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USE OF ARTIFICIAL INTELLIGENCE AND INTERNATIONAL COOPERATION OF THE NATIONAL POLICE IN COMBATING HUMAN TRAFFICKING: OPTIMIZING THE EXCHANGE OF EXPERIENCE AND ENHANCING EFFICIENCY

The article presents the results of research a study of the critical role of artificial intelligence (hereinafter referred to as AI) and international cooperation in strengthening the capabilities of the National Police of Ukraine in combating such a complex transnational crime as human trafficking. This crime not only constitutes a gross violation of national legislation, but also encroaches n fundamental human rights and freedoms enshrined in international law, such as the right to life, liberty, and security of person. Using the methods of analysis, synthesis, systematic approach, forecasting and conceptual analysis, the paper comprehensively examines how the integration of advanced AI technologies – in particular, Big Data analytics, pattern and natural language recognition, and predictive analytics – can transform traditional approaches to crime detection, investigation and prevention, enabling a more proactive and targeted fight against organized criminal groups. Particular attention is paid to the potential of AI to optimize international exchange of experience and intelligence. The author analyzes the capabilities of AI in detecting suspicious patterns, in predictive analytics, in identifying victims, and in automating routine tasks. The author considers the prospects of creating unified international data exchange platforms that, thanks to AI, will be able to automatically process and translate information, revealing hidden transnational connections. The paper emphasizes the importance of creating joint think tanks where AI will act as a powerful «intellectual assistant», significantly speeding up complex investigations and facilitating faster response to human rights violations. The paper also identifies key challenges to the implementation of these innovative approaches, including ethical dilemmas, data privacy issues, the need for appropriate technical infrastructure and skilled personnel, and investments in appropriate staff training. The article emphasizes that the systematic implementation of AI in cooperation with international partners is key to progress in the fight against human trafficking. The purpose of the research is to substantiate the need for and ways to further improve the mechanisms for combating human trafficking through the synergy of artificial intelligence.
Key words: *artificial intelligence, human trafficking, national police, fundamental human rights, human dignity, international cooperation.*

Statement of the problem. In today's globalized world, human trafficking is a complex, multifaceted phenomenon that violates the rule of law, fundamental human rights and freedoms, and undermines national and international security. This problem becomes especially urgent in the context of growing international migration, deepening socio-economic inequality, instability in certain regions, and the active development of digital technologies. Criminal groups engaged in human trafficking are increasingly using the latest technological tools, including social media, anonymous messaging platforms and falsification of digital traces, which greatly complicates the activities of law enforcement agencies.

In these conditions, the National Police of Ukraine is forced to adapt its counteraction methods to meet the challenges of the times, in particular by introducing modern digital solutions and data analysis systems based on artificial intelligence. AI allows automating monitoring processes, identifying patterns in large amounts of information, predicting risks, and detecting potential criminal networks before offenses are committed. At the same time, the effective use of such technologies requires proper legal and regulatory frameworks, technical support, and a high level of specialized training.

Another important aspect is international cooperation in combating human trafficking, which includes the exchange of operational information, coordination of actions during transnational investigations, joint trainings, and the development of unified standards. Optimization of cooperation with international partners allows to increase the speed of response to threats, eliminate gaps in law enforcement practice and avoid duplication of efforts.

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Thus, a comprehensive combination of artificial intelligence capabilities and international police cooperation tools is not only a promising area, but also an objective necessity in the process of transforming the mechanisms for combating human trafficking. There is a need for a scientific and legal understanding of ways to optimize the exchange of experience, introduce innovative approaches and build effective interagency cooperation in line with international standards and practices.

Analysis of recent research and publications. In the current scientific literature and practical activities to combat human trafficking, considerable attention is paid to the introduction of digital technologies, in particular the use of artificial intelligence, as well as the intensification of international cooperation. Thus, D. Yevenko highlighted foreign experience in preventing human trafficking, formulated the features of foreign prevention practices and emphasized the importance of coordination between law enforcement agencies of different countries to effectively combat this phenomenon and emphasized the interaction of law enforcement agencies with civil society [1, p. 61–62]. I.A. Fedchak drew attention to artificial intelligence systems in criminology and the possibility of analyzing large amounts of information, which allows to identify patterns and anomalies that may indicate the formation of criminal networks and emphasized that technologies have an extremely high security potential [2, p. 1–5]. E.V. Zozulia studied the regulatory and organizational aspects of Ukraine's international cooperation in combating human trafficking [3, pp. 402–407]. This led the author to the idea of the need to unify procedures and overcome legal differences.

At the same time, as noted by A.M. Demkiv, O.V. Bykova, E.A. Vlasenko and V.I. Melnyk, who summarized the review of new technologies and concluded that they can help save lives in various fields [4, p. 135–137]. It is assumed that the introduction of information technology into law enforcement practice in Ukraine has significant potential to increase the efficiency of investigations and data exchange. However, there may be challenges related to different levels of technical equipment, standardization of procedures and access to resources.

O.Y. Drozd and L.V. Soroka studied the impact of the war in Ukraine on the European strategic course of combating human trafficking [5, p. 202–207].

The publications reviewed have provoked reflection and have become an impetus for understanding that the synergy between the use of artificial intelligence and active international cooperation is a key modern direction for improving the effectiveness of combating human trafficking in Ukraine.

The scientific basis for the development of XAI was laid by a researcher such as Tim Miller, who in his thorough work «Explanation in Artificial Intelligence: Insights from the Social Sciences» [6, p. 3–4], he argues that explanations in AI should be understandable in terms of human cognition, not just technical accuracy. He distinguishes between different types of explanations – causal, counterfactual, and procedural – and justifies which ones are relevant in legal contexts. Other well-known researchers, in particular Cynthia Rudin, advocates the use of so-called interpretable models that are transparent from the very beginning, unlike the «black boxes» typical of deep learning [7, p. 206–215].

Objective. In the context of the growing scale of human trafficking and the complication of its mechanisms, it is of particular importance to improve the efficiency of law enforcement agencies, in particular the National Police of Ukraine. Modern challenges require not only the improvement of internal procedures, but also the intensification of international cooperation and the introduction of the latest digital technologies, including artificial intelligence (hereinafter – AI).

In view of the above, it becomes an urgent task to analyze the possibilities of integrating artificial intelligence tools into the activities of the National Police of Ukraine in the field of combating human trafficking, as well as to determine the prospects for international cooperation to increase the effectiveness of such measures.

The purpose of the study is to substantiate the role and prospects of using artificial intelligence in combination with international cooperation in the system of combating human trafficking, as well as to identify ways to optimize the exchange of information and experience between the National Police of Ukraine and its foreign partners.

In order to achieve this goal, the following tasks need to be solved

– to identify current threats and trends in the field of human trafficking;

– analyze the current legal framework and institutional mechanism for combating human trafficking in Ukraine;

– to study the practice of international cooperation in combating human trafficking;

– to determine the potential of using artificial intelligence to detect, monitor and prevent human trafficking;

– to assess the possibilities of integrating AI into the operational and service activities of the National Police of Ukraine.

Summary of the main material. At the present stage of human development, human trafficking is one of the most acute global threats which significantly undermines the foundations of law and order, security and human rights. Its scale and sophistication are increasing every year as a result of the interaction of a number of factors, including globalization transformations, unstable socio-economic conditions, increased migration flows, armed conflicts, and the widespread use of digital technologies that create new mechanisms of exploitation.

In a fundamental sense, human trafficking is not just a criminal offense, but a serious violation of fundamental human rights, primarily the right to freedom, dignity, personal integrity, work, security and justice. It covers a wide range of criminal activities aimed at recruiting, transporting, harboring or obtaining persons for the purpose of exploitation. The main forms of such exploitation include sexual slavery, forced labor, begging, involvement in criminal activities, organ harvesting, forced marriage, and in recent years, cyber exploitation and reproductive exploitation, including in the field of surrogacy [8, p. 45–57].

One of the most dangerous characteristics of human trafficking is its transnational nature. Criminal networks do not operate within a single state, but cover several countries – the country of origin, transit and destination. This creates serious obstacles for law enforcement agencies, which face jurisdictional issues, differences in legislation, and a lack of mechanisms for effective international information exchange and coordination. In this context, cooperation between governments, international organizations, law enforcement and judicial structures, and the public sector is of particular importance.

Among the main factors contributing to the spread of human trafficking is socioeconomic inequality. Poverty, lack of proper education, unemployment, limited access to resources and social services, as well as discrimination based on gender, race or ethnicity, all make certain groups of people extremely vulnerable. This is especially true for women, children, people with disabilities, internally displaced persons and migrants in search of better living conditions.

In the context of current global crises, such as the COVID-19 pandemic, economic turmoil, and the war in Ukraine, both internal and cross-border trafficking in persons has increased. In particular, the full-scale invasion of Ukraine by the Russian Federation in 2022 significantly affected the expansion of the illegal migration market, creating preconditions for intensive recruitment of vulnerable populations, including women with children who were forced to leave their homes [9, p. 59].

In addition to physical methods of influence, the latest criminal strategies actively use digital platforms to recruit and control victims. Social networks, messengers, forums, and even online games have become tools in the hands of traffickers. The creation of fictitious vacancies, educational programs, promises of quick earnings or marriage to a foreigner are all traps that allow a person to be involved in labor or sexual exploitation.

In the context of the digitalization of society, the phenomenon of cyber exploitation poses a particular threat. This is a relatively new but extremely dangerous form of human trafficking that involves the involvement of victims – often children or adolescents – in creating or participating in digital sexual content, committing fraud, or working on illegal online platforms. The anonymity, accessibility of digital technologies and weak online control mechanisms only contribute to the development of these forms of crime.

Analyzing current threats, it is impossible to ignore the problem of the high latency of this phenomenon. Most human trafficking crimes remain undetected due to victims' fear of persecution, distrust of the law enforcement system, legal illiteracy, and unwillingness to disclose personal traumatic circumstances. Additionally, the complexity of the victim identification procedure, insufficient training of social service workers, law enforcement officers and medical professionals also contributes to the fact that many cases of exploitation remain unreported.

Equally important is the aspect of the imperfection of the legal framework. Although international documents, such as the UN Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children [10], provide the basis for relevant national legislation, the problem still remains in the effectiveness of its implementation, harmonization with other regulations and application in practice. In Ukraine, despite the existence of specialized laws and programs, including the National Mechanism for Interaction of Actors, there are gaps in law enforcement practice, particularly in the context of prosecuting criminals and rehabilitating victims.

Special attention should be paid to the introduction of innovative technologies in the fight against human trafficking. The use of artificial intelligence, blockchain, biometric systems and digital databases can significantly increase the level of control, identification, risk monitoring and coordination of efforts between countries. For example, automated systems for detecting anomalies in migration flows, tracking financial transactions, and creating integrated information exchange platforms between border and police agencies can help fight organized criminal groups more effectively.

In this context, international cooperation plays an important role. Joint operations, information exchange, the creation of unified registries, joint anti-trafficking centers, and training programs for national personnel are essential tools without which countering this global threat cannot be successful. Organizations such as the United Nations, the European Union, Interpol, the OSCE, and numerous international NGOs play an important role in coordinating efforts, developing policies, and protecting victims.

At the present stage, human trafficking is not just a challenge for individual states, but a serious threat to international security and stability [11, p. 125]. Effective counteraction to this phenomenon is possible only with a comprehensive, interdisciplinary and multi-actor approach, including reforming national legislation, strengthening international cooperation, introducing the latest technologies, developing social services and strengthening the legal awareness of citizens. Only such a strategy can ensure not only the identification and punishment of perpetrators, but also the real restoration of the rights and dignity of each victim.

In this context, the need to strengthen interagency coordination, expand international information exchange, and introduce innovative technologies, including artificial intelligence tools, to identify criminal patterns, analyze large amounts of data, predict risk situations, and support law enforcement decision-making is of particular importance. The development of technological solutions, such as analytical platforms, speech and image recognition software, and geolocation monitoring, makes it possible to increase the level of detection and documentation of criminal activity, reduce the workload of operational staff, and shorten the time required to respond to offenses.

Along with technical development, harmonization of legal standards at the international level plays an important role, in particular the implementation of the Council of Europe Convention on Action against Trafficking in Human Beings [12], the UN Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children [8], as well as active participation of states in the activities of intergovernmental structures such as Europol, Interpol, the OSCE and the European Commission's Group of Experts on Action against Trafficking in Human Beings.

Law provides the regulatory framework governing criminal liability and victim protection, while economics analyzes the impact of human trafficking on labor markets and financial flows. Countering human trafficking in Ukraine is based on a set of legal acts and institutional mechanisms that regulate both criminal and social rehabilitation measures.

At the national level, the key legislative document is the Law of Ukraine «On Combating Trafficking in Human Beings» [13], which defines the basic principles of state policy in this area, mechanisms for identifying victims of trafficking, the procedure for providing them with assistance and guarantees of protection. This law is the basis for the implementation of the state anti-criminal policy and the introduction of interagency cooperation.

In addition, the Criminal Code of Ukraine [14], in particular Article 149, criminalizes human trafficking, including recruitment, transportation, harboring and transfer of a person for the purpose of exploitation. It is also important to note that Ukraine is a party to international treaties that regulate the legal aspects of combating human trafficking, including the UN Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children [8, p. 59], the Council of Europe Convention on Action against Trafficking in Human Beings [10], and the Istanbul Convention [15]. Their provisions are gradually being implemented into Ukrainian legislation through the harmonization of regulations and the development of relevant bylaws. The institutional mechanism for implementing anti-trafficking policy in Ukraine involves several key actors.

The key international document that laid the foundation for the global response to human trafficking is the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the UN Convention against Transnational Organized Crime [16].

This Protocol not only defines the concept of trafficking in persons, but also establishes the obligations of states to criminalize the relevant acts, protect victims, provide international legal assistance, extradition, joint investigation and prevention. The Protocol has become a starting point for the development of numerous national and regional anti-trafficking strategies.

The central coordinating role is played by the Ministry of Social Policy of Ukraine, which maintains the Unified Register of Victims of Trafficking in Persons and coordinates the provision of assistance and the implementation of state programs.

At the same time, the Ministry of Internal Affairs, the National Police, the Security Service of Ukraine, prosecutors, the State Border Guard Service, the State Migration Service, and local governments are important actors. Non-governmental organizations are also actively involved, in particular those specializing in supporting victims of human trafficking and providing legal, psychological and medical assistance.

At the same time, legal support for effective countering human trafficking is not self-sufficient, as it is the interdisciplinary approach that allows for the complex nature of this phenomenon. Law forms the regulatory framework for liability and protection, economics investigates the causes related to market imbalances and financial flows that accompany exploitative crimes, and psychology focuses on overcoming post-traumatic syndromes and social rehabilitation of victims. Such an integrated approach allows for the formation of a comprehensive public policy that covers both preventive and reactive measures and ensures the sustainable return of victims to normal social life [17, p. 30–42].

Special attention should be paid to the use of innovative technologies, in particular digital data processing systems and AI, which, in the context of information overload, open up new opportunities to improve the efficiency of law enforcement.

Modern advances in AI make it possible to use machine learning, natural language processing algorithms, computer recognition of faces, voices, behavioral patterns, and social connections, which is especially relevant in identifying and documenting hidden criminal acts committed in the digital environment. For example, big data analytics systems can identify suspicious routes of movement, transactions related to illegal labor or sexual exploitation, as well as atypical behavioral patterns on social media that may indicate recruitment. AI can also automate the process of monitoring open sources, including the darknet, where information is exchanged, human trafficking is carried out, and victims are recruited for exploitation [18, p. 33–39; 19, p. 102–105].

The use of artificial intelligence tools can significantly reduce response times, improve the accuracy of risk analysis, reduce the workload of operational staff, and help develop more effective preventive measures. Given the limited resources of law enforcement agencies and the constant improvement of criminals' methods, digital technologies can become a key component of the new paradigm in the fight against human trafficking. In this regard, it is also important to ensure proper legal regulation of the use of artificial intelligence technologies. It is necessary to take into account personal data protection standards, ethical requirements and the principle of non-discrimination.

International cooperation plays a key role in the fight against human trafficking, as this crime has a distinctly transnational character and often goes beyond national jurisdictions. The basis for such cooperation is a number of international acts and conventions that regulate joint actions of states in this area and establish common standards of counteraction.

A significant contribution to the development of international practice was made by the Council of Europe, which in 2005 adopted the Convention on Action against Trafficking in Human Beings [12]. This document significantly expanded the obligations of the participating states, in particular, in terms of protecting the rights of victims, establishing independent monitoring bodies, introducing the principle of inevitable liability for offenders, and establishing obligations to finance rehabilitation programs. It is worth emphasizing that this Convention applies regardless of whether the crime is organized or cross-border, and extends its provisions to internal trafficking in persons, which emphasizes its progressive nature.

The European Union, in turn, has introduced a number of instruments to strengthen interstate coordination. In particular, Directive 2011/36/EU on preventing and combating trafficking in human beings sets minimum standards for criminal prosecution, victim protection, and mandatory interstate cooperation [20]. Within the EU, there are structures such as Europol, Eurojust, and FRONTEX, which are involved in the investigation of crimes, cross-border surveillance, information exchange, and repatriation of victims. Especially active are the activities of Europol's task forces, which use analytical capabilities to track cross-border criminal networks.

The International Organization for Migration is an important actor in the process, implementing programs to identify and reintegrate victims, facilitate the voluntary return of victims to their countries of origin, and develop assistance systems in more than 100 countries. With the support of the International Organization for Migration (IOM), numerous educational initiatives, trainings for border guards, law enforcement officers, social workers, and technical missions to assess risks in hot spots of migration pressure are being implemented.

We should also mention the activities of the Organization for Security and Cooperation in Europe, which created the Office of the Special Representative and Coordinator for Combating Trafficking in Human Beings. This institution carries out analytical, monitoring and advisory activities, as well as provides political dialogue between states to improve national strategies and harmonize law enforcement practices. The OSCE also has an International Platform for the Exchange of Information and Experience, which includes international organizations, governments, NGOs and academic institutions [21, p. 7–12].

On a practical level, international cooperation is implemented through a number of mechanisms: bilateral and multilateral agreements, participation in joint operational activities (e.g., joint investigative teams), use of Interpol systems, cross-border database exchange, automatic threat recognition and profiling at border crossing points. Joint databases on suspects, movement of victims, identified routes, forged documents, vehicles, etc. are actively used.

Ukraine is actively involved in the system of international cooperation in combating human trafficking. It is a party to the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime [10], the Council of Europe Convention [12], the Istanbul Convention [15], Directive 2011/36/EU of the European Parliament and of the Council of April 5, 2011 on preventing and combating trafficking in human

beings and protecting victims [20]. The practical implementation of obligations is carried out through participation in cross-border operational activities, OSCE training programs, projects of the International Organization for Migration, and through cooperation with Europol (European Police Office). As part of the implementation of the National Action Plan to Combat Trafficking in Human Beings, Ukraine is developing mechanisms for interagency cooperation, improving the victim identification system, and harmonizing criminal legislation with European standards [22].

Effective counteraction to human trafficking is impossible without systematic and institutionalized international cooperation. Recent experience shows that only coordination of actions, real-time information exchange, creation of joint investigation teams, development of digital tools and cross-sectoral partnerships can successfully respond to the dynamics of transnational slavery. Since criminal trafficking networks are rapidly adapting to new conditions, effective cooperation between states should be based on the principles of mutual trust, shared responsibility and an integrated approach.

The use of artificial intelligence in the field of combating human trafficking is one of the most relevant innovative components of modern law enforcement and prevention activities. Due to the complexity, multifacetedness and transnational nature of this crime, traditional methods of combating it are increasingly showing limited potential, which leads to the search for new tools and approaches. Artificial intelligence, as a technology, is capable of processing large amounts of information, identifying complex patterns of behavior and predicting potential threats, thereby creating conditions for more effective counteraction to human trafficking. The practice of applying AI in this area covers several interrelated areas, each of which has its own characteristics, functional load, and development prospects.

The first and basic area is big data analytics. Modern machine learning technologies, which are one of the key components of AI, allow automated processing and analysis of huge amounts of information coming from various sources: law enforcement databases, financial transactions, information from telecommunications operators, as well as open sources such as Internet resources, social networks, forums, etc. Under traditional methods, this work would require significant human resources, take a long time, and often be ineffective due to the difficulty of identifying hidden connections.

However, AI algorithms can identify non-trivial patterns, anomalies, and trends that characterize criminal human trafficking networks. In particular, the systems can detect abnormal movements of financial flows, atypical routes of movement of persons, and unconventional communication patterns between actors, which are signs of the organization of criminal activity. This allows law enforcement agencies to obtain not only a detailed picture of criminal schemes, but also to respond promptly to potential threats, avoiding wasting time on routine analysis of large amounts of data. It is important to emphasize that such analytics requires the integration of information from various sources into a single system. Such a system requires an appropriate level of information security, standardization of data formats, and legal regulation of information exchange.

The second area of particular importance is the automation of monitoring of the digital space, namely social networks, messengers, online forums and other Internet platforms, which are becoming the main channels for recruiting victims of human trafficking, distributing illegal offers, and coordinating the actions of criminal groups. The use of algorithms for natural language recognition, tone analysis, and detection of keywords and phrases related to human trafficking allows for real-time filtering of huge amounts of content, identifying potentially dangerous messages. Moreover, by using social graph analysis and network interaction methods, artificial intelligence reveals the structure of connections between accounts, identifying organized groups, their hierarchy, and operational activities. Social graphs are a way of representing social structures and relationships between actors using a mathematical model called a graph. It is a powerful tool for analyzing large amounts of data, especially in the context of social networks and other network interactions. This will enable law enforcement not only to track criminal communications but also to block them at an early stage. The uniqueness of this approach lies in the high speed of analysis and the possibility of large-scale coverage of the digital space, which is inaccessible to traditional law enforcement agencies.

The third important area is the use of predictive models and the construction of risk profiles that allow not only to record existing cases of human trafficking but also to predict the likelihood of such crimes in specific regions or among certain social groups. By analyzing socio-economic factors, demographic changes, migration processes, and historical data on criminal activity, artificial intelligence creates comprehensive models that help identify the most vulnerable areas and risk groups. This allows authorities, social services, and prevention organizations to plan prevention measures more effectively, optimize the use of resources, and create targeted support programs. In particular, such models can be used to predict an increase in the risk of human trafficking due to the economic crisis, changes in legislation, conflicts, or large-scale migration waves.

The fourth aspect is the use of artificial intelligence to automate the process of identifying victims, assessing their condition and needs. The use of biometric systems, face and voice recognition, as well as text and video processing algorithms, can increase the accuracy and speed of victim identification, even in cases where victims are hiding or in difficult circumstances. In addition, artificial intelligence can help create interactive platforms for confidential reporting by victims that ensure anonymity and security, as well as provide them with information about their rights and available assistance resources. This significantly enhances the ability of social services and law enforcement agencies to protect victims.

However, the introduction of artificial intelligence in the fight against human trafficking is accompanied by a number of significant technical, legal and ethical challenges. In particular, the processing of large amounts of personal data raises issues of privacy, confidentiality and other fundamental human rights. There is a risk that unreasonable or unethical use of AI may lead to violations of human rights, discrimination, or bias. Therefore, the application of these technologies should ensure transparency of algorithms, their accountability, and control by independent institutions. It is important to develop clear legal frameworks [23, p. 289] that regulate the collection, processing and storage of data, as well as the use of AI in law enforcement. This should comply with international human rights standards and be based on the principles of ethics, proportionality, and necessity.

In addition, the issue of continuous improvement of the technical capabilities of artificial intelligence, adaptation of algorithms to new types of threats and ways to disguise them is of great importance. Human trafficking is a dynamic area where criminals quickly change tactics, recruitment

and coordination methods, using the latest technologies. Successful counteraction requires the flexibility and ability of AI systems to respond quickly to new challenges, which involves the integration of innovative developments, staff training, and the development of interagency cooperation.

In view of the above, the introduction of artificial intelligence in the field of combating human trafficking is a promising area that has the potential to radically change the quality of law enforcement, improve security and human rights protection. However, achieving the maximum effect is only possible with a comprehensive approach that includes not only technical innovations, but also the formation of an appropriate legal environment, staff development, and ensuring transparency and control over the use of the latest technologies.

The integration of artificial intelligence (AI) into the operational activities of the National Police of Ukraine opens up a wide range of opportunities that can significantly improve the effectiveness of the law enforcement system in ensuring public safety, fighting crime, and protecting the rights and freedoms of citizens. Given the current level of development of digital technologies, as well as the transformation of the crime situation, in particular in view of the growing complexity and scale of criminal offenses, the use of AI is becoming not only desirable but also a necessary step to modernize law enforcement. The analysis of theoretical approaches, international experience, and peculiarities of national legislation allows us to identify the key areas, opportunities, and challenges that accompany the integration of AI into the operational and service activities of the National Police of Ukraine.

First of all, it should be noted that the operational and service activities of the National Police involve a wide range of tasks aimed at preventing, detecting, solving and investigating crimes, as well as maintaining public order. These activities require speed, accuracy, in-depth analysis of information, a high level of coordination between units and authorities, and the ability to adapt to constantly changing conditions and new challenges. The introduction of artificial intelligence into these processes has the potential to solve a number of traditional problems related to processing large amounts of data, automating routine tasks, and improving the quality of forecasting and rapid response.

One of the key areas of AI integration into the National Police's activities is the automation of information processing from various sources, including databases, telecommunication channels, video surveillance, social media, and other digital platforms. Artificial intelligence, including machine learning and deep learning methods, is able to identify abnormal behavioral patterns, potential threats, and criminal activities in real time that would not be available for traditional analysis due to their complexity or scale. For example, automated analysis of video feeds from surveillance cameras using face recognition and behavioral patterns allows us to identify suspicious individuals and prevent crimes at the earliest stages. Similarly, the analysis of digital traces in the network makes it possible to quickly track criminal groups, prevent cyberattacks and other forms of modern criminal activity.

The second important aspect is the use of AI in predicting the crime situation, which allows for effective planning of police resources, prioritization of activities, and optimization of operational and service measures. By analyzing historical data, socioeconomic indicators, geographic and demographic factors, artificial intelligence creates complex risk models that help identify areas with high crime rates, predict its potential growth, and identify likely targets of criminal activity. This approach contributes to more accurate and timely management decision-making, which ultimately increases public safety and reduces the burden on law enforcement agencies.

AI can greatly facilitate document flow and improve the quality of analytical work. Automated word processing and reporting systems allow for quick and accurate drafting of protocols, summarizing information about crimes, and analyzing text data sets in compliance with legal requirements. This not only increases the productivity of police officers, but also reduces the likelihood of errors, contributing to the rule of law and human rights.

The potential of AI in the fight against cybercrime, which is becoming increasingly widespread and challenging for traditional methods of counteraction, deserves special attention. Thanks to the capabilities of automated detection and blocking of malware, recognition of phishing attacks, and analysis of network traffic, artificial intelligence significantly increases the efficiency of the fight against cybercrime, and protects the information resources of the state and individuals. In addition, AI helps to identify individuals involved in cybercrime by analyzing digital traces and behavioral patterns in the network.

It is also worth emphasizing that the integration of artificial intelligence into the activities of the National Police requires an appropriate legal framework that will regulate the use of such technologies in compliance with the constitutional rights and freedoms of citizens. The issues of personal data protection, ensuring the transparency of algorithms, and avoiding discrimination and bias are particularly relevant in the context of AI application. In this area, it is necessary to harmonize domestic legislation with international standards, in particular, taking into account the provisions of the European Convention on Human Rights [24], the General Data Protection Regulation (GDPR) [25] and other relevant documents. Ensuring legal protection of users, as well as control over the use of AI, should be prioritized in the process of digital transformation of law enforcement.

The technical challenges of integrating AI are related to the creation of the necessary infrastructure, training, and the constant improvement of algorithms to take into account new threats and conditions. It is crucial to ensure interaction between different units of the National Police and other government agencies involved in security, as well as proper coordination with international partners. Preparing police officers to work with innovative technologies requires systematic training that includes not only technical aspects but also ethical, legal and organizational issues.

International experience shows that the introduction of AI in law enforcement improves efficiency, quality of investigations, prevention effectiveness, and reduces crime. In developed countries, AI has been successfully used for face recognition, big data analysis, crime forecasting, and fighting cybercrime and terrorism. This experience can be adapted in Ukraine, taking into account legislation, resources, and social realities. At the same time, the introduction of AI in the work of the National Police should be accompanied by constant monitoring of effectiveness, timely identification of risks and shortcomings, as well as with the participation of the public, human rights defenders and ethics experts to maintain a balance between security and fundamental human rights. However, the process of digitalization is accompanied by a number of systemic problems – from regulatory and organizational to technological – that complicate the integration of AI into the national security space and limit international cooperation.

One of the key obstacles that hinders the full use of artificial intelligence potential within the law enforcement system is the limited financial resources that the state can allocate to the development of innovative technologies. In the current environment, budget funding is insufficient. Police agencies are forced to prioritize traditional methods of operation, while the introduction of AI requires significant investment in technical infrastructure, software, specialized equipment, and the creation of data protection and communication security mechanisms. In the absence of sustained financial support, most police units remain insufficiently equipped to use the latest digital solutions, creating an imbalance between regulatory expectations and the actual capabilities of the law enforcement system.

An equally important problem is the shortage of personnel, in particular the lack of a sufficient number of specialists with the necessary qualifications to implement and maintain artificial intelligence-based systems. The traditional police training system focuses primarily on legal disciplines, while the modern digital reality requires an interdisciplinary approach that combines legal, analytical, and technological training.

The absence of such training creates a gap between the needs of operational activities and the actual level of staff competence. In order to improve the available personnel, it is necessary to introduce innovative methods of training personnel for the relevant authorities, and to establish mandatory upgrades qualifications. [23, p. 291]. Artificial intelligence and other programs are becoming an integral part of the fight against crime – from big data analysis and face recognition to predictive analytics. Police officers must be able to use these tools to be effective. As a result, the lack of knowledge negatively affects both the effectiveness of practical use of AI and the legitimacy of its application in conditions requiring strict adherence to procedural and human rights standards.

The problem of regulatory and legal support is also of particular importance. The Ukrainian legal framework currently lacks specialized legislation that regulates the conditions, limits, procedures and procedures for the use of artificial intelligence in police operations. Moreover, the current legislation, in particular in the area of personal data protection, does not take into account the specifics of the functioning of intelligent systems that can act autonomously, make decisions without direct human intervention, use forecasting methods based on algorithmic models, etc. This situation gives rise to a number of legal conflicts, in particular regarding liability for the consequences of automated decisions, the legality of collecting and processing information related to the private life of citizens, and access to algorithms used in police activities.

In addition, the existing legislative differences between the partner states with which Ukraine interacts in the security sector greatly complicate the processes of international data exchange, coordination of actions to combat transnational crime, and make it impossible to integrate into single digital platforms. The absence of harmonized standards for the format, scope, structure and protocols of information exchange, as well as the lack of cross-border data protection procedures, significantly reduces the effectiveness of international cooperation, in particular in joint investigations, intelligence sharing, and monitoring of cyber threats.

In the context of these problems, it is important to draw attention to the need to develop a unified regulatory approach to the introduction of AI in law enforcement. Such an approach should take into account not only technical parameters but also legal principles, in particular the principles of proportionality, legality, accountability, transparency of algorithms, and protection of human rights. In view of this, it is important to develop comprehensive legislation on artificial intelligence, which would include a special section on the use of AI in the field of public security, in particular in police activities. An important condition for legal regulation should be the establishment of clear criteria for the admissibility of the use of automated systems in the processes of surveillance, analysis of behavioral patterns, prediction of criminal activity, as well as determination of the procedural status of evidence obtained using intelligent technologies.

In this context, special attention should be paid to the need to improve mechanisms for controlling the use of AI. Independent monitoring of algorithmic systems, including mechanisms for appealing decisions made using automated tools, should be ensured, and supervisory bodies should be established to audit digital police platforms for compliance with ethical and legal standards.

In the future, international unification of legal standards governing the use of artificial intelligence in police activities is extremely important. A number of reputable international organizations have already developed the relevant norms. In particular, the Council of Europe adopted the Framework Convention on Artificial Intelligence, Human Rights, Democracy and the Rule of Law, and Ukraine acceded to it in 2025 [26]. The Convention defines the key principles of using AI in public administration: transparency, accountability, equality, non-discrimination, and also establishes the mandatory human control in decision-making. In 2024, the European Union adopted the Artificial Intelligence Regulation (AI Act) [27], which introduces a risk-based approach: a ban on AI systems that pose high risks to human rights (e.g., mass face recognition in public space), strict certification for systems used by law enforcement agencies, mandatory audits, mechanisms for appealing decisions, and requirements for transparency of algorithms. The UNESCO Recommendation on the Ethics of Artificial Intelligence: key facts was also adopted [28]. The universal principles are outlined: respect for human rights, environmental and social responsibility, prevention of bias in algorithms, and the need to ensure that «humans are at the center» of the technological process. Back in 2019, the Organization for Economic Cooperation and Development (OECD) approved the OECD Principles on AI, which emphasize the importance of transparency, reliability, accountability, and security of algorithmic systems in the public sector. The implementation of these international acts into Ukrainian national legislation will not only increase the efficiency and legitimacy of AI use in the police, but also strengthen cooperation with international partners in the field of security, digital rights, and human rights [29].

At the current stage, the introduction of artificial intelligence technologies into police operations is accompanied by a number of theoretical and legal challenges that require a comprehensive and interdisciplinary approach. First of all, it is about overcoming staffing and resource constraints, modernizing national legislation, harmonizing it with international standards, and creating effective legal guarantees for the use of algorithmic systems in the security sector. Ensuring a balance between innovation and adherence to the rule of law is possible only through coordinated actions of government agencies, the scientific community and civil society institutions. Combating human trafficking, a complex, latent and transnational phenomenon, deserves special attention in this context. One of the key areas of its

strengthening in the context of digital transformation is the introduction of artificial intelligence tools into the activities of law enforcement agencies. In this case, AI serves not only as a means of automating routine processes, but also as an effective tool for analytical support of operational and investigative activities, identifying risk situations, forming profiles of criminals and strategic planning of preventive actions.

In today's environment, the integration of AI technologies into the practice of detecting and investigating human trafficking crimes opens up new prospects. First and foremost, it is the ability to analyze large amounts of unstructured information from open sources, social media, mobile traffic, government databases, etc. Machine learning and in-depth analysis algorithms make it possible to identify potential threats and detect signs of risky scenarios, including in real time, which significantly increases the preventive capabilities of the police.

One of the important technological solutions that can be effectively applied in this area is blockchain. Its decentralized architecture ensures a high level of security, immutability and accessibility of records, which is essential for protecting confidential information about victims, suspects and official actions of law enforcement officers. In the context of interagency and international cooperation, this allows for the creation of a unified secure communication system between anti-trafficking actors – police, migration service, border guards, social institutions, international organizations, etc. Blockchain also makes it possible to record legally significant events (e.g., the movement of victims, decision-making by investigators) without the risk of falsification or unauthorized access.

The use of biometric technologies deserves special attention. Given the intense mobility of criminals and the widespread use of fake documents, biometrics is one of the key tools for establishing identity. The use of face recognition, fingerprint analysis, iris scanning, and voice identification technologies can significantly speed up and improve the accuracy of the verification procedure for persons crossing the border or involved in criminal proceedings. The introduction of integrated biometric databases synchronized with AI algorithms ensures the automatic detection of persons with a criminal record or who are on the international wanted list. Such systems should be promptly accessible to all authorized state bodies, including pre-trial investigation bodies, prosecutors, and social protection services. Cybercrime and human trafficking can have a rather complex relationship [30, p. 44–46].

A particularly promising area of technology development in law enforcement is the introduction of Explainable AI (XAI) systems. Their key feature is the ability not only to generate decisions but also to clearly explain the logic behind them. This approach is of fundamental importance in law enforcement, where transparency, accountability, and predictability are critical to protecting human rights and avoiding arbitrariness on the part of algorithmic systems.

XAI systems allow recording and interpreting the algorithm's «thinking», which is especially important in situations where, for example, an AI decision becomes the basis for detaining a person, conducting a search, or initiating criminal proceedings. In such cases, a person's right to defense requires access to clear information about what factors were taken into account by the algorithm and what its decision was based on. This also helps to avoid hidden discrimination or bias that may be embedded in the data or the structure of the model. The use of XAI in police work is also important for judicial practice. If the algorithm provides an explanation of its findings, a judge or prosecutor can critically assess the weight and admissibility of digital evidence, ensuring the principles of adversarialism and equality of arms in the process.

Therefore, the integration of Explainable AI into police activities can significantly increase the level of public trust in digital innovations, as well as ensure higher quality court decisions based on algorithmic data analysis, but in compliance with procedural fairness and the principle of legal certainty.

At the same time, technological progress in combating human trafficking cannot be effective without ensuring sustainable and coordinated interagency cooperation. This phenomenon should be countered on the basis of an interdisciplinary approach that combines operational and investigative, procedural, analytical, social and rehabilitation components. Only close cooperation between the police, the Security Service, the Border Guard Service, prosecutors, ministries dealing with human rights, international institutions and the public sector can ensure effective protection of victims' rights, timely response to crimes and long-term reintegration of victims into society.

The key task is to create a common space for information exchange, joint training, and unification of approaches to crime classification and investigative actions. The creation of specialized international platforms where AI is integrated with analytical investigation systems allows for effective interaction between national police from different countries in real time.

The use of artificial intelligence in combination with the development of international cooperation and well-established interagency coordination creates a new paradigm in the fight against human trafficking. It is based on innovation, proactivity, transparency, and the need for evidence-based risk management. However, the effective realization of this potential is only possible with comprehensive reforms: updating the regulatory framework, increasing the digital literacy of law enforcement, introducing ethical standards for AI, and ensuring accountability of all processes related to the use of new technologies. In the long run, these are the steps that will guarantee real protection of human dignity and effectively counteract one of the most dangerous challenges of our time.

Conclusions. Summarizing the above, it should be emphasized that combating human trafficking in today's globalized environment is a multifaceted and complex social and legal challenge that requires a systematic, interdisciplinary and technologically sound approach. Given the dynamics of cybercrime, the strengthening of transnational criminal networks and the intensification of migration processes, an effective response to this phenomenon requires the integration of modern digital innovations, including artificial intelligence, biometric technologies and blockchain systems, into law enforcement practice at the national and international levels.

Artificial intelligence, in particular machine learning algorithms and large-scale language models, demonstrate high potential in detecting, preventing and investigating human trafficking cases by analyzing large amounts of data and predicting potential risks. Biometric systems that provide reliable identification of individuals, combined with Explainable AI tools, create conditions for transparent and ethical use of technology, minimizing the risks of human rights violations and abuses.

At the same time, the effectiveness of digital solutions is only possible with updated and proper legal and regula-

tory frameworks that define the limits of their application, guarantee control and protection of constitutional rights and freedoms of citizens. A special role in this context is played by the development of a balanced digital policy that ensures the harmonization of innovative technologies with the rule of law and international human rights standards.

Interagency and international coordination, based on the prompt exchange of information, joint response and cooperation of state authorities, international organizations and civil society, is a key element in the system of combating human trafficking. Institutions such as Interpol, Europol, IOM and the UN should continue to promote the formation of a unified law enforcement platform that will optimize measures to identify, prosecute and rehabilitate victims.

Equally important is the human resources policy, which should be aimed at improving the skills of specialists, introducing ethical standards and developing professional responsibility, which ensures the quality and effectiveness of law enforcement activities. Educational initiatives aimed at shaping legal awareness, tolerant attitudes towards victims and secure handling of personal data should become an integral part of the state strategy.

In general, countering human trafficking in the twenty-first century is transforming into a complex multi-level system that combines technological tools, legal mechanisms, ethical norms and human resources, implemented through preventive, analytical, law enforcement and rehabilitation measures with a focus on protecting human rights and freedoms. Therefore, the strategic model of combating this phenomenon should be based on long-term public administration, effective interagency cooperation, active international cooperation and continuous improvement of the legal framework.

The topic under study is extremely relevant and promising for further research. It combines a number of key areas, each of which has great potential. Here are some of the perspectives that will be discussed in the next publication: A) development of legal regulation for the introduction of new AI tools for detecting and preventing human trafficking; B) optimization of international cooperation through AI; C) legal challenges of today's use of AI; D) overall performance evaluation and optimization; E) human factor and human-AI interaction; F) research on psychological aspects of police officers' interaction with AI systems, trust in them and their impact on decision-making.

Prospects for further research in this area generally include the need for both a deep basic scientific theory and practical normative developments, for diverse normative initiatives that will provide innovative solutions to strengthen the effectiveness of the fight against human trafficking at the national and international levels.

Only a comprehensive, holistic and scientifically based approach can ensure sustainable legal protection of victims, reduce the level of human trafficking and strengthen the democratic foundations of the rule of law, where the priority is to respect human dignity, freedom, equality and the rule of law.

Bibliography

1. Євенко Д.В. Запобігання торгівлі людьми: зарубіжний досвід. *Українська поліцеїстика: теорія, законодавство, практика.* 2022. № 2(4). С. 59–63. DOI: 10.32782/2709-9261-2022-2-4-12.

2. Федчак І.А. Системи штучного інтелекту в кримінології: загрози і можливості. *Український політико-правовий дискурс*. 2025. № 10. С. 1–10. DOI: https://doi.org/10.5281/zenodo.15520919.

3. Зозуля Є.В. Нормативно-правові та організаційні аспекти міжнародного співробітництва України у боротьбі з торгівлею людьми. *Форум права*. 2011. № 1. С. 402–407.

4. Демків А.М., Бикова О.В., Власенко Є.А., Мельник В.І. Огляд нових технологій для порятунку життя. *Збірник матеріалів ІІІ міжнародної науково-практичної Інтернет-конференції з нагоди відзначення Дня науки – 2023 в Україні.* 2023. С. 135–137. URL: https://surl.li/jvstsi (дата звернення: 22.07.2025).

5. Дрозд О.Ю., Сорока Л.В. Вплив війни в Україні на європейський стратегічний курс протидії торгівлі людьми. *Право і суспільство*. 2023. № 2. Т. 2. С. 202–207. URL: https://elar.navs.edu.ua/server/api/core/bitstreams/3a00e2a4-84ee-456a-94fb-f391964c23b7/content (дата звернення: 22.07.2025).

6. Miller T. Explanation in Artificial Intelligence: Insights from the Social Sciences. *Artificial Intelligence.* 2019. Vol. 267. P. 1–38. DOI: 10.1016/j.artint.2018.07.007.

7. Rudin C. Stop Explaining Black Box Models for High Stakes Decisions and Use Interpretable Models Instead. *Nature Machine Intelligence*. 2019. Vol. 1. № 5. P. 206–215. DOI: 10.1038/s42256-019-0048-x.

8. Бондаренко В.І. Торгівля людьми в умовах війни в Україні як кримінологічний феномен. *Вісник Кримінологічної асоціації України*. 2024. Вип. 1. С. 45–57.

9. Чередько К.О., Бережна О.М. Проблеми протидії торгівлі людьми в умовах війни в Україні. *Вісник Кримінологічної асоціації України.* 2024. Вип. 1. С. 58–72.

10. Протокол про попередження та припинення торгівлі людьми, особливо жінками і дітьми, і покарання за неї, що доповнює Конвенцію ООН проти транснаціональної організованої злочинності (Палермський протокол). Прийнятий Резолюцією 55/25 Генеральної Асамблеї від 15 листопада 2000 р. Ратифікований Законом України від 04.02.2004 № 1433-IV. URL: https://zakon.rada.gov.ua/laws/show/995_791#Text (дата звернення: 22.07.2025).

11. Небитова Н.Ю. Актуальні питання протидії торгівлі людьми в умовах міжнародного збройного конфлікту в Україні. *Аналітично-порівняльне правознавство.* 2024. Вип. 2. С. 120–130.

12. Конвенція Ради Європи про заходи щодо протидії торгівлі людьми, ратифікована Законом України від 21.09.2010 № 2530-VI. https://zakon.rada.gov.ua/laws/show/994_858#Text (дата звернення: 22.07.2025).

13. Закон України «Про протидію торгівлі людьми» від 20.09.2011 № 3739-VI. *Відомості Верховної Ради України.* 2012. № 32. Ст. 373. https://zakon.rada.gov.ua/laws/show/3739-17 (дата звернення: 22.07.2025).

14. Кримінальний кодекс України від 05.04.2001 № 2341-ІІІ (зі змінами і доповненнями). *Відомості Верховної Ради України.* 2001. № 25–26. Ст. 131. URL: https://zakon.rada.gov.ua/laws/show/2341-14 (дата звернення: 22.07.2025).

15. Council of Europe Convention on preventing and combating violence against women and domestic violence. 2011. URL: https://rm.coe.int/168008482e (дата звернення: 22.07.2025).

16. Конвенція ООН проти транснаціональної організованої злочинності : міжнародний документ від 15.11.2000. URL: https://zakon.rada.gov.ua/laws/show/995_789#Text (дата звернення: 22.07.2025).

17. Сперкач Н.А. Торгівля людьми: сучасний стан, динаміка та напрями протидії. *Ірпінський юридичний часопис*. 2023. Т. 15. № 3. С. 30–42. DOI: https://doi.org/10.33244/2617-4154-2(11)-2023-115-124.

18. Романова Н.Ф., Гусак Н.Є. Протидія торгівлі дітьми в Україні. *Український соціум.* 2007. Вип. 10. С. 15–27.

19. Серкевич І.Р., Лісіцина Ю.О., Євхутич І.М. Торгівля людьми в умовах воєнного стану в Україні: психологічні особливості жертв. *Науковий вісник Львівського державного університету внутрішніх спра*в. 2023. Вип. 12. С. 100–115. https://doi.org/10.32782/2311-8040/2023-2-13.

20. Directive 2011/36/EU of the European Parliament and of the Council of 5 April 2011 on preventing and combating trafficking in human beings and protecting its victims, and replacing Council Framework Decision 2002/629/JHA. URL: https://eur-lex.europa.eu/legal-content/UK/TXT/?uri=CELEX%3A32011L0036 (дата звернення: 22.07.2025).

21. Хомуленко О., Кононенко О.Я. Торгівля людьми: проблеми, причини, стан та методи боротьби. *Вісник Сумського державного університету*. 2007. Вип. 1. С. 5–22.

22. Державна цільова соціальна програма протидії торгівлі людьми на період до 2025 року. 2023. URL: https://zakon.rada.gov.ua/laws/show/496-2023-%D1%80#Text (дата звернення: 22.07.2025).

23. Панова О.О. Шляхи оптимізації кадрового забезпечення протидії торгівлі людьми. *Протидія кіберзагрозам та торгівлі людьми. МВС України.* 2019. С. 289–291. URL: https://dspace.univd.edu.ua/server/api/core/bitstreams/75ba9c27-dadd-4a5a-932b-dd588d96508a/content (дата звернення: 22.07.2025).

24. Європейська конвенція з прав людини. 1950. URL: https://zakon.rada.gov.ua/laws/show/995_004#Text (дата звернення: 22.07.2025).

25. Загальний регламент захисту даних (GDPR). 2016. URL: https://gdpr-text.com/uk/ (дата звернення: 22.07.2025).

26. Безпечний ШІ для мільйонів українців: Україна підписала Рамкову конвенцію про штучний інтелект та права людини. 2025. URL: https://www.kmu.gov.ua/news/bezpechnyi-shi-dlia-milioniv-ukraintsiv-ukraina-pidpysala-ramkovu-konventsiiu-pro-shtuchnyi-intelekt-ta-prava-liudyny. (дата звернення: 22.07.2025).

27. EU Artificial Intelligence Act. 2025. URL: https://artificialintelligenceact.eu/ (дата звернення: 22.07.2025).

28. UNESCO's Recommendation on the Ethics of Artificial Intelligence: key facts. 2023. URL: https://www.gcedclearinghouse.org/resources/unesco%E2%80%99s-recommendation-ethics-artificial-intelligence-key-facts?language=en (дата звернення: 22.07.2025).

29. OECD Principles on Artificial Intelligence. Organisation for Economic Co-operation and Development. 2019. URL: https://www.oecd.org/going-digital/ai/principles/ (дата звернення: 22.07.2025).

30. Зінченко Д.А., Сидоренко В.М. Загальний розвиток використання міжнародного досвіду працівниками поліції у сфері протидії кіберзлочинам і торгівлі людьми. *Протидія кіберзлочинності та торгівлі людьми*. 2023. С. 44–46. URL: https://dspace.univd.edu.ua/server/api/core/bitstreams/278374b8-3963-45f2-8c43-d2fa6b285cc2/content (дата звернення: 22.07.2025).

References

1. Evenko, D.V. (2022). Zapobihannia torhivli liudmy: zarubizhnyi dosvid [Prevention of human trafficking: foreign experience]. Ukrainska politseiistyka: teoriia, zakonodavstvo, praktyka – Ukrainian Police Science: Theory, Legislation, Practice, 2 (4), 59–63. DOI: 10.32782/2709-9261-2022-2-4-12 [in Ukrainian].

2. Fedchak, I.A. (2025*).* Systemy shtuchnoho intelektu v kryminolohii: zahrozy i mozhlyvosti [Artificial intelligence systems in criminology: threats and opportunities]. Ukrainskyi polityko-pravovyi dyskurs – Ukrainian Political and Legal Discourse, 10, 1–10. https://doi.org/10.5281/zenodo.15520919 [in Ukrainian].

3. Zozulia, Ye.V. (2011). Normatyvno-pravovi ta orhanizatsiini aspekty mizhnarodnoho spivrobitnytstva Ukrainy u borot'bi z torhivleiu liud'my [Regulatory and organizational aspects of Ukraine's international cooperation in combating human trafficking]. Forum prava – Law Forum, 1, 402–407. [in Ukrainian].

4. Demkiv, A.M., Bykova, O.V., Vlasenko, Ye.A., Melnyk, V.I. (2023). Ohliad novykh tekhnolohii dlia poriatunku zhyttia [Review of new technologies for saving lives]. Zbirnyk materialiv III mizhnarodnoi naukovo-praktychnoi internet-konferentsii z nahody vidznachennia Dnia nauky – 2023 v Ukraini – Proceedings of the 3rd International Scientific-Practical Internet Conference on the Occasion of Science Day – 2023 in Ukraine, *135–137*. Retrieved from: https://surl.li/jvstsi [in Ukrainian].

5. Drozd, O.Yu., Soroka, L.V. (2023). Vplyv viiny v Ukraini na yevropeiskyi stratehichnyi kurs protydii torhivli liud'my [The impact of war in Ukraine on the European strategic course of combating human trafficking]. Pravo i suspilstvo – Law and Society, 2(2), 202–207. Retrieved from: https://elar.navs.edu.ua/server/api/core/bitstreams/3a00e2a4-84ee-456a-94fb-f391964c23b7/content [in Ukrainian].

6. Miller, T. (2019). Explanation in artificial intelligence: Insights from the social sciences. *Artificial Intelligence*, 267, 1–38. DOI: https://doi.org/10.1016/j.artint.2018.07.007 [in English].

7. Rudin, C. (2019). Stop explaining black box models for high stakes decisions and use interpretable models instead. *Nature Machine Intelligence*, 1(5), 206–215. DOI: https://doi.org/10.1038/s42256-019-0048-x [in English].

8. Bondarenko, V.I. (2024). Torhivlia liudmy v umovakh viiny v Ukraini yak kryminolohichnyi fenomen [Human trafficking in the context of war in Ukraine as a criminological phenomenon]. *Visnyk Kryminolohichnoi Asotsiatsii Ukrainy – Bulletin of the Criminological Association of Ukraine*, 1, 45–57. [in Ukrainian].

9. Cheredko, K.O., Berezhna, O.M. (2024). Problemy protydii torhivli liudmy v umovakh viiny v Ukraini [Problems of combating human trafficking in the context of war in Ukraine]. *Visnyk Kryminolohichnoi Asotsiatsii Ukrainy – Bulletin of the Criminological Association of Ukraine*, 1, 58–72. [in Ukrainian].

10. Protokol pro poperedzhennia ta prypynennia torhivli liudmy, osoblyvo zhinkamy i ditmy, i pokarannia za neї, shcho dopovniuie Konventsiiu OON proty transnatsionalnoi orhanizovanoi zlochynnosti (Palermskyi protokol): mizhnarodnyi dokument vid 15.11.2000. *Ratyfikovanyi Zakonom Ukrainy vid 04.02.2004 No 1433-IV.* Retrieved from: https://zakon.rada.gov.ua/laws/show/995_791#Text [in Ukrainian].

11. Nebytova, N.Yu. (2024). Aktualni pytannia protydii torhivli liudmy v umovakh mizhnarodnoho zbroinoho konfliktu v Ukraini [Topical issues of combating human trafficking in the context of international armed conflict in Ukraine]. *Analitychno-porivnialne pravoznavstvo – Analytical and Comparative Jurisprudence,* 2, 120–130. [in Ukrainian].

12. Konventsiia Rady Yevropy pro zakhody shchodo protydii torhivli liudmy: mizhnarodnyi dokument, ratyfikovanyi Zakonom Ukrainy vid 21.09.2010 No 2530-VI. (2010). Retrieved from: https://zakon.rada.gov.ua/laws/show/994_858#Text [in Ukrainian].

13. Zakon Ukrainy «Pro protydiiu torhivli liudmy» vid 20.09.2011 r. No 3739-VI. (2012). *Vedomosti Verkhovnoi Rady Ukrainy,* 32, art. 373. Retrieved from: https://zakon.rada.gov.ua/laws/show/3739-17 [in Ukrainian].

14. Kryminalnyi kodeks Ukrainy: Zakon Ukrainy vid 05.04.2001 No 2341-III (iz zminamy i dopovnenniamy). (2001). *Vedomosti Verkhovnoi Rady Ukrainy, 25–26, art. 131.* Retrieved from: https://zakon.rada.gov.ua/laws/show/2341-14 [in Ukrainian].

15. Council of Europe Convention on preventing and combating violence against women and domestic violence. (2011). Retrieved from: https://rm.coe.int/168008482e [in English].

16. Konventsiia OON proty transnatsionalnoi orhanizovanoi zlochynnosti: mizhnarodnyi dokument vid 15.11.2000. Retrieved from: https://zakon.rada.gov.ua/laws/show/995_789#Text [in Ukrainian].

17. Sperkach, N.A. (2023). Torhivlia liudmy: suchasnyi stan, dynamika ta napriamy protydii [Human trafficking: current state, dynamics and directions of counteraction]. *Irpinskyi yurydychnyi chasopys – Irpin Law Journal,* 15(3), 30–42. DOI: https://doi.org/10.33244/2617-4154-2(11)-2023-115-124 [in Ukrainian].

18. Romanova, N.F., Husak, N.Ye. (2007). Protydiia torhivli ditmy v Ukraini [Combating child trafficking in Ukraine]. *Ukrainskyi sotsium – Ukrainian Society*, 10, 15–27. [in Ukrainian].

19. Serkevych, I.R., Lisytsyna, Yu.O., Yevkhutych, I.M. (2023). Torhivlia liudmy v umovakh voiennoho stanu v Ukraini: psykholohichni osoblyvosti zhertv [Human trafficking under martial law in Ukraine: psychological characteristics of victims]. *Naukovyi visnyk Lvivskoho derzhavnoho universytetu vnutrishnikh sprav – Scientific Bulletin of the Lviv State University of Internal Affairs*, 12, 100–115. https://doi.org/10.32782/2311-8040/2023-2-13 [in Ukrainian].

20. Directive 2011/36/EU of the European Parliament and of the Council of 5 April 2011 on preventing and combating trafficking in human beings and protecting its victims, and replacing Council Framework Decision 2002/629/JHA (2011). Retrieved from: https://eur-lex.europa.eu/legal-content/UK/TXT/?uri=CELEX%3A32011L0036 [in English].

21. Khomulenko, O., Kononenko, O.Ya. (2007). Torhivlia liudmy: problemy, prychyny, stan ta metody borotby [Human trafficking: problems, causes, state and methods of combating]. *Visnyk Sumskoho derzhavnoho universytetu – Bulletin of Sumy State University,* 1, 5–22. [in Ukrainian].

22. Derzhavna tsil'ova sotsial'na prohrama protydii torhivli liud'my na period do 2025 roku. (2023). Retrieved from: https://zakon.rada.gov.ua/laws/show/496-2023-%D1%80#Text [in Ukrainian].

23. Panova, O.O. (2019). Shliakhy optymizatsii kadrovoho zabezpechennia protydii torhivli liud'my [Ways to optimize personnel support for combating human trafficking]. Protydiia kyberzahrozam ta torhivli liud'my – Countering Cyber Threats and Human Trafficking*, Ministry of Internal Affairs of Ukraine, 289–291.* Retrieved from: https://dspace.univd.edu.ua/server/api/core/bitstreams/75ba9c27-dadd-4a5a-932b-dd588d96508a/content [in Ukrainian].

24. Yevropeis'ka konventsiia z prav liudyny. (1950). Retrieved from: https://zakon.rada.gov.ua/laws/show/995_004#Text [in Ukrainian].

25. Zahal'nyi rehlement zakhystu danykh (GDPR). (2016). Retrieved from: https://gdpr-text.com/uk/ [in Ukrainian].

26. Bezpechnyi SHI dlia milioniv ukraintsiv: Ukraina pidpysala Ramkovu konventsiiu pro shtuchnyi intelekt ta prava liudyny. (2025). Retrieved from: https://www.kmu.gov.ua/news/bezpechnyi-shi-dlia-milioniv-ukraintsiv-ukraina-pidpysala-ramkovu-konventsiiu-pro-shtuchnyi-intelekt-ta-prava-liudyny [in Ukrainian].

27. EU Artificial Intelligence Act. (2025). Retrieved from: https://artificialintelligenceact.eu/ [in English].

28. UNESCO's Recommendation on the Ethics of Artificial Intelligence: key facts. (2023). Retrieved from: https://www.gcedclearinghouse.org/resources/unesco%E2%80%99s-recommendation-ethics-artificial-intelligence-key-facts?language=en [in English].

29. OECD Principles on Artificial Intelligence. (2019). Retrieved from: https://www.oecd.org/going-digital/ai/principles/ [in English].

30. Zinchenko, D.A., Sydorenko, V.M. (2023). Zahal'nyi rozvytok vykorystannia mizhnarodnoho dosvidu pratsivnykamy politsii u sferi protydii kiberzlochynam i torhivli liud'my [General development of using international experience by police officers in the field of combating cybercrime and human trafficking]. *Protydiia kiberzlochynnosti ta torhivli liud'my – Countering cybercrime and human trafficking*, 44–46. Retrieved from: https://dspace.univd.edu.ua/server/api/core/bitstreams/278374b8-3963-45f2-8c43-d2fa6b285cc2/content [in Ukrainian].

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ВИКОРИСТАННЯ ШТУЧНОГО ІНТЕЛЕКТУ ТА МІЖНАРОДНЕ СПІВРОБІТНИЦТВО НАЦІОНАЛЬНОЇ ПОЛІЦІЇ У ПРОТИДІЇ ТОРГІВЛІ ЛЮДЬМИ: ОПТИМІЗАЦІЯ ОБМІНУ ДОСВІДОМ ТА ПОСИЛЕННЯ ЕФЕКТИВНОСТІ

У статті подано дослідження критичної ролі штучного інтелекту (далі – ШІ) та міжнародного співробітництва в посиленні можливостей Національної поліції України у протидії такому складному транснаціональному злочину, як торгівля людьми. Цей злочин не лише є грубим порушенням національного законодавства, а й посягає на

фундаментальні права та свободи людини, закріплені у міжнародному праві, такі як право на життя, свободу та особисту недоторканність. У роботі, яка послуговується методами аналізу, синтезу, системного підходу, прогнозування та концептуального аналізу, комплексно розглядається, як інтеграція передових ШІ-технологій, зокрема Big Data, аналітики, розпізнавання образів та природної мови, а також прогнозної аналітики може трансформувати традиційні підходи до виявлення, розслідування та попередження злочинів, забезпечуючи більш проактивну та цілеспрямовану боротьбу з організованими злочинними угрупованнями. Особлива увага приділяється потенціалу ШІ в оптимізації міжнародного обміну досвідом та розвідувальною інформацією. Аналізуються можливості ШІ у виявленні підозрілих патернів, у прогнозній аналітиці, ідентифікації жертв та автоматизації рутинних завдань. Розглядаються перспективи створення уніфікованих міжнародних платформ для обміну даними, які завдяки ШІ зможуть автоматично обробляти та перекладати інформацію, виявляючи приховані транснаціональні зв'язки. Підкреслюється важливість створення спільних аналітичних центрів, де ШІ виступатиме як потужний інтелектуальний помічник, значно прискорюючи складні розслідування та сприяючи швидшому реагуванню на випадки порушень прав людини. У роботі також ідентифіковано ключові виклики на шляху впровадження цих інноваційних підходів, етичні дилеми, питання конфіденційності даних, потреба у відповідній технічній інфраструктурі та кваліфікованих кадрах та інвестиціях для відповідного навчання персоналу. Стаття підкреслює, що системне впровадження ШІ у співпраці з міжнародними партнерами є ключовим для прогресу у боротьбі з торгівлею людьми. Метою наукової розвідки є обґрунтування необхідності та шляхів подальшого вдосконалення механізмів протидії торгівлі людьми через синергію штучного інтелекту.

Ключові слова: *штучний інтелект, торгівля людьми, Національна поліція, фундаментальні права людини, людська гідність, міжнародне співробітництво.*

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