage these technologies to assess legal risks before engaging in litigation, thereby saving effort and cost. Furthermore, the paper investigates the readiness of Algeria's economic legal environment to adopt such intelligent mechanisms to enhance the investment climate.

Keywords: Predictive Justice; Artificial Intelligence; Economic Disputes; Transaction Stability; Industry 4.0.

1. INTRODUCTION

The world today is witnessing radical transformations driven by rapid advancements in the field of Artificial Intelligence (AI), which has come to touch various aspects of life, including the legal and judicial systems. In this context, the concept of "Predictive Justice" has emerged as one of the most promising applications of AI, relying on advanced algorithms to analyze vast amounts of historical judicial data with the aim of predicting the outcomes of future legal disputes. The impact of this technology is not limited to the traditional course of justice but extends to encompass the stability of economic transactions for businesses, which strive to mitigate legal risks and foster a stable business environment.

The study of predictive justice gains paramount importance in light of the Fourth Industrial Revolution (Industry 4.0), characterized by digital interconnectedness and an

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increasing reliance on data and intelligent analytics. Economic entities, whether small or large, face complex legal challenges that can affect their sustainability and growth. Here, predictive justice plays a strategic role as an analytical tool that enables these entities to assess potential legal risks before entering into any contractual obligations or judicial disputes, thereby saving time, effort, and money, and enhancing their ability to make informed decisions.

These developments raise a series of pivotal questions regarding the readiness of legal and economic environments, particularly in countries like Algeria, to adopt such intelligent mechanisms. Can predictive justice be an effective solution to enhance the investment climate and achieve stability in economic transactions? What are the legal and technical challenges that might impede its implementation?

This research aims to elucidate the impact of predictive justice on the stability of economic transactions for businesses and to provide a prospective vision for dispute resolution in light of the accelerating developments of artificial intelligence. To achieve this objective, the research will adopt a descriptive analytical approach, by reviewing relevant legal and economic literature, and analyzing the fundamental concepts of predictive justice and its applications, with a focus on the Algerian legal framework. The research is divided into two main sections: the first addresses the conceptual framework of predictive justice and its impact on business economic decision-making, while the second explores the reality and prospects of adopting predictive justice in the Algerian legal environment, as follows:

2. The Conceptual Framework of Predictive Justice and its Impact on Business Economic Decision-Making

2.1 The Nature of Predictive Justice and its Algorithmic Mechanisms

2.1.1 Definition and Characteristics of Predictive Justice

Predictive justice is defined as the use of artificial intelligence technologies, especially Machine Learning, to analyze historical judicial data, such as previous judgments, judicial decisions, and legal pleadings, with the aim of extracting patterns and relationships that enable the prediction of future legal dispute outcomes. This ¹. technology does not aim to replace the judge or human decision-making process but rather to provide assistive tools that enhance the efficiency and effectiveness of the judicial system and offer prospective insights to concerned parties ².

Among the most prominent characteristics of predictive justice is its ability to

¹ Amal Fawzy Ahmed Awad, *Predictive Justice and the Future of Judiciary in the Era of Artificial Intelligence*, Arab Democratic Center, 2025, p. 35.

² Mahdaoui, "The Use of Artificial Intelligence in Justice Systems in Light of the Principles of the Rule of Law," *Journal of Law and Human Sciences*, Algeria, 2025, p. 120.

process vast amounts of unstructured data and transform it into analyzable information. It is also characterized by continuous learning and adaptation; the more data analyzed, the greater the accuracy of its predictions. This technology contributes to enhancing transparency and consistency in judicial decisions by revealing the factors influencing judgment issuance ¹.

2.1.2 Algorithmic Techniques Used in Analyzing Judicial Judgments

Predictive justice relies on a variety of algorithmic techniques derived from the field of artificial intelligence and machine learning. Key among these techniques are:

1. **Natural Language Processing (NLP):** This technique is used to analyze legal texts, such as judicial judgments and memoranda, and extract essential information from them. NLP enables systems to understand the legal context, identify parties, facts, and applicable legal provisions ²
2. **Machine Learning:** This field includes algorithms such as Decision Trees, Neural Networks, and Logistic Regression. These algorithms are trained on massive datasets of past cases to identify patterns that lead to specific outcomes. For example, a machine learning algorithm can predict the likelihood of one party winning based on the type of case, evidence presented, and judicial precedents ³.
3. **Big Data Analytics:** Predictive justice requires the ability to collect, store, and analyze vast amounts of judicial data. Big data analytics tools provide the necessary infrastructure to process this data efficiently, allowing for the extraction of valuable insights ⁴.
4. **Statistical Analysis:** Statistical methods are used to identify relationships between different variables in legal cases, such as the relationship between the type of crime and the imposed penalty, or between the type of contract and the outcomes of contractual disputes. These analyses help build accurate predictive models ⁵.

These techniques integrate to create systems capable of analyzing legal cases and providing predictions about their potential outcomes, offering valuable insights to concerned parties, especially economic entities, to aid in making informed strategic decisions ⁶.

.2.13 The Role of Predictive Justice in Assessing Legal Risks for Businesses

¹ Tarek Ahmed Maher Zaghloul, "Artificial Intelligence Algorithms and Predictive Criminal Justice," *Legal Studies*, 2020, p. 45.

² Maad Al-Boush, "Administrative Decision and Achieving Predictive Justice," *Buraq International Journal for Legal Studies*, 2025, p. 78.

³ Arbel, Y. A. "Judicial Economy in the Age of AI." *Colorado Law Review*, 2025, p. 210.

⁴ Galli, F., and G. Sartor. "AI Approaches to Predictive Justice: A Critical Assessment." *Humanities and Rights Global Network*, 2023, p. 55.

⁵ Suárez, C. D. "Judicial Efficiency in Times of Artificial Intelligence and Predictable Justice." *International Journal of Procedural Law*, 2025, p. 90.

⁶ Nouri, Z., et al. "Artificial Intelligence and Administrative Justice: An Analysis of Predictive Justice in France." *Hasanuddin Law Review*, 2024, p. 160.

The ability to predict the outcomes of legal disputes is a crucial strategic advantage for economic entities, especially when making investment decisions. Before embarking on any project or commercial transaction, businesses face potential legal risks that could affect the feasibility and profitability of the investment. Here, predictive justice serves as an analytical tool that enables businesses to assess these risks with greater accuracy ¹

By analyzing judicial precedents related to specific types of contracts or disputes in particular sectors, predictive justice systems can provide businesses with probabilistic estimates of potential dispute outcomes. For instance, a company planning to acquire another company can use these systems to evaluate the legal risks associated with the acquisition, such as the likelihood of lawsuits from shareholders or regulatory bodies, based on the outcomes of similar past cases. This early risk assessment can significantly influence the investment decision, whether to proceed with the deal, renegotiate its terms, or even withdraw from it ².

Furthermore, predictive justice assists businesses in drafting more robust contracts and avoiding clauses that could lead to future disputes. By understanding how courts have interpreted specific clauses in the past, businesses can adapt their contracts to reduce ambiguity and increase legal certainty, thereby enhancing the stability of economic transactions and minimizing the likelihood of litigation ³.

2.2 The Impact of Judicial Prediction on Reducing Economic Litigation Costs

Legal disputes are known for their exorbitant costs, both direct (such as legal fees, court costs, and damages) and indirect (such as wasted time, diversion of resources, and impact on the company's reputation). Businesses constantly strive to minimize these costs, and here, predictive justice emerges as an effective tool to achieve this goal ⁴

By providing accurate predictions of dispute outcomes, predictive justice enables businesses to make informed decisions regarding out-of-court settlements. If predictions indicate a high probability of losing a particular case, the business might prefer to negotiate an amicable settlement, saving it from lengthy and costly litigation. Conversely, if predictions suggest a high probability of winning, the business might be more willing to proceed with litigation, but with a clearer understanding of the potential risks and rewards ⁵

¹ Tarek Ahmed Maher Zaghloul, "Artificial Intelligence Algorithms and Predictive Criminal Justice," *Legal Studies*, 2020, p. 75.

² Khalla Ghada, "Uses of Artificial Intelligence in Criminal Matters," Master's Thesis, University of Guelma, Algeria, 2025, p. 60.

³ Simshaw, D. "Access to AI Justice: Avoiding an Inequitable Two-Tiered System." *Yale Journal of Law and Technology*, p. 30.

⁴ Maad Al-Boush, "Administrative Decision and Achieving Predictive Justice," *Buraq International Journal for Legal Studies*, 2025, p. 110.

⁵ Arab Democratic Center, *Artificial Intelligence and Judicial Work: A Comparative Analytical Study*, 2024, p. 180.

Predictive justice also contributes to improving the efficiency of legal work within businesses. Legal advisors can use these tools to provide more accurate advice to their clients, identify the most effective legal strategies, and allocate resources more optimally. This not only reduces direct litigation costs but also enhances the company's competitive edge in the market ¹

In summary, predictive justice provides economic entities with valuable insights that enable them to proactively assess legal risks, make wiser investment decisions, and reduce the costs associated with legal disputes, thereby contributing to the stability of their economic transactions ²

3. The Reality and Prospects of Adopting Predictive Justice in the Algerian Legal Environment

3.1 The Readiness of the Algerian Legal and Judicial System for Smart Digital Transformation

3.1.1 Legislative Efforts in Digitizing the Justice Sector in Algeria

Algeria, like many other nations, recognizes the importance of digital transformation in modernizing its justice sector and improving its performance. Significant legislative and institutional efforts have been made in this direction, aiming to keep pace with technological advancements and enhance the efficiency of the judicial system. Among the most prominent of these efforts are the launch of projects to digitize judicial procedures, such as the electronic commercial register, electronic signatures, and remote litigation in some cases ³

These initiatives aim to simplify procedures, reduce delays, and improve transparency, paving the way for the adoption of more advanced technologies like predictive justice. There is also growing interest in developing digital infrastructure and training human resources to use modern technological tools in judicial work. These steps are essential for creating a conducive environment for integrating artificial intelligence into the legal system ⁴.

However, the path towards achieving comprehensive digital transformation that can fully support predictive justice applications is still long. Challenges remain regarding the standardization of judicial databases, their security, and ensuring their accessibility and

¹ Law No. 22-13 on Methods of Preventing and Settling Collective Labor Disputes and Exercising the Right to Strike (Algeria), Article 5.

² Amal Fawzy Ahmed Awad, Predictive Justice and the Future of Judiciary in the Era of Artificial Intelligence, Arab Democratic Center, 2025, p. 70.

³ Mahdaoui, "The Use of Artificial Intelligence in Justice Systems in Light of the Principles of the Rule of Law," Journal of Law and Human Sciences, Algeria, 2025, p. 135.

⁴ Tarek Ahmed Maher Zaghoul, "Artificial Intelligence Algorithms and Predictive Criminal Justice," Legal Studies, 2020, p. 60.

effective analysis ¹

3.1.2 Legal and Technical Obstacles to Adopting Predictive Justice

Despite the efforts made, Algeria faces several legal and technical obstacles that may hinder the full adoption of predictive justice. From a legal perspective, issues such as personal data protection and individual privacy arise, as analyzing vast amounts of judicial data requires strict legal frameworks to ensure these rights are not violated. There are also challenges related to the accountability of algorithms in case of prediction errors and the extent to which these predictions are admissible in court .

From a technical perspective, obstacles include the lack of advanced digital infrastructure in some regions and the non-standardization of judicial databases, which complicates the process of data collection and analysis. Additionally, there is a need to develop specialized human competencies in the fields of artificial intelligence and law to ensure the ability to develop, operate, and maintain predictive justice systems ².

Furthermore, the issue of data quality is a significant challenge; the accuracy of predictions heavily depends on the quality of the input data. If historical data is incomplete, inaccurate, or biased, the resulting predictions will also be flawed, potentially leading to unfair or misleading outcomes ³.

3.2 A Prospective Vision for Enhancing the Stability of Economic Transactions through Artificial Intelligence

3.2.1 Mechanisms for Integrating Predictive Justice into Economic and Investment Dispute Resolution

Predictive justice can play a pivotal role in enhancing the stability of economic and investment transactions in Algeria by integrating it into dispute resolution mechanisms. One of the most important of these mechanisms is its use in commercial arbitration and mediation. By providing predictions on how courts would rule in similar cases, predictive justice can help disputing parties reach amicable settlements more quickly and efficiently, reducing the need for lengthy and costly litigation ⁴.

It can also be used in assessing legal risks for major investment projects. Before embarking on any project, investors can use predictive justice tools to estimate the likelihood of success or failure in the event of legal disputes, enabling them to make more informed investment decisions and avoid unforeseen risks. This enhances confidence in

¹ Maad Al-Boush, "Administrative Decision and Achieving Predictive Justice," *Buraq International Journal for Legal Studies*, 2025, p. 95.

² Arbel, Y. A. "Judicial Economy in the Age of AI." *Colorado Law Review*, 2025, p. 225.

³ Galli, F., and G. Sartor. "AI Approaches to Predictive Justice: A Critical Assessment." *Humanities and Rights Global Network*, 2023, p. 70.

⁴ Suárez, C. D. "Judicial Efficiency in Times of Artificial Intelligence and Predictable Justice." *International Journal of Procedural Law*, 2025, p. 105.

the investment environment and attracts more investments ¹.

Additionally, predictive justice can support the development of more effective economic policies and legislation. By analyzing the outcomes of legal disputes related to current legislation, lawmakers can identify loopholes or weaknesses in laws and amend them to enhance the stability of economic transactions and provide a clearer and more certain legal environment ².

3.2.2 Legal Safeguards to Protect Businesses from Algorithmic Bias Risks

Despite the potential benefits of predictive justice, it is not without risks, most notably Algorithmic Bias. This bias arises when the historical data used to train algorithms is biased, leading to unfair or discriminatory predictive outcomes. To protect businesses from these risks, strict legal safeguards must be put in place ³.

Firstly, a clear and transparent legal framework must be established to regulate the use of artificial intelligence in the judicial system, defining criteria for developing and testing algorithms to ensure their fairness and integrity. This framework should include mechanisms for independent review and auditing of the algorithms used to ensure they are free from any biases ⁴.

Secondly, the principle of accountability and transparency must be emphasized. Businesses using predictive justice systems must be accountable for the outcomes produced by these systems, and they must be able to explain how the algorithms work and the bases upon which predictions are made. This requires providing mechanisms for challenging decisions based on algorithmic predictions ⁵.

Thirdly, focus must be placed on developing high-quality, unbiased training data. This requires collecting comprehensive and diverse judicial data, representing all categories and parties fairly. This data must also be regularly updated to reflect changes in society and law ⁶.

Fourthly, there must be continuous human oversight of predictive justice systems. Artificial intelligence should be an assistive tool for the judge or legal counsel, not a replacement. The final decision must remain with humans, who can review and adjust

¹ Nouri, Z., et al. "Artificial Intelligence and Administrative Justice: An Analysis of Predictive Justice in France." *Hasanuddin Law Review*, 2024, p. 175.

² Khalla Ghada, "Uses of Artificial Intelligence in Criminal Matters," Master's Thesis, University of Guelma, Algeria, 2025, p. 80

³ Simshaw, D. "Access to AI Justice: Avoiding an Inequitable Two-Tiered System." *Yale Journal of Law and Technology*, p. 45.

⁴ Arab Democratic Center, *Artificial Intelligence and Judicial Work: A Comparative Analytical Study*, 2024, p. 195.

⁵ Law No. 22-13 on Methods of Preventing and Settling Collective Labor Disputes and Exercising the Right to Strike (Algeria), Article 10.

⁶ Amal Fawzy Ahmed Awad, *Predictive Justice and the Future of Judiciary in the Era of Artificial Intelligence*, Arab Democratic Center, 2025, p. 85.

algorithmic predictions based on their understanding of the legal and ethical context ¹.

4- Conclusion

This research has demonstrated that predictive justice, with its advanced artificial intelligence technologies, holds immense potential to enhance the stability of economic transactions for businesses. Through its ability to analyze judicial precedents and predict dispute outcomes, this technology enables businesses to proactively assess legal risks, make wiser investment decisions, and reduce litigation-related costs. This not only boosts the operational efficiency of businesses but also contributes to creating a more certain and attractive business environment for investment.

However, the adoption of predictive justice, especially in a legal environment like Algeria, faces significant challenges. Despite efforts to digitize the justice sector, legal and technical obstacles persist concerning data protection, algorithmic accountability, data quality, and a shortage of specialized competencies. Overcoming these challenges requires a clear legal and regulatory framework that ensures transparency and accountability, protects against algorithmic bias risks, and emphasizes the supervisory role of humans.

Recommendations:

1. **Develop a comprehensive legal framework:** The Algerian legislator must enact laws and regulations governing the use of artificial intelligence in the judicial field, focusing on personal data protection, defining legal responsibility for algorithmic errors, and ensuring transparency in the operation of predictive systems.
2. **Invest in digital infrastructure:** Enhance the technological infrastructure of the justice sector, standardize judicial databases, and secure them to facilitate the collection and analysis of data necessary for developing predictive justice systems.
3. **Develop human competencies:** Train and qualify judges, lawyers, and legal staff in the use of artificial intelligence technologies, and develop specialized competencies in the field of law and artificial intelligence.
4. **Ensure data quality and impartiality:** Work on collecting high-quality, comprehensive, and unbiased judicial data, and update it regularly to ensure the accuracy and fairness of algorithmic predictions.
5. **Promote international cooperation:** Benefit from international experiences in

¹ Mahdaoui, "The Use of Artificial Intelligence in Justice Systems in Light of the Principles of the Rule of Law," *Journal of Law and Human Sciences*, Algeria, 2025, p. 150.

predictive justice, and exchange expertise and knowledge with leading countries in this field.

The adoption of predictive justice is not merely a technological option; it is a strategic necessity to enhance the efficiency and effectiveness of the judicial system and achieve greater stability in economic transactions, thereby serving comprehensive development in Algeria.

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