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ARTIFICIAL INTELLIGENCE AND EU INTEGRATED BORDER MANAGEMENT

ABSTRACT: The future development of artificial intelligence and the expansion of its application across many areas of social life represent a global phenomenon. The normative regulation of artificial intelligence development within international organizations has become a dynamic process throughout 2024. Considering both the potential benefits of artificial intelligence for humanity and the possible devastating effects on human rights, the EU—as a leading international regulatory entity—has established a legal framework for the use of artificial intelligence in nearly all areas of public governance, including migration, asylum, and the management of its external borders.

This paper examines the emergence, connection, significance, and integration of artificial intelligence in border control, as well as the relevance of EU legal norms for its current and future application within the model of integrated management of the EU's external borders. A key focus of the research is the implications of artificial intelligence use on the fundamental rights of vulnerable groups, alongside the role of Frontex in researching the application of specific artificial intelligence systems in border and migration management.

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1. Introduction

Building an EU legal framework for the use of high technologies, in particular artificial intelligence (AI) for the benefit of every citizen, has been a priority for EU institutions for almost 10 years. Taking into account the potential of AI and the overall benefit for humanity, as well as the possible devastating effect on human rights, the EU, as a leading international regulatory entity, has managed to establish a legal framework for the use of AI in almost all areas of social life, including the areas of migration, asylum and control, i.e. management of external borders. In the paper, the authors consider the conditionality, connectivity and potential impact of AI systems on external border management, more specifically they explore the approach of the EU and its supranational border agencies in the possible use of AI systems within the framework of integrated border management (IBM). The starting point is to establish a concept or model of IBM and a legal basis for the potential application of modern technologies and AI in IBM with an emphasis on the specific tasks of the European Border and Coast Guard (EBCG), which could be significantly impacted by AI systems. The authors also point to the efforts of human rights advocates during the negotiations on the Act (Regulation) on Artificial Intelligence (AIA) in order to mitigate the risks of using high-risk AI systems in the context of border and migration management. Finally, the paper presents Frontex's research activities on the application of various artificial intelligence systems that would enable more efficient control and management of the Union's external borders.

2. The connection between research on the use of new technologies and AI and the IBM Model

An in-depth analysis of the relationship between artificial intelligence and IBM in the function of EU border control requires a brief definition and presentation of the concept of IBM. The term "Integrated Border Management" means national and international coordination and cooperation between all relevant authorities and agencies involved in border security and trade facilitation, with the aim of establishing an effective, efficient and coordinated management of the EU's external borders (European Commission, 2024). Coordination includes measures between institutions, hierarchically

and horizontally placed and integrated at the European and national level (Ristić, 2022). The goal is to maintain open but well-controlled and secure borders. The IBM model has been developing in the EU since 1999, after the integration of the Schengen Agreements (the Schengen Agreement and the Convention on its Implementation) into the EU legal framework (Božovic & Vasilkov, 2020, p. 108). As an integral part related to the control of migration and external borders, this model appears in the conclusions of the European Council from Tampere from 1999, also known as the Tampere Program for the Area of Freedom, Security and Justice (European Council, 1999, points 24–25). Even then, the European Council emphasized the necessity of the exchange of technical assistance and the transfer of technologies between member states as a key issue for successful border control. The management of the Union's external borders is directly mentioned and linked to the functioning and future expansion of the Schengen area in the conclusions of the European Council from Leken in 2001 (European Council, 2001, point 42). Based on these conclusions of the European Council, and the attempts of the European Commission to define IBM from a supranational level, the Council of the EU formally established a harmonized system for IBM in 2006 (Council of the EU, 2006). It can be said that in the very conception of the IBM model for improving the work and carrying out the tasks of the border services, technical technological assistance, technology transfer and research is incorporated, which is later unified by the use of AI in the management of the external borders of the Union.

The uncertainty regarding the legal basis and place of the IBM in the legal order of the Union was finally removed with the adoption of the Treaty of Lisbon. Namely, the Treaty on the Functioning of the European Union (TFEU) introduces a provision on the "gradual establishment of integrated management of external borders" into the Union's primary law. (Treaty of Lisbon, 2016, Article 77 1(c) TFEU). This provision was used as the legal basis for the establishment of the European Border and Coast Guard and the expansion of the mandate of its Agency (established in 2004) known as Frontex. With the establishment of the European Border and Coast Guard and its transformation in 2016, and especially in 2019, the IBM model became part of the Agency's mandate, which includes powers to research the application of state-of-the-art technologies to perform border control tasks (Regulation on EBCG, 2019/1896, Article 3). Namely, as a result, "evolutionary" provisions are included in the IBM model that foresee, allow and encourage the research and application of AI, thus enabling Frontex, in cooperation with private high-tech companies, to intensively research and experiment with AI systems

as a tool for effective control of external borders. Two essential elements of IBM support the introduction and implementation of the AI system: the use of state-of-the-art technology, including large-scale information systems (Regulation on EBCG, 2019/189, Article 3, paragraph J), and research and innovation (Regulation on EBCG, 2019/1896, Article 3, point 2).

Significant for a deeper understanding of the application of AI are also the activities of the European Commission from 2023 to establish a multi-year strategic policy for European integrated border management (Strategy of the European Commission on IBM), in which this institution provides explanations and recommendations for the use of AI within the IBM (COM/2023/146 final). This document places IBM in a global context, placing it as a high political priority, i.e. formalizing what has long been a politically driven priority aimed at controlling borders and migratory flows. In the Annex to the Strategy, specific guidelines are given for the implementation of each of the fifteen established elements of IBM, offering specific directions for its future development. For example, in connection with the use of state-of-the-art technology, including large information systems (element 10), the Strategy envisages support for advanced, mobile and interoperable European technical systems and solutions that are compatible with large EU information systems. Therefore, the use of modern technologies, especially AI systems, is recommended to improve European surveillance and response capabilities at the Union's external borders, using satellite technology to create a comprehensive overview of the situation within the specialized border surveillance system, which as a separate system known as Eurosur since 2019. functions within Frontex (Regulation on EBCG, 2019/1896, Part 3). For more effective surveillance, it is advised to expand the control capacities of integrated, interoperable and adaptable technical systems (both stationary and mobile) that are based on AI systems and are used at sea and land borders. This extension should cover the technical solutions and operational procedures used in the various operational centres (such as national coordination centres, rescue coordination centres and local coordination centres) and mobile units (Guidelines 4–6, Annexes 1 and 2, COM/ 2023/146 final, p. 21).

Regarding research and innovation within IBM, the policy priorities emphasize the crucial link between all research projects related to border management and security, emphasizing the need for synergy between research projects within Horizon Europe and other EU funding programmes. To achieve these priorities, specific guidelines are recommended to enhance research and innovation in border management operations, with the aim of making them more interoperable, cost-effective and sustainable. Member States'

border authorities, together with Frontex and EU-LISA, are recommended to actively monitor research and innovation in order to improve IBM by introducing and using new innovative solutions. More specifically, the focus is on harnessing the potential of AI, promoting the exchange of solutions and best practices, while acknowledging the sensitivity, complexity and potentially high risks associated with AI-based solutions. Ethical principles, adaptability and reliability of AI tools in the protection of human rights must be a priority in border management research and innovation. This means that the AI systems used within IBM should be subject to all necessary safeguards, control mechanisms and protection levels provided by the EU Regulation on AI (Guidelines 1 and 9, Annexes 1 and 2, COM/2023/146 final, p. 29).

The aforementioned Regulation of the European Parliament and the Council on the establishment of harmonized rules on artificial intelligence establishes a broad legal basis for the future development and use of artificial intelligence systems in the EU and member states (in EU literature and documents, the name Artificial Intelligence Act – AIA is most often used, which will be the case below). AIA as an act of secondary legislation, starts and introduces into the legal framework the assessment of the risk of damage that AI systems can represent to fundamental rights, defining the application of individual AI systems in various areas as high-risk (AIA Regulation (EU) 2024/1689). For "migration, asylum and management of state border control" which includes both control and management of the Union's external borders, high-risk AI systems that can be used are listed, i.e. when and for what purposes their use is allowed (AIA Regulation (EU) 2024/1689, Annex 3). Such AI systems are subject to higher standards for approval, oversight and, in particular, accountability for their implementation established for manufacturers, operators and end users. In this sense, it is necessary to look at and examine the relevance and connection between AI and IBM.

3. Relevance and connection of AI with IBM

When examining the relevance or connection of AI and IBM, we start from the assessment of potential risks and dangers of using high-risk AI systems and the possibility of causing disproportionate damage to human rights during their application. It is evident that a high degree of danger arises from AI systems that use biometrics, specifically remote biometric identification and categorization (AIA Regulation (EU) 2024/1689, Annex 3 point 1), as well as those that include special techniques for law enforcement, i.e. prosecution and policing (AIA Regulation (EU) 2024/1689, Annex 3, point 6), most of which

also apply to border control and surveillance. In addition, there is a specific categorization of high-risk AI systems that would be used for migration control, asylum and border management purposes. Their introduction and use is aimed at screening techniques for migrants at external borders or within the Schengen area (such as polygraphs and similar tools), performing risk assessments (including security assessments related to irregular migrants or health risk assessments for individuals entering or intending to enter the territory of member states), processing requests for asylum, visas or residence permits and techniques for detecting, recognizing or identifying individuals during border surveillance (AIA Regulation (EU) 2024/1689, Annex 3, point 7).

If we connect these provisions of the AIA and the authorizations for the application of specific AI systems to the tasks or components of the IBM defined in Article 3 of the Regulation on EBCG, their direct applicability is obvious in: 1) state border surveillance, which includes measures to facilitate legal border crossing and, as appropriate, preventing and detecting cross-border crime at external borders, such as migrant smuggling, human trafficking and terrorism. This includes mechanisms and procedures for the identification of vulnerable individuals, unaccompanied minors and those who need or seek international protection, with the provision of information and referral to established procedures; 2) search and rescue operations, 3) risk analysis for internal security and assessment of threats that could affect the work of competent authorities or the security of external borders; 4) exchange of information and cooperation between member states; 5) inter-institutional cooperation at the national and supranational level; 6) cooperation with third countries; 7) implementation of technical and operational measures within the Schengen area with the aim of improving border surveillance, suppression of illegal immigration and the fight against cross-border crime; and especially 8) protection of basic rights of migrants, seekers of international protection (asylum), especially protection of extremely sensitive and vulnerable groups such as unaccompanied minor migrants, women with children and divided families.

Within the framework of relevance, it is necessary to analyse certain aspects of the protection of human rights. High-risk AI systems used or planned for use in border, migration and asylum management often significantly affect the vulnerable groups of people who rely on the outcomes of legal, administrative and discretionary procedures of competent public authorities of member states. This is precisely where the substantive legal deficiencies of the AIA are reflected, which does not classify as high-risk all AI systems that

are inherently discriminatory, and are used to assess threats from migrants and asylum seekers to public order and security of the member states of the Union itself (Vasilkov, 2024, p. 3). That is why it is necessary that AI systems in this area, before use, be subject to a higher level of accuracy, testing of non-discriminatory nature and transparency, in order to ensure the protection of human rights. Such an approach in this particular case would mean that the implementation of the AI system should be conditioned by adequate protection of migrants' rights to freedom of movement, privacy, protection of personal data and the right to good governance (Dumbrava, 2021, p. 28).

Some of these issues were in the public spotlight before the adoption of the AIA itself, when non-governmental organizations and human rights defenders demanded a ban on the use of the AI system, which dramatically threatens basic rights. It is highly invasive AI, built on biased or unscientific assumptions, and would be used for biometric categorization of people, facial recognition and identity verification, emotion and lie detection during interrogation as well as remote biometric identification and mass border surveillance. The prohibited practice of using VI should have included its use for illegal rejection of irregular migrants by border services and profiling of individuals in movement (EDRI, 2023). If we add to this surveillance via the Internet of Things (IoT) and the collection or extraction of personal data from smart devices such as mobile phones, laptops or any other device that can connect to the Internet in migrant reception centres (Domazet, Marković & Skakavac, 2024), then the wider picture of surveillance via the AI system is frightening. Such discrimination, surveillance and total control would have unfathomable consequences, exposing migrants and asylum seekers to additional difficulties and even greater risks for their already endangered basic rights (Jones, Lanneau & Maccanico, 2023, p. 27). Some of these proposals were included in the amendments of the European Parliament and helped to introduce changes and improve the original text of the Commission, primarily by introducing in the AIA the right to submit a complaint to the competent authorities regarding the violation of fundamental rights. However, the final version of the AIA weakened this right by not prescribing the obligation of these authorities to respond to such complaints (Friedl & Gasiola, 2024, p. 3).

4. AI at IBM from Frontex's perspective

Will artificial intelligence systems really be used to combat migration and unwanted asylum seekers as the biggest threat to the EU? Will the capacities of AI and border officers lead to a symbiosis that will ensure greater security

of external borders, the Schengen area as an area without internal borders and the security of citizens, member states and the Union itself? It is unlikely that this will be the case, just as it is difficult to accept that migrants are the biggest threat to the EU. This will not prevent the new reality called mass surveillance and border control using AI systems whose expansion is yet to follow. The basic idea of the use of VI, which originates from various documents of the EU institutions in this field, is closely related to the efforts aimed at improving the current and future performance of the European Border and Coast Guard in implementing its mandate and carrying out the tasks arising from the IBM.

In this context, a study on the impact of AI systems on the Schengen acquis related to migration, IBM and EU security has already been carried out. In particular, an examination of the impact of the use of AI systems on part of the internal and external processes for the management of EU borders, migration and security was carried out, in relation to :1) Issuing visas for a short stay, 2) Issuing ETIAS travel permits, 3) Issuing documents for a longer stay or stay in the Schengen zone, 4) Granting international protection 5) SIS consultations and the involvement of the SIRENE bureau, 6) Border controls at external Schengen borders 7) Operational management of services in eu-LISA, 8) Process of creation and implementation of EU policy related to the Schengen area, and 9) Transversal processes and opportunities of interested parties (European Commission, 2020, p. 2). At the same time, special emphasis was placed on the analysis of the feasibility of developing forecasting and early warning tools based on AI technology that would be capable of predicting and assessing the direction and intensity of irregular migration flows to and within the EU in real time. Based on this, AI systems should be able to provide early warnings and forecasts both in the short term for the period of 1 to 4 weeks and in the medium term for the period of 1 to 3 months. The value of these tools should be the provision and distribution of reliable assessments to the European Commission and EU member states for successful migration management, i.e. planning and organization of common resources in border management. Monitoring objects on which all AI tools and systems should be applied are mixed migration flows to the EU and complex population movements that include refugees, asylum seekers, economic migrants, victims of human trafficking, smuggled migrants, unaccompanied minors, etc. (European Commission, 2021, p. 2). Furthermore, functions performed by AI systems in these areas include risk assessment and profiling, identity verification and fraud detection, behaviour or emotion recognition, speech recognition, mobile phone data extraction, electronic tracking and future mobility prediction. AI systems that perform these functions include

chatbots and intelligent agents, risk assessment tools, knowledge management tools, policy insight and analytics tools, and computer vision tools (European Commission, 2020, p. 56).

Frontex's involvement in these current researches and especially the future use of AI systems to carry out tasks related to border controls, is under the scrutiny of the public, especially human rights defenders, who have long pointed to the abuse of authorization and omissions in the work of Frontex. Border law enforcement by Frontex itself is often characterized as a systematic violation of the rights of illegal migrants (López, 2023, p. 2). The use of AI systems in the field of border control and migration, as well as the implementation of tasks within the framework of IBM, will definitely represent progress in preserving the physical and digital security of the "stronghold of the EU" (Vasilkov, 2023, p. 40) with a serious setback or a devastating reduction in the scope of guaranteed human rights of migrants and vulnerable categories of persons, which will further threaten and reduce the credibility of the Union in respect of its own values on which it was built.

5. Conclusion

AI as part of the incentive to use the most modern technologies and technological assistance in the management of external borders are areas connected since the time the built and elaborated IBM model entered the scene. Research into the use of the AI system for the protection of the EU's external borders and the support of the IBM remains a very sensitive issue even after the adoption of the AIA. AIA is a milestone, which nevertheless confirms that AI systems are not just technological tools for meeting border control standards. Analyzing the relevance of the legal framework, the enormous potential of using AI for the improvement of IBM is presented, but also an even greater potential and danger for endangering human rights. Threats to human rights in this area do not prevent the determination of member states, EU institutions, and especially Frontex in researching practical application in various domains of border controls as part of the overall strategy to control irregular migration and migration flows that the Union is facing or will face in the future.

In addition to the insistence on respect of human rights and basic freedoms in the EU, the use of the VI means the creation of new barriers for vulnerable categories, migrants and asylum seekers who do not have, and will hardly in the future with the VI, have sufficient guarantees that their rights will be respected. Namely, even without the use of the VI there were enough

difficulties and inconsistencies in the application of their rights at the external borders in contact with the border services of the member states and Frontex. Gradual and frequent reliance on VI systems, especially the use of biometrics, continuous mass monitoring of the external borders of the Union, as well as all the research currently being conducted, speak in favor of a greater degree of ensuring internal security through the implementation of IUG as an EU priority, without too much concern for human rights, i.e. the application of legal instruments and remedies for violated rights of vulnerable categories of persons.

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VEŠTAČKA INTELIGENCIJA I INTEGRISANO UPRAVLJANJE GRANICOM U EU

APSTRAKT: Budućnost razvoja veštačke inteligencije i širenje njene primene u mnogim oblastima društvenog života je globalni fenomen. Normativno uređenje razvoja veštačke inteligencije u međunarodnim organizacijama postaje dinamičan proces tokom 2024. godine. Uzimajući u obzir potencijal veštačke inteligencije i sveukupnu korist za čovečanstvo, kao i mogući razarajući efekat na ljudska prava, EU je kao vodeći međunarodni regulatorni entitet uspela da uspostavi pravni okvir za korišćenje veštačke inteligencije u gotovo svim oblastima javnog delovanja, uključujući oblast migracija, azila i kontrole, odnosno upravljanja njenim spoljnim granicama.

U ovom radu autori istražuju pojavu, povezanost, značaj i uključivanje veštačke inteligencije u kontrolu granica i relevantnost pravnih normi EU za njeno trenutno i buduće korišćenje u okviru modela integrisanog upravljanja spoljnim granicama EU. Nezaobilazan deo istraživanja su

implikacije primene veštačke inteligencije na osnovna prava ugroženih kategorija lica i uloga Fronteksa u istraživanju primene specifičnih sistema veštačke inteligencije u upravljanju granicama i migracijama.

Ključne reči: *veštačka inteligencija, integrisano upravljanje granicom, pravni okvir, Frontex.*

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