DOI: 10.54503/1829-4324.2024.1-211

UTILIZING ARTIFICIAL INTELLIGENCE IN MIGRATION PROCESSES: PROSPECTS AND RISKS

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Հոդվածը ստացվել է՝ 14.02.24, ուղարկվել է գրախոսման՝ 20.03.24, երաշխավորվել է տպագրության՝ 06.06.24

Introduction. Migration is not a new phenomenon; humans have always used to migrate, seeking well-being, opportunities, and safety. Human migration refers to the permanent relocation of an individual or a group, distinct from transient activities like nomadism, migrant labor, commuting, and tourism. Migration can be categorized in various ways. Firstly, there is local and international migration. Within a country, people move from one region to another (such as from rural to urban areas), which differs from movements between countries. Secondly, migration can be either voluntary or forced. Voluntary migration, whether internal or international, often occurs in pursuit of better economic prospects or living conditions. Forced migrations typically involve individuals expelled by governments during conflicts or other political disturbances, or those transported forcibly as slaves or prisoners. A middle ground exists with refugees who voluntarily migrate to escape war, famine, or natural calamities. Throughout the 20th century, the predominant trend in internal migration was rural-to-urban movement, leading to rapid urbanization globally, especially in developing nations, post-World War II[1].

The 21st century heralds a new reality marked by technological advancements permeating every facet of our lives, shaping our perspectives, inspiring innovation, and unlocking numerous opportunities. Nevertheless, amidst these advancements lies a duality; the rapid pace of development and technological progress not only offers new avenues but also introduces inherent risks. In the contemporary landscape, international migration is intricately intertwined with the phenomenon of globalization.

Globalization, characterized by the accelerated movement and exchange of people, goods, services, capital, technologies, and cultural practices across the globe, underscores the interconnectedness and interdependence of nations and societies. According to the Peterson Institute for International Economics, globalization refers to the increasing interconnectedness among the economies, cultures, and people of the world. This phenomenon arises from the exchange of goods, services, technology, investments, migration, and information across borders. Throughout history, countries have forged economic alliances to enable these interactions, spanning many centuries[2].

It is apparent that migration has an essential place in globalization processes. What should be noted is that all these technological advancements such as the use of AI

[1] Encyclopedia Britannica, https://www.britannica.com/topic/human-migration, last accessed on 05.02.2024

[2] Peterson Institute for International Economics, https://www.piie.com/microsites/globalization/what-is-globalization, last accessed on 05.02.2024

(Artificial Intelligence) have a prominent role in promoting and coordinating migration processes. The intersection of AI and migration is a burgeoning field that presents both opportunities and challenges. AI technologies have the potential to revolutionize various aspects of migration processes, including border control, visa processing, refugee assistance, and integration efforts.

The relevance of the article: In the dynamic landscape of the 21st century, marked by rapid changes and continuous advancements, AI stands out as a pivotal innovation that permeates every aspect of modern life. AI's ability to orchestrate and streamline processes, anticipate risks, and capitalize on opportunities has positioned it as a cornerstone of contemporary progress. As AI penetrates various spheres, it lays the groundwork for enhanced planning, management, and monitoring capabilities.

Aim: Recognizing the transformative potential of AI, particularly in the sphere of migration, this study aims to explore AI's role in shaping migration processes. By delving into the integration of AI technologies in migration management, the study aims to elucidate the opportunities, challenges, and implications associated with this emerging paradigm. Through comprehensive analysis and discussion, the research endeavors to provide insights into how leveraging AI can optimize migration strategies, enhance efficiency, and facilitate informed decision-making in an increasingly interconnected world.

The following objectives are set in the framework of this study:

- *to describe the essence of migration in the 21st century*
- *to reveal the potential role of AI in better coordination of migration processes.*
- *to find out the risky and weak points of AI.*

Foreign researchers, and international organizations, have studied this topic, however, it has not been fully studied by Armenian researchers.

Literature review: As the world emerges from the global pandemic, and continuous wars, the attitude towards digitalization, and technological advancements has changed a lot.

According to an analysis done by UNDP, there is an unprecedented level of displacement, exceeding 70 million individuals. Projections suggest that the number of people displaced due to climate change could soar to as high as 1 billion by the year 2050[1].

The digital economy has reshaped notions of employment. In the context of migration, the notable shift is the diminishing importance of physical presence in many digital economy roles, marking both a major opportunity and a significant divide propelled by technology. This evolution has driven the rise of “gig” jobs, a trend accelerated by the COVID-19 pandemic. Such employment opportunities, not bound by

[1] The Migrant Union - Digital Livelihoods for People on the Move, https://reliefweb.int/report/world/migrant-union-digital-livelihoods-people-move, last accessed on 01.02.2024

in-person interactions and capable of transcending geographical boundaries, immigration regulations, and sometimes, legal constraints, offer a potential lifeline for refugees[1].

UNDP research has revealed that digital employment creates fresh avenues, markets, and connections for displaced individuals. The remote and adaptable nature of digital work renders it accessible to individuals on the move or facing displacement. It can sidestep local employment constraints and empower individuals to overcome informal obstacles such as xenophobia, granting them access to job opportunities that would otherwise be out of reach.

Displaced individuals may also engage in remote work from their home countries, leveraging their existing social networks and enhancing their capabilities. The spectrum of digital work spans from basic tasks like image categorization for AI training to advanced online consulting, offering opportunities suited to individuals with diverse skill levels and resources[2].

The convergence of a worldwide talent shortage, a shift towards prioritizing work-life balance, and the demand for a flexible workforce have fueled the expansion of the gig economy over the past decade. Factor in the impact of the COVID-19 pandemic on a global scale, and it becomes evident why the gig economy has upended traditional employment structures and is poised to reshape the future labor market.[3]This transformation holds significant implications for migration patterns as individuals seek opportunities in a digitally connected global marketplace, contributing to the evolution of workforce dynamics across borders.

Although most of the studies focus on the digital economy and employment opportunities, and discuss the migration in that context, now AI gains a vital role in all those processes. AI and related technologies are integrated into various aspects of migration management. A prominent instance is the automation of governmental administrative processes for sorting and decision-making regarding applications. These systems rely on historical data and predefined risk factors, including immutable details like citizenship, age, and marital status. They serve purposes ranging from providing standardized justifications for visa officers to fully automating eligibility assessments. Throughout centuries, humans, who have traditionally made decisions related to migration governance, inherently exhibit bias. In theory, if an algorithm's biases are comprehensively understood and addressed, AI could potentially help alleviate the

[1] Lorraine Charles and Lana Cook, "Opening the global digital economy to refugees", Forced Migration Review, https://www.fmreview.org/issue71/charles-cook#_edn3 , last accessed on 30.01.2024

[2] Digital Livelihoods for People on the Move, https://www.undp.org/publications/digital-livelihoods-people-move , last accessed on 30.01.2024

[3] Gig Economy, https://www.aon.com/unitedkingdom/employee-benefits/resources/the-future-of-work-and-benefits/gig-economy.jsp , last accessed on 30.01.2024

explicit and implicit biases of visa officers by minimizing dependence on prejudiced human judgment[1].

In recent months, there has been intense discussion surrounding the ethical implications of AI tools. Whether it's chatbots or image-generating software, proponents and critics have engaged in lively debates regarding the technological benefits and societal drawbacks of these emerging technologies. In studies done by EuroMed Rights and individual researchers, the connection between the human and financial costs of AI has been researched. According to those reports, the introduction of AI in managing migration flows actively brought the instability of the Middle East and North African region as well as discriminatory border procedures, threatening the right to asylum, the right to leave one's country, the principle of nonrefoulement as well as the rights to privacy and liberty [2].

In a 2020 document titled "Opportunities and Challenges for Artificial Intelligence Application in Border Control, Migration, and Security," the European Commission defines "Artificial Intelligence" (AI) as "systems that display intelligent behavior by analyzing their environment and taking actions – with some degree of autonomy to achieve specific goals". That report also clusters "opportunities" into five different groups: chatbots and intelligent agents, risk assessment tools, knowledge management tools, policy insight and analytics tools, and computer vision tools. Functions include risk assessments and profiling, identity verification and fraud detection, behavior/emotion recognition, speech recognition, mobile phone data extraction, electronic monitoring, and forecasting of future mobility [3].

The EU prioritized the management of AI development and its consequences, thus in April 2021, the European Commission proposed the first-ever legal framework on AI, commonly called the Artificial Intelligence Act, or AI Act. It is considered the first binding legislation on AI in the world. The regulation also defines and regulates risks associated with AI systems. Civil society organizations working on digital rights and migration issues have come together to condemn the use and consequences of automated risk assessment and profiling systems in the context of migration and to challenge the lack of protection of the fundamental rights of people on the move. The coalition[4] calls for:

1. Ban harmful AI practices in the migration context, including predictive analytics systems used for preventing migration; automated risk assessments and profiling

[1] L.R. Brunner, W. Tao, Artificial intelligence and the governance of international migration, https://www.eurac.edu/en/blogs/mobile-people-and-diverse-societies/artificial-intelligence-and-the-governance-of-international-migration, last accessed on 31.01.2024

[2] EuroMed Rights, https://euromedrights.org/publication/the-human-cost-of-artificial-intelligence-and-surveillance-technology-in-migration/, last accessed on 31.01.24

[3] EuroMed Rights, https://euromedrights.org/wp-content/uploads/2023/07/Euromed_AI-Migration-Report_EN-1.pdf, last accessed on 31.01.24

[4] Artificial Intelligence: The New Frontier Of The EU's Border Externalization Strategy, July 2023, p. 14

systems; 'Lie-detectors' and all technology that claims to categorize people and infer emotions based on their biometric data; Remote Biometric Identification at the border and in and around detention facilities that enable mass surveillance.

2. Regulate all AI high-risk systems in migration. All AI systems used in migration should be subject to oversight and accountability measures, including surveillance technology used in the context of border control and identity checks.
3. Ensure the AI Act applies to the EU's huge migration databases.
4. Make the EU's AI Act an instrument of protection. Lawmakers must ensure the EU AI Act empowers people to seek justice, guarantee public transparency, and prevent harm from the most harmful AI systems when used in migration and border control.

The European Parliament voted for the Law on Artificial Intelligence on June 14, 2023. The vote supported "red lines" against the harmful use of artificial intelligence, including protecting people from real-time facial recognition and other biometric surveillance in public places, emotion recognition in key sectors, biometric categorization, predictive policing, and social assessment. However, the final test failed to introduce new provisions to protect migrants' rights from discriminatory surveillance, even though artificial intelligence systems are increasingly being developed to track, control, and spy on migrants in new and harmful ways, effectively creating a "two-tier artificial intelligence regulation in which migrants receive less protection than the rest part of the society"[1].

EuroMed report suggests using

- AI-powered chatbots in online application processes for long-term stay or migration in the Schengen area as well as permission to move to another EU member state. They could provide real-time information, answer queries, and streamline border crossing procedures.
- As a risk assessment tool- Artificial intelligence could also be used to "sort" applications, determine which ones require a more thorough risk analysis, and accelerate risk assessment and background checks. However, they raise serious concerns about the risks of "unintended racial bias" and discrimination.
- AI computer vision capabilities are used to analyze images for anomalies, enhancing border surveillance. These systems can identify damages in the cargo of vehicles, monitor border areas using unmanned aerial vehicles, and even identify fake documents using image analysis. [2]

[1] Ibid 9

[2] AI in Border Control and Surveillance. Current and Future implications, https://euromedrights.org/wp-content/uploads/2023/11/230929_SlideshowXAI.pdf, last accessed on 04.02.2024

A. Szwed[1] implemented another research for discussing the role of AI in migration-related processes in the EU and separating threats and opportunities. AI is successfully being used in airport controls, it aids officials by allowing a smaller number of people to monitor a greater area and scan a greater number of migrants and other travelers in a shorter period of time and at a lower cost.

According to her here are the opportunities:

- The use of algorithms makes it possible to identify asymptomatic travelers infected with COVID-19 - this is possible thanks to the use of drones which, by observing crowds, can thermally image and detect persons with an elevated body temperature.
- AI does not only help state authorities but also persons who await a decision on an application related to the legalization of stay.
- AI systems are designed for use by competent government agencies to verify the authenticity of travel documents and supporting documentation of individuals, as well as to identify inauthentic documents by checking their protective functions;
- AI systems are designed to assist the competent government authorities in reviewing applications for asylum, visas, and residence permits and related complaints regarding compliance with the requirements of individuals applying for status

  Here are examples of software that is used in the EU
- Annie™ MOORE (Matching and Outcome Optimization for Refugee Empowerment) – software that helps resettlement agencies to optimize preliminary placement of refugees in host countries (it recommends communities in which refugees are most likely to find employment and it boosts these chances by at least 30% compared to manual placement).
- DoNotPay - a chatbot and application that is a robot lawyer (it provides free legal advice by utilizing intelligent algorithms and ensures personalized legal support, including help in migration-related procedures in the UK - created before Brexit),
- BD4M (Big Data for Migration Alliance) - a dedicated network of organizations aimed to improve the evidence base on migration and human mobility and its use for migration policy-making,
- Poborder project - an EU project under the "Horizon 2020" initiative which aims at developing a fully functional autonomous border surveillance system with unmanned mobile robots including aerial, water surface, underwater, and ground vehicles.

All this software is designed to gather and process information for automating migration-related processes and implementing specific solutions and policies. What is more, thanks to data analysis, such as Wi-Fi Positioning, it allows prediction of

[1] Agata Szwed, The use of artificial intelligence in migration-related procedures in the European Union - opportunities and threats, Procedia Computer Science Volume 207, 2022, Pages 3645-3651

subsequent migration movements on a larger scale and with greater precision, and in consequence, prepares countries for further challenges related to the influx of new individuals.

The following threats[1] can occur:

- The current disparity in power dynamics between migrants and governing bodies concerning the utilization of AI in migration-related processes. This disparity could result in discriminatory practices and heightened monitoring of migrants, potentially infringing upon their rights to privacy and family life. Research conducted by the Fundamental Rights Agency (FRA) underscores the multifaceted impact of AI employment, particularly regarding fundamental rights such as non-discrimination, the right to privacy, data protection, and access to justice.
- AI has the potential to undermine the observance of human dignity (which serves as the foundation for all human rights) or impede the right to fair administration (especially in the evaluation of pertinent requests for legal residency on any basis).
- The iBorderCtrl initiative, conducted from 2016 to 2019 aimed to enhance border control within the Schengen area. It involved pilot tests at select border crossings in Hungary, Greece, and Latvia, where migrants interacted with a digital avatar designed to detect "biomarkers of deceit" such as facial micro-expressions. Those deemed truthful were permitted entry, while suspicious individuals had to provide additional information like fingerprints. Despite achieving a 73-75% accuracy in detecting deception, the project faced extensive criticism in the EU for its potential unfairness to asylum seekers.
- While the management of migration falls under the purview of state authorities, the utilization of AI in this domain is largely delegated to the private sector. This sector takes the lead in creating and advancing technologies subsequently employed by states and international bodies throughout the migration process. However, these collaborations between public and private entities raise apprehensions regarding data security. For instance, the sharing and access to sensitive data by private firms should only transpire under adequate safeguards to uphold fundamental principles of data protection.
- There remains considerable ambiguity regarding the definition of automated decision-making in migration procedures, with copyright and intellectual property laws sometimes obstructing the disclosure of algorithmic details and functionalities. This opacity can contribute to widespread distrust in contemporary technological solutions and raise concerns about the potential misuse of gathered data.
- Border technologies incorporating emotion assessment, facial recognition, and biometric fingerprint analysis algorithms pose privacy risks and could lead to expanded state surveillance beyond migration policy realms.

[1] https://www.eiir.eu/strategic-affairs/migration-crisis/the-use-of-artificial-intelligence-systems-on-migration/

Methodology. Various authors' works have been examined in the scope of the study. Methods of systematic, descriptive analysis were applied.

Discussion. It is a fact that modern technologies are also changing the content of social interaction in society. Currently, more than 1/3 of the world's population uses social media platforms to communicate, learn, and share information with other people. Digital technologies and the dynamics of information exchange in social networks provide an opportunity to carry out intercultural mutual understanding, consolidation, and interaction with unprecedented speed in history [1].

Historically known for significant emigration, Armenia has experienced immigration challenges in recent years, largely influenced by the Russian-Ukrainian conflict. A considerable influx of Russian and Ukrainian nationals has migrated to Armenia, often referred to as "relocates", as they relocate their businesses and employment to Armenia to overcome challenges arising from sanctions and wartime mobilization. During 2022 65,149[2] citizens of Russia migrated and stayed in Armenia. Additionally, Armenia has seen an increase in labor migrants from India, drawn by the prospect of decent employment opportunities with competitive salaries. These migration flows contributed to increased prices in real estate, changes in the service sector, and inflation, it also resulted in long queues and uncontrolled situations in airports, border controls, passports and visas departments, and embassies. Some of the problems that arose from that inflow would have been possible to minimize, if technological advancements, mainly software and projects powered by AI were put in use.

The Armenian Government, along with its ministries, has prioritized digitalization efforts to leverage its benefits in the current era. As evidenced by the E-Government Development Index 2022, Armenia ranked 64th out of 193 countries[3], reflecting its progress in areas such as the Online Services Index, Telecommunication Infrastructure Index, and Human Capital Index. Notably, the Human Capital Index, which considers factors like adult literacy and years of schooling, attained the highest score. These indices are the result of various procedural and technological advancements implemented in Armenia, such as the introduction of new applications, websites, and software solutions.

One significant development in this regard is the launch of the consolidated platform https://workpermit.am/ in 2022, designed to streamline the selection process

[1] V, Atoyan, Artificial Intelligence and Digital Future Challenges of the Fourth Industrial Revolution, https://asue.am/am/amberd/publications/analytics/artificial-intelligence-and-digital-future-challenges-of-the-fourth-industrial-revolution , last accessed on 05.02.2024

[2] Migration Servie, https://www.migration.am/?lang=en , last accessed on 05.02.2024

[3] UN E-Government Knowledgebase https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/8-Armenia, last accessed on 07.02.2024

for foreign workers through electronic means. This platform includes specific features for citizens of the Eurasian Economic Union (EEU).

Additionally, all pertinent information regarding migration policies, permits, and integration is centralized on the State Migration Service website. Measures like the implementation of a system for registering visits to Passport offices have been introduced to alleviate workload, although challenges persist in maintaining stability in this area.

While the application of AI-powered software holds promise for simplifying migration-related processes, concerns persist due to the absence of legislative frameworks governing its use in this context. Despite some skepticism among the populace, there is growing recognition of the potential benefits of AI. The localization of software akin to Annie™ MOORE for Armenia could prove invaluable, facilitating not only agency operations but also assisting individuals seeking employment and accommodation upon entering the country.

Introducing AI in managing the migration process in Armenia could offer several potential benefits and challenges.

The benefits are:

1. **Efficiency** - AI can streamline the migration process by automating repetitive tasks such as document verification, data processing, and application screening. This could significantly reduce the time and resources required for managing migration.

2. **Accuracy** - AI systems can analyze vast amounts of data with greater speed and accuracy than humans. This could help in identifying patterns, trends, and potential risks associated with migration, leading to more informed decision-making.

3. **Improved Services -** AI-powered chatbots or virtual assistants can provide round-the-clock support to migrants, offering guidance on visa applications, residency permits, and other related queries. This could enhance the overall experience for migrants and improve service delivery.

The challenges are:

1. **Data Privacy and Security** - Handling sensitive personal data of migrants raises concerns about privacy and security. Ensuring robust data protection measures and compliance with relevant regulations is crucial to prevent misuse or unauthorized access to this information.

3. **Technical Infrastructure** – AI solutions implementation requires a reliable technical infrastructure, including access to high-quality data, computational resources, and expertise in AI development and deployment. Ensuring sufficient investment and capacity building in these areas is essential for successful implementation.

4. **Human Oversight and Ethical Considerations** - Establishing clear guidelines and mechanisms for human-AI collaboration is essential. Deploying AI in migration management raises ethical questions related to transparency, accountability, and fairness. It's essential to engage stakeholders, including migrants, civil society

organizations, and human rights advocates, in the design and implementation of AI systems to address these concerns.

Overall, while the introduction of AI in managing migration processes in Armenia holds significant potential, it's essential to approach it thoughtfully, taking into account the opportunities and challenges to ensure that it serves the interests of migrants while upholding ethical and legal standards.

Indeed, the utilization of AI presents both advantages and disadvantages, influenced by human perspectives. However, if AI-driven technology can enhance the lives of individuals, particularly migrants, irrespective of their circumstances, it merits consideration and utilization to optimize outcomes.

The scientific novelty of this article stems from its examination of the contemporary and pivotal role of Artificial Intelligence (AI) in migration processes. While numerous studies have explored various aspects of migration, the intersection of AI and migration remains relatively understudied. As AI continues to advance, it pervades all sectors of human life, yet its specific implications for migration warrant deeper investigation and analysis. This article contributes to filling this gap by elucidating the evolving relationship between AI technologies and migration dynamics, thereby enriching our understanding of this complex and multifaceted phenomenon. Armenia's strides in digitalization, as evidenced by its E-Government Development Index ranking and initiatives like workpermit.am, underscore its readiness to embrace AI in migration management. However, the absence of legislative frameworks underscores the need for careful consideration of ethical and legal implications.

Conclusion. On the positive side, AI can streamline and expedite migration procedures, enhancing efficiency and accuracy. Automated systems can assist in identifying potential security threats, verifying identity documents, and analyzing large volumes of data to inform immigration policies and decisions. AI-powered translation tools can facilitate communication between migrants and officials, overcoming language barriers.

Moreover, AI can play a crucial role in addressing humanitarian challenges associated with migration. It can help humanitarian organizations predict and respond to refugee crises, optimize resource allocation, and provide personalized support to displaced populations. AI-driven tools, such as chatbots and virtual assistants, can offer information and guidance to migrants, empowering them to access essential services and navigate unfamiliar environments more effectively.

However, the adoption of AI in migration also raises ethical, legal, and social concerns. There are worries about data privacy, bias in algorithmic decision-making, and the potential for AI systems to exacerbate inequalities or infringe on migrants' rights. Additionally, there are fears about job displacement among immigration

professionals and the possibility of AI being used for surveillance or discriminatory purposes.

Overall, while AI holds great promise for transforming migration management and humanitarian responses, careful consideration of its implications is necessary to ensure that its benefits are realized equitably and ethically while mitigating potential risks and challenges.

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ԱՐՀԵՍՏԱԿԱՆ ԲԱՆԱԿԱՆՈՒԹՅԱՆ ՕԳՏԱԳՈՐԾՈՒՄԸ ՄԻԳՐԱՑԻՈՆ ԳՈՐԾԸՆԹԱՑՆԵՐՈՒՄ. ՀԵՌԱՆԿԱՐՆԵՐ ԵՎ ՌԻՍԿԵՐ

Մարիամ Վարդանի Պողոսյան

Համառոտագիր: *Հոդվածի արդիականությունը՝* 21-րդ դարում, որը նշանավորվում է արագ փոփոխություններով և շարունակական նվաճումներով, արհեստական բանականությունը (ԱԲ) առանձնանում է որպես հիմնական նորարարական նվաճում, որը ներթափանցում է ժամանակակից կյանքի բոլոր ուղղություններ: ԱԲ-ի գործընթացները համախմբելու և օպտիմալացնելու, ռիսկերը կանխատեսելու և հնարավորությունները օգտագործելու ունակությունը թույլ է տալիս նրան կենտրոնական տեղ զբաղեցնել այսօրվա փոփոխություններում:

Ուսումնասիրությունը **նպատակ** ունի ուսումնասիրել ԱԲ տեխնոլոգիաների ինտեգրումը միգրացիայի կառավարման մեջ՝ նպատակ ունենալով պարզաբանել այս նոր պարադիգմի հետ կապված հնարավորությունները, մարտահրավերները և հետևանքները: Համապարփակ վերլուծության և քննարկման միջոցով Ուսումնասիրությունը նպատակ ունի պատկերացում կազմել այն մասին, թե ինչպես ԱԲ-ի օգտագործումը կարող է օպտիմալացնել միգրացիայի ռազմավարությունը, բարձրացնել արդյունավետությունը և ապահովել տեղեկացված որոշումների կայացում ավելի ու ավելի փոխկապակցված աշխարհում:

Հետազոտության շրջանակներում սահմանվել են հետևյալ խնդիրները՝

- Նկարագրել միգրացիայի էությունը 21-րդ դարում:
- Բացահայտել ԱԲ-ի ներուժը միգրացիոն գործընթացների ավելի լավ համակարգման գործում:
- Բացահայտել ԱԲ-ի ռիսկերը և թույլ կողմերը:

Թեման ուսումնասիրվել է օտարերկրյա հետազոտողների, միջազգային կազմակերպությունների կողմից, հայ հեղինակների կողմից ուսումնասիրություններ գրեթե չեն կատարվել:

Գիտական նորույթը կայանում է միգրացիոն գործընթացներում արհեստական բանականության (ԱԲ) ժամանակակից և առանցքային դերի վերլուծության մեջ: Չնայած բազմաթիվ ուսումնասիրությունների, որոնք դիտարկում են միգրացիայի տարբեր ասպեկտներ, ԱԲ-ի և միգրացիայի միջև կապը մնում է համեմատաբար անբավարար ուսումնասիրված: Քանի որ ԱԲ-ն շարունակում է զարգանալ, այն ներթափանցում է մարդկային կյանքի բոլոր ոլորտները, և միգրացիոն գործընթացների վրա դրա հետևանքները պահանջում են ավելի խորը ուսումնասիրություն և վերլուծություն: Այս հետազոտությամբ փորձ է արվել լրացնելու այդ բացը՝ պարզաբանելով ԱԲ տեխնոլոգիաների և

միգրացիայի դինամիկայի միջև հարաբերությունների էվոլյուցիան՝ դրանով իսկ հարստացնելով այս բարդ և բազմակողմանի երևույթի մասին մեր պատկերացումները: Հայաստանի առաջընթացը թվայնացման ոլորտում ՝ հաստատված էլեկտրոնային կառավարության զարգացման ինդեքսում իր վարկանիշով և այնպիսի նախաձեռնություններով, ինչպիսիք են workpermit.am, ընդգծում է միգրացիայի կառավարման մեջ Արհեստական բանականություն ներդնելու նրա պատրաստակամությունը: Այնուամենայնիվ, օրենսդրական բացը ընդգծում է էթիկական և իրավական ասպեկտները մանրակրկիտ դիտարկելու անհրաժեշտությունը:

Եզրակացություն: Ընդհանուր առմամբ, չնայած այն հանգամանքին, որ ԱԲ-ն խոստանում է վերափոխել միգրացիայի կառավարումը, դրա հետևանքների մանրակրկիտ դիտարկումը անհրաժեշտ է՝ իր հնարավորությունների հավասար և էթիկական օգտագործումը ապահովելու, ինչպես նաև հնարավոր ռիսկերն ու մարտահրավերները մեղմելու համար: Հայաստանն այս պահին կարիք ունի ԱԲ կիրառման, որը կնվազեցնի ծանրաբեռնվածությունը պետական մարմինների աշխատանքում, կնպաստի տեղացիների և միգրանտների առջև ծագած խնդիրների լուծմանը: Սակայն նախ անհրաժեշտություն կա հաստատելու ԱԲ-ի կիրառման որոշակի կարգ, հաշվի առնելով մեր ժողովրդի ընկալումները, գործընթացների ավտոմատացման հնարավորությունները:

Բանալի բառեր. Արհեստական բանականություն, տեխնոլոգիաներ, գլոբալիզացիա, միգրացիա, ռիսկեր, հնարավորություններ, արդյունավետություն, քաղաքականության մշակում

ИСПОЛЬЗОВАНИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В МИГРАЦИОННЫХ ПРОЦЕССАХ: ПЕРСПЕКТИВЫ И РИСКИ

Мариам Варданович Погосян

Аннотация: В динамичное время XXI века, отмеченное быстрыми изменениями и непрерывными достижениями, искусственный интеллект (ИИ) выделяется как ключевое инновационное достижение, проникающее во все аспекты современной жизни. Способность ИИ оркестрировать и оптимизировать процессы, предвидеть риски и использовать возможности позволяет ему занимать центральное место в современном прогрессе.

Цель: Исследование направлено на изучение интеграции технологий ИИ в управлении миграцией с целью прояснения возможностей, вызовов и последствий, связанных с этой новой парадигмой. Через комплексный анализ и обсуждение исследование стремится предоставить представление о том, как использование ИИ может оптимизировать стратегии миграции, повысить эффективность и обеспечить обоснованное принятие решений в мире, становящемся все более взаимосвязанным.

В рамках исследования поставлены следующие цели:

- Описать суть миграции в XXI веке.
- Раскрыть потенциал ИИ в лучшей координации процессов миграции.
- Выявить риски и слабые места ИИ.

Эта тема изучена зарубежными исследователями, международными организациями, но почти не изучена армянскими исследователями.

Научная новизна этой статьи заключается в ее анализе современной и ключевой роли искусственного интеллекта (ИИ) в процессах миграции. В то время как многочисленные исследования изучают различные аспекты миграции, взаимосвязь между ней ИИ остается относительно недостаточно изученной. Поскольку ИИ продолжает развиваться, он проникает во все сферы человеческой жизни, и его последствия по отношению к миграции требуют более глубокого изучения и анализа. Эта статья вносит вклад в заполнение этого пробела, проясняя эволюцию отношений между технологиями ИИ и динамикой миграции, тем самым обогащая наше понимание этого сложного и многогранного явления. Прогресс Армении в цифровизации, подтвержденный её рейтингом в Индексе развития электронного правительства и инициативами, такими как workpermit.am, подчеркивает её готовность внедрять искусственный интеллект в управлении миграцией. Однако отсутствие законодательных рамок подчеркивает необходимость тщательного рассмотрения этических и юридических аспектов.

Заключение и возможности применения: В целом, несмотря на то, что ИИ обещает преобразить управление миграцией, необходимо тщательное рассмотрение его последствий для обеспечения равноправного и этичного использования его возможностей, а также смягчения потенциальных рисков и вызовов. На данный момент Армения нуждается в применении ИИ, которое снизит нагрузку на работу государственных органов, будет способствовать решению проблем, возникающих между местными жителей и мигрантов. Однако, прежде всего, необходимо установить определенный порядок применения ИИ, учитывая восприятие нашего народа, возможности автоматизации процессов.

Ключевые слова: Искусственный интеллект, технологии, глобализация, миграция, риски, возможности, эффективность, разработка политики.

UTILIZING ARTIFICIAL INTELLIGENCE IN MIGRATION PROCESSES: PROSPECTS AND RISKS

Mariam Vardan Poghosyan

Abstract. In the dynamic landscape of the 21st century, marked by rapid changes and continuous advancements, Artificial Intelligence (AI) stands out as a pivotal innovation that permeates every aspect of modern life. AI's ability to orchestrate and

streamline processes, anticipate risks, and capitalize on opportunities has positioned it as a cornerstone of contemporary progress.

Aim. By delving into the integration of AI technologies in migration management, the study aims to elucidate the opportunities, challenges, and implications associated with this emerging paradigm. Through comprehensive analysis and discussion, the research endeavors to provide insights into how leveraging AI can optimize migration strategies, enhance efficiency, and facilitate informed decision-making in an increasingly interconnected world.

The following objectives are set in the framework of this study:

- Describe the essence of migration in the 21st century
- Reveal the potential of AI in better coordination of migration processes.
- Find out the risky and weak points of AI.

The topic has been studied by foreign researchers and international organizations; however, the topic is not fully studied by Armenian researchers.

The scientific novelty of this article stems from its examination of the contemporary and pivotal role of Artificial Intelligence (AI) in migration processes. While numerous studies have explored various aspects of migration, the intersection of AI and migration remains relatively understudied. As AI continues to advance, it pervades all sectors of human life, yet its specific implications for migration warrant deeper investigation and analysis. This article contributes to filling this gap by elucidating the evolving relationship between AI technologies and migration dynamics, thereby enriching our understanding of this complex and multifaceted phenomenon. Armenia's strides in digitalization, as evidenced by its E-Government Development Index ranking and initiatives like workpermit.am, underscore its readiness to embrace AI in migration management. However, the absence of legislative frameworks underscores the need for careful consideration of ethical and legal implications.

Conclusion and policy implications: Overall, while AI holds great promise for transforming migration management and humanitarian responses, careful consideration of its implications is necessary to ensure that its benefits are realized equitably and ethically while mitigating potential risks and challenges. At the moment, Armenia needs the use of AI, which will reduce the burden on the work of government agencies and will help solve the problems faced by locals and migrants. However, first of all, it is necessary to establish a certain order of application of AI, taking into account the perception of our people, and the possibility of automating processes.

Keywords: Artificial intelligence, technology, globalization, migration, risks, opportunities, efficiency, policy development.