УДК 341 + 124.1: 316.774+ 341.181: 327.3

**ARTIFICIAL INTELLIGENCE: MILITARY CHALLENGES TO INTERNATIONAL ORDER AND CONTOURS OF INTERNATIONAL LEGAL REGULATION**

**Штучний інтелект: військові виклики міжнародному порядку і контури міжнародно-правового регулювання**

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***Abstract.*** *The purpose of this research is to determine the current state of international legal scientific developments in the field of the use of artificial intelligence in the military sphere. The article, considering the leading scientific works of the last decade, identifies the main directions of the development of international legal thought regarding the use of artificial intelligence in the military sphere. The authors emphasize that among numerous studies on the international legal issues of the global information society, the topic of artificial lintel ligancy technologies holds a special place. At the same time, changes in relations between states, when it comes to the large-scale use of artificial intelligence technologies, organically influence the international order and, consequently, international legality and the international legal order. Since the potential use of artificial intelligence technologies transcends state borders and has a significant impact on inter-state relations, a logical question arises regarding their international legal regulation.*

***Keywords:*** *International legal regulation, artificial intelligence, "responsible artificial intelligence," military sphere, lethal autonomous weapon systems, international law, international order, international legal order, global information society.*

***Анотація.*** *Метою дослідження є визначення сучасного стану міжнародно-правових наукових розробок у сфері використання штучного інтелекту у військовій сфері. У статті, враховуючи провідні наукові роботи останнього десятиліття, визначено основні напрямки розвитку міжнародно-правової думки з приводу використання штучного інтелекту у військовій сфері. Автори підкреслюють, що серед численних досліджень міжнародно-правової проблематики глобального інформаційного суспільства, тема використання технологій штучного інтелекту посідає особливе місце. При цьому, зміни у відносинах між державами, коли мова йде про масштабне використання технологій штучного інтелекту, органічно впливають на міжнародний порядок і, як наслідок, на міжнародну законність і міжнародний правовий порядок. Оскільки можливості використання технологій штучного інтелекту виходять за межі державних кордонів і значним чином здатні впливати на міждержавні відносини, виникає логічне питання щодо їх міжнародно-правового регулювання*

***Ключові слова:*** *міжнародно-правове регулювання, штучний інтелект, «відповідальний штучний інтелект», військова сфера, летальні автономні системи озброєнь, міжнародне право, міжнародний порядок, міжнародний правовий порядок, глобальне інформаційне суспільство.*

**Introduction.** In the current context of the rapid development of information and communication technologies, the issue of fusing artificial intelligence (AI) technologies for military purposes is attracting increasing attention. The fact that we have yet to fully understand AI technologies and are still in the philosophical comprehension stage further complicates this challenge. At the same time, their application in various fields highlights the diverse possibilities and implications of their usage. So, international legal science needs to deal with problems related to using AI in general and look at how well legal systems can protect people from the dangers of using these technologies and weapons for military purposes without proper control.

Regulation faces significant challenges due to the dual-use nature of AI technologies, which can apply the same innovations for both civilian and military objectives. While civilian applications aim to enhance productivity, safety, and quality of life, military applications often prioritize strategic advantage and operational efficiency, raising ethical and legal concerns. The potential for autonomous systems to act without human oversight further complicates these concerns, posing risks of unintended escalation, violations of international humanitarian law, and unforeseen consequences in warfare.

Moreover, the transboundary nature of AI technologies demands a unified international response, as unilateral regulation within a single state or region is insufficient to address global security concerns. Developing comprehensive international frameworks for the responsible use of AI in military contexts necessitates collaboration among nations, organizations, and industries. Such frameworks must balance the benefits of technological innovation with the imperative to safeguard humanity from the potential misuse of AI as a tool of the conflict.

**The purpose of the research** is to determine the current state of international legal studies in the field fusing AI technologies in the military domain.

**Recent literature review**. Currently, there is a wide range of works covering various aspects of the use of AI technologies in the military domain. A special place among these studies is occupied by questions concerning the role of international law in the prospective regulation of AI technologies. Taking into account the scientific works of the blast decade, the main directions of international legal thought regarding the use of AI in the military domain can be identified. These currently include the following ethical topics:

* The ability of international law as an instrument to regulate the use of AI for military purposes;
* The potential of international legal regulation to define moral and ethical aspects (criteria) for evaluating the use of AI for military purposes;
* The possibilities of international legal regulation for the combined use of AI and robotic (cyber-physical) systems in military contexts, as well as their deployment in autonomous weapons systems;
* The capability of international law to mitigate threats to humanity from the uncontrolled use of technologies and weapons for military purposes.

Authors researching the potential of international law to regulate the use of AI in military contexts focus on analyzing the current situation, at least over the past decade. Their attention is directed toward theoretical questions about the role, necessity, and capability of international law to govern the use of AI technologies.

For example, Burri T. focuses on the ability of contemporary international law to structure inter-state relations concerning the use of AI *(Burri, 2017*). Castel J.-G. and Castel M.E. provide their own assessments of the capability of international law to regulate the use of AI (*Castel and Castel, 2016*). Krishnan A., addressing the use of AI in potential modern wars, emphasizes the need for international legal regulation (*Krishnan, 2009)*.

In addition to positive approaches, discussions include considerations regarding the status of AI itself (*Weaver, 2013)*, as well as skeptical views on the inability of either law or ethics to ensure the orderly use of AI in autonomous weapons systems (*Anderson & Waxman, 2013).*

Several works focus on the real possibilities of the global community, from the perspective of international humanitarian law, to regulate the use of AI technologies in military contexts (*Schuller, 2017)*, (*Brehmm, (2017)*, (Davison, *2017)*.

An interesting direction of research is dedicated to the potential international legal regulation:

(a) in cases of combined use of AI technologies with robotic (cyber-physical) systems for military purposes (*Balkin, 2015*), (*Chelioudakis, 2018)*; and

(b) in the deployment of these technologies in autonomous weapons systems (*Beard, 2014)*, (*Geiss, 2015)*, (*Thurnher, 2013)*.

It is worth noting that some scholarly works specifically address the threats to humanity posed by the uncontrolled use of technologies and weapons for military purposes.

**Main research results.** In the general context of researching international legal issues in the global information society, the topic of using AI technologies occupies a special place.

Changes in inter-state relations, particularly concerning the large-scale use of AI technologies, organically influence the international order and, consequently, international legality and the international legal framework.

Since the potential uses of AI technologies, both in civilian and military spheres, transcend national borders and significantly influence inter-state relations, a logical question arises about their international legal regulation.

Efforts to regulate the use of AI technologies have led to the adoption of a limited number of international soft law instruments, the creation of specific international institutions, and initiatives by individual researchers to propose certain model regulations. At the same time, a significant number of national legal acts have been adopted to regulate relationships involving AI technologies.

It should be noted that contemporary scientific and practical research confirms:(a) the growing potential for the continuous and large-scale development of AI technologies; and(b) the diversity of their areas of application.

In the general theme of AI technology use, particular attention is drawn to their military applications and the potential corresponding international legal regulation. This complicates the tasks facing international law in maintaining peace and international security.

At this initial stage of AI implementation and use in the military sphere, "arms market researchers highlight ten areas of AI application for military purposes, including:

* Autonomous Weapons Systems;
* Surveillance and Reconnaissance;
* Target Recognition and Classification;
* Threat Analysis and Prediction;
* Logistics and Supply Chain Management;
* Cyber security Defense;
* Electronic Warfare;
* Simulation and Training;
* Medical Diagnostics and Treatment;
* Decision Support Systems".

Such diversity in the current and prospective uses of AI in the military domain highlights the immediate need for science and practice in international law to address the associated issues of international legal studies and potential regulation.

In this context, the following should be noted:

1. Emergence of shared international legal foundations:

A process has begun to form joint conceptual international legal foundations for the use of military technologies containing AI elements. This is evidenced not only by the military concepts, doctrines, and programs of leading states (USA, China, UK, Japan, France, South Korea, etc.), which emphasize and account for the transboundary nature of their application, but also by a shared understanding of the power, scale, and danger posed by AI technologies when used without control. For example, the U.S. Department of Defense views its AI strategy as an important component of the government's broader efforts to maintain the country's technological leadership on the global stage a den sure the protection of the population. In France, cyber security aspects, including those related to the use of AI, are regulated by the provision soft the Military Programming Law (*Derkach O.O. (2023)*).

2. Development of international legal regulations:

Similar to the processes of prohibiting and limiting the use of chemical, biological, and nuclear weapons, the establishment of international legal regulation (through declarations, joint statements, multilateral agreements) to address the dangers posed by AI technologies to international peace and security is likely to follow a similar path (*Zabarа, 2024)*.It is worth noting that this is occurring at a time when the global community is still seeking common approaches and defining the role and place of artificial intelligence in "every day use." The last decade has been marked by active efforts find individual actors and entities to develop principles and foundations for international legal regulation, particularly through initiatives such as the Asilomar AI Principles (2017) and the OECD Council Recommendation on Artificial Intelligence (2019) (*ZabarаI, 2024)*. In this context, the European Parliament adopted the AI Act, which establishes requirements for AI developers aimed at ensuring the safety, transparency, sustainability, and ethical use of artificial intelligence in Europe (*Derkach, 2023)*.

3. REAIM 2023 Declaration:

The outcomes of the "Responsible AI in the Military Domain" Summit (REAIM 2023, The Hague, February 15-16) underscore the global, urgent, and relevant nature of the issue. The adoption of the "Political Declaration on Responsible Use of AI and Autonomy in Military Applications" by 54 leading nations demonstrates a commitment to responsible behavior and governance of AI technologies in the military domain (*Pascual, 2017)*.

4. Unlike the general situation, characterized by "the lack of a unified international legal policy regarding the future development of AI technologies, the absence of consensus on the goals and objectives of international legal regulation of AI, as well as the lack of a unified legal terminology" (*Zabarа, 2024)*, the REAIM 2023 Summit established the foundations for a joint policy on the military use of AI technologies.

Specifically, this concerns the control over "the development, deployment, and use" (*Pascual, 2017)* of military-purpose technologies and weaponry incorporating AI elements. It should be emphasized that, given the complexity of the object of regulation, this stage involved only the identification of fundamental principles, which became the subject of political agreement.

We believe that regarding the technological aspects of the development and use of AI in the military sphere, at the initial stage, developers will adhere to the already established provisions under the frameworks of the International Organization for Standardization (ISO), the International Electrotechnical Commission (IEC), and the International Telecommunication Union (ITU).

Attention should also be paid to the activities of certain international non-governmental organizations that have developed and propose methodologies for assessing the impact of AI systems on human and societal well-being. For example, the methodology developed by the Institute of Electrical and Electronics Engineers (IEEE) is one such initiative.

Despite some skepticism, the ethical aspects of AI use in the military sphere are increasingly becoming a subject of academic research. Scholars such as Pascual D.A. and Moliner González J.A. offer diverse perspectives on the issue -ranging from outright rejection and claims of the impossibility of establishing rules, to entirely optimistic forecasts, the principles of which may, over time, form the basis of international agreements.

It is also important to note the initial steps toward the formation of specific elements of international legal regulation, undertaken by the Group of Governmental Experts on Lethal Autonomous Weapons Systems, operating under the framework of the Convention on Certain Conventional Weapons. To date, their efforts have focused on the potential application of international law to autonomous weapons systems and the role of human oversight in their control. This is evidenced by numerous conferences on the topic.

The International Committee of the Red Cross (ICRC) is actively studying issues related to the use of AI from the standpoint of international humanitarian law. The Committee has initiated the development of recommendations for states concerning the adoption of legal norms to regulate and limit the creation and use of autonomous weapons systems.

**Conclusion.** To summarize, it is worth noting the following:

In the field of international law, four main directions of research on the use of artificial intelligence in the military domain have been identified. They include general issues concerning the capacity of international law to regulate the use of AI for military purposes, the determination of moral and ethical aspects related to the evaluation of AI use in military contexts, the potential for international legal regulation of the combined use of AI and robotic systems, and the capability of international law to mitigate threats to humanity from the uncontrolled use of technologies and weapons for military purposes. Practical issues related to the international legal regulation of AI technologies deserve special attention within the broader discussion of their use.

Current cooperation among leading states is focused on establishing the foundations of a shared policy regarding the military use of AI technologies.

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