ARTIFICIAL INTELLIGENCE DECISION-MAKING: EVIDENTIARY VALUE AND LEGAL LIABILITY IN CRIMINAL PROCEDURAL LAW

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Abstract: *The rapid development of artificial intelligence (AI) technologies has significantly influenced modern criminal justice systems. AI-based decision-making tools are increasingly used in criminal investigations, evidence analysis, risk assessment, and judicial decision support. This thesis examines the evidentiary value of AI-generated outcomes and the allocation of legal liability arising from their use within criminal procedural law. The study analyzes theoretical foundations, comparative legal practices, and key challenges related to transparency, reliability, accountability, and fairness. It proposes legal mechanisms to ensure the lawful, ethical, and effective integration of artificial intelligence into criminal proceedings.*

1. Introduction

Artificial intelligence has become an essential component of contemporary criminal justice systems. From predictive policing and facial recognition to algorithmic risk assessment and automated evidence analysis, AI technologies promise efficiency and accuracy. However, their increasing use raises fundamental legal questions concerning procedural fairness, admissibility of evidence, and responsibility for errors. Criminal procedural law, which aims to safeguard human rights and ensure justice, must adapt to

these technological changes. This thesis explores how AI decision-making affects evidentiary rules and legal liability in criminal proceedings.

2. Concept and Characteristics of Artificial Intelligence Decision-Making

Artificial intelligence decision-making refers to the process whereby algorithms analyze large datasets and generate outcomes or recommendations that influence legal decisions. These systems are characterized by automation, data-dependence, probabilistic reasoning, and limited transparency. Unlike human decision-makers, AI systems lack moral judgment and legal consciousness, which poses challenges for their direct application in criminal justice. Understanding these characteristics is essential for evaluating their evidentiary and legal implications.

3. Evidentiary Value of AI-Generated Decisions in Criminal Proceedings

The admissibility and probative value of AI-generated evidence depend on its reliability, relevance, and legality. AI outputs may include facial recognition matches, digital forensic analyses, and predictive risk scores. Courts must determine whether such evidence meets procedural standards, including verifiability and the right to challenge evidence. The 'black box' nature of many AI systems complicates cross-examination and undermines the principle of adversarial proceedings. Therefore, clear standards for validation, documentation, and expert explanation are necessary.

4. Legal Liability for AI Decision-Making Errors

AI decision-making systems may produce errors due to biased data, flawed algorithms, or improper use. Determining legal liability in such cases is complex. Potentially responsible parties include software developers,

system operators, law enforcement agencies, and judicial authorities. This thesis argues that liability should be allocated based on fault, control, and foreseeability. Criminal procedural law must establish clear rules regarding responsibility to prevent accountability gaps.

5. Comparative Legal Approaches

Different jurisdictions have adopted varying approaches to regulating AI in criminal justice. The European Union emphasizes transparency, human oversight, and fundamental rights protection, while other countries focus on technological innovation and efficiency. Comparative analysis reveals the importance of embedding procedural safeguards and accountability mechanisms. International cooperation and harmonization of standards may further enhance the lawful use of AI technologies.

6. Challenges and Risks

The use of AI decision-making in criminal procedure presents several risks, including algorithmic bias, discrimination, erosion of due process, and over-reliance on automated systems. Without proper regulation, AI may reinforce existing inequalities and undermine public trust in justice systems. Addressing these challenges requires interdisciplinary collaboration, continuous monitoring, and robust legal frameworks.

7. Recommendations for Legal Regulation

To ensure the appropriate use of AI in criminal proceedings, this thesis proposes several measures: establishing admissibility standards for AI evidence, mandating algorithmic transparency, ensuring human oversight, defining liability rules, and enhancing judicial and professional training. These measures aim to balance technological innovation with the protection of fundamental procedural rights.

Conclusion

Artificial intelligence decision-making has the potential to enhance efficiency and accuracy in criminal justice. However, its integration into criminal procedural law must be carefully regulated to preserve fairness, accountability, and human rights. By clarifying evidentiary standards and legal liability, criminal procedural law can accommodate AI technologies while upholding the core principles of justice.

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