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Artificial Intelligence in the Conduct of Search Operations: Legal, Organizational, and Technological Aspects

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Abstract

This article examines the possibilities and limitations of using artificial intelligence (AI) in the conduct of search operations. It analyzes modern technologies of machine learning, intelligent data analytics, pattern recognition, and predictive modeling employed by law enforcement agencies to determine the whereabouts of wanted persons, identify criminal connections, and prevent crimes. A comparative legal analysis of Uzbekistan, the European Union, and the United States is included, highlighting regulatory frameworks, ethical considerations, and data protection standards. The study proposes improvements to legal regulation, ethical oversight, and practical implementation of AI in search operations. The findings demonstrate that AI can enhance operational efficiency while maintaining human rights protections when proper oversight mechanisms are applied.

Keywords: Artificial intelligence, search operations, operational-search activity, big data, machine learning, digitalization of law enforcement, comparative law, GDPR, AI Act.

Introduction

The digital transformation of social relations has a significant impact on the activities of law enforcement agencies. The increase in data volumes, the growth of transnational crime, and the sophistication of methods used to conceal criminal activity objectively require the introduction of new technological solutions.^1 In this context, artificial intelligence (AI) is becoming one of the key tools for enhancing the effectiveness of search operations.This study employs a comparative legal research method combined with doctrinal and analytical approaches. It analyzes statutory and regulatory texts from Uzbekistan, the European Union, and the United States, as well as scholarly publications, policy documents, and international guidelines. The methodology allows for evaluating AI integration in operational-search activities, identifying legal gaps, and formulating recommendations for regulatory and ethical improvements.

RESEARCH METHODOLOGY

This study employs a comparative legal research method combined with doctrinal and analytical approaches. It analyzes statutory and regulatory texts from Uzbekistan, the European Union, and the United States, as well as scholarly publications, policy documents, and international guidelines. The methodology allows for evaluating AI integration in operational-search activities, identifying legal gaps, and formulating recommendations for regulatory and ethical improvements.

RESULTS AND DISCUSSION

AI in the context of search operations can be defined as a set of software and hardware solutions capable of performing analytical, predictive, and identification functions traditionally carried out by humans. Unlike conventional information systems, AI is characterized by its ability to learn and adapt based on data analysis.[1]

In search activities, AI is used as an auxiliary tool that ensures:

- analysis of big data (telecommunications information, video streams, digital traces);
- facial, voice, and behavioral pattern recognition;
- identification of links between individuals, events, and objects;
- forecasting probable routes and locations of wanted persons.[2]

According to the research can be identified the main areas of AI application in search practice:

- Big Data Analysis and Digital Traces
- Facial Recognition and Biometric Technologies
- Predictive Analytics

Modern search operations involve processing significant volumes of information, including data from open sources, social networks, video surveillance systems, and telecommunications. Machine learning algorithms allow such data to be structured and enable the identification of non-obvious correlations difficult to detect using traditional methods.

Computer vision systems are widely used to identify individuals based on images and video recordings. In search practice, this contributes to the rapid detection of wanted persons in public places, transport infrastructure, and border-crossing points. Accuracy depends on data quality and requires mandatory human oversight.[3] AI is also used to predict possible actions and movements of wanted persons based on prior behavior, social connections, and geographic factors. Predictive models help optimize law enforcement resource allocation and increase operational effectiveness. Looking at the experiences of different countries in introducing artificial intelligence, we can see that AI is most often used for analytical and predictive purposes, as well as for processing thousands of tons of information that comes from different sources. This practice assists law enforcement officials in identifying and, to some extent, "anticipating" crime scenes.[4] In the Republic of Uzbekistan, AI use in law enforcement and search operations develops within ongoing

[1] Kuznetsov, Sergey V., Artificial Intelligence and Law: Problems and Prospects (Saint Petersburg: Legal Center Press, 2023).
[2] Soloviev, Andrey I., Operational-Search Activity in the Context of Digitalization (Moscow: Yurlitinform, 2021).
[3] Floridi, 2019.
[4] Guzalkhon Akhmedova, & Egamberdiyev Dilshod Oybek Ugli. (2023). THE ROLE OF MODERN TECHNOLOGIES IN OPERATIONAL AND INVESTIGATIVE ACTIVITIES. The American Journal of Political Science Law and Criminology, 5(04), 27–30. https://doi.org/10.37547/tajpslc/Volume05Issue04-05

judicial and legal reforms and the national digitalization agenda. Operational-search activities are regulated primarily by national legislation, establishing principles of legality, proportionality, protection of human rights, and confidentiality. AI technologies are currently considered auxiliary analytical tools rather than autonomous decision-making mechanisms, ensuring meaningful human control. Special legal norms are needed to regulate personal data protection, algorithmic transparency, and accountability.

European Union

The EU has one of the most comprehensive frameworks for AI, including law enforcement applications. Regulation (EU) 2016/679 (General Data Protection Regulation, GDPR) establishes lawfulness, fairness, transparency, purpose limitation, and data minimization principles, which apply to AI-based data processing in search operations (GDPR, Art. 5). The proposed AI Act classifies law enforcement AI systems as high-risk and mandates human oversight, transparency, quality training datasets, and post-market monitoring.[5]Fully automated decision-making is restricted; AI outputs serve only as decision-support tools.

United States

The US regulates AI in law enforcement through a decentralized sector-specific approach. In New York City, for example, a centralized public security operations centre was already established in 2007, bringing together more than 100 data sources such as patrol cars, surveillance cameras, and police calls. The entire flow of information enters the center, after which it is studied in detail, competently organized and distributed, according to the interests of users. As was asked from developers, the creation of this single «cell» of information contributed to the reduction of crime by 27% .There is no comprehensive federal statute; instead, regulation relies on constitutional principles, federal and state legislation, judicial precedents, and executive policies. Federal guidelines require lawful, transparent, and supervised AI applications (OMB, 2020).

Comparative Assessment

Comparative analysis shows different regulatory models. The EU follows a preventive, rights-centered strategy with strict ex ante regulation (GDPR, Art. 5; EU AI Act, 2024).

The US model is flexible, relying on constitutional principles and executive guidance (OMB, 2020). Uzbekistan is intermediate, integrating AI while developing specialized regulation. Adopting EU risk-based elements with US flexibility can ensure effective search operations while protecting human rights.

[5] European Parliament and Council, Artificial Intelligence Act, 2024

Table 1: Comparative Legal Framework (Uzbekistan – EU – USA)

Aspect	Uzbekistan	EU	USA
AI Role	Auxiliary tool, human oversight	High-risk classification, regulated	Flexible, agency discretion
Data Protection	National law, ongoing reform	GDPR strict compliance	Constitution + agency guidance
Human Oversight	Mandatory	Mandatory	Recommended, case law-based
Legal Certainty	Medium	High	Medium
Transparency	Limited	Required	Variable

CONCLUSION

AI significantly enhances search operation effectiveness. A balanced model with mandatory human oversight, ethical safeguards, and regulatory clarity ensures operational efficiency while protecting fundamental rights. Based on the long-standing experience of countries that actively implement modern technologies in intelligence, it can be concluded that artificial intelligence offers numerous advantages in combating various types of crime. In general, AI facilitates the work of law enforcement officers and, in some cases, enables the anticipation of criminal activity. The active integration of AI into operational and investigative processes will not only achieve these objectives but also contribute significantly to advancements in crime prevention and law enforcement effectiveness.

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