Balancing tech and humanity. Recontextualizing AI in migration management

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Abstract

This analysis explores the challenges and considerations in using AI and technology for identifying migrants, refugees, and displaced populations, emphasizing the need for an integrated approach that balances migration management and human rights. As threats like cyber insecurity and AI-based decision-making rise, the role of both state and non-state actors becomes essential in safeguarding rights while managing migration.

While technology can enhance efficiency, as shown in Lebanon's response to the Tripoli bomb attack, it must adhere to international legal standards, especially privacy protections in the ICCPR and UDHR. The use of AI in identification processes raises concerns about wrongful identification, privacy breaches, and discrimination, especially when sensitive data is processed without human oversight. AI's potential for errors in interconnected systems could lead to significant consequences, including denial of rights.

AI's readiness for sensitive contexts like border management is debated, with experts acknowledging the need for improvement in its ability to simulate human judgment. The UN supports responsible AI use in peacebuilding but stresses the importance of regulatory frameworks to address ethical risks like algorithmic bias. Ultimately, the paper advocates for human-rights centric approaches, relying on well-trained personnel to ensure that technology complements, rather than replaces, human involvement in migration management.

Keywords: AI in migration; Human rights protection; Bias and discrimination; Regulatory oversight; Lebanon.

Resumen. *Equilibrando tecnología y humanidad. Recontextualizando la IA en la gestión de la migración*

Este análisis explora los desafíos y consideraciones en el uso de la IA y la tecnología para la identificación de migrantes, refugiados y poblaciones desplazadas, destacando la necesidad de un enfoque integrado que equilibre la gestión de la migración y los derechos humanos. A medida que aumentan las amenazas como la ciberseguridad y la toma de decisiones basada en IA, el papel de los actores estatales y no estatales se vuelve esencial para salvaguardar los derechos mientras se gestiona la migración.

Si bien la tecnología puede mejorar la eficiencia, como se mostró en la respuesta del Líbano al ataque con bomba en Trípoli, debe cumplir con los estándares legales internacionales, especialmente las protecciones de privacidad en el ICCPR y la UDHR. El uso de IA en los procesos de identificación plantea preocupaciones sobre la identificación incorrecta, violaciones de la privacidad y discriminación, especialmente cuando los datos sensibles se procesan sin supervisión humana. El potencial de error de la IA en sistemas interconectados podría llevar a consecuencias significativas, incluida la negación de derechos.

Se debate la preparación de la IA para contextos sensibles como la gestión fronteriza, con expertos reconociendo la necesidad de mejorar su capacidad para simular el juicio humano. La ONU apoya el uso responsable de la IA en la construcción de la paz, pero enfatiza la importancia de marcos regulatorios para abordar riesgos éticos como el sesgo algorítmico. En última instancia, el artículo aboga por enfoques centrados en los derechos humanos, confiando en personal bien capacitado para asegurar que la tecnología complemente, en lugar de reemplazar, la participación humana en la gestión de la migración.

Palabras clave: IA en la migración; Protección de los derechos humanos; Sesgo y discriminación; Supervisión regulatoria; Líbano.

Resum. *Equilibrant tecnologia i humanitat. Recontextualitzant la IA en la gestió de la migració*

Aquest anàlisi explora els desafiaments i consideracions en l'ús de la IA i la tecnologia per a la identificació de migrants, refugiats i poblacions desplaçades, destacant la necessitat d'un enfocament integrat que equilibri la gestió de la migració i els drets humans. A mesura que augmenten les amenaces com la ciberseguretat i la presa de decisions basada en IA, el paper dels actors estatals i no estatals esdevé essencial per salvaguardar els drets mentre es gestiona la migració.

Tot i que la tecnologia pot millorar l'eficiència, com es va mostrar en la resposta del Líban a l'atac amb bomba a Trípoli, ha de complir amb els estàndards legals internacionals, especialment les proteccions de privadesa en l'ICCPR i la UDHR. L'ús de la IA en els processos d'identificació planteja preocupacions sobre la identificació incorrecta, violacions de la privadesa i discriminació, especialment quan les dades sensibles es processen sense supervisió humana. El potencial d'errors de la IA en sistemes interconnectats podria portar a conseqüències importants, inclosa la denegació de drets.

Es debat la preparació de la IA per a contextos sensibles com la gestió de fronteres, amb experts que reconeixen la necessitat de millorar la seva capacitat per simular el judici humà. L'ONU dóna suport a l'ús responsable de la IA en la construcció de la pau, però subratlla la importància de marcs reguladors per abordar riscos ètics com el biaix algorítmic. Finalment, l'article defensa enfocaments centrats en els drets humans, confiats en personal ben format per assegurar que la tecnologia complementi, i no substitueixi, la participació humana en la gestió de la migració.

Paraules clau: IA a la migració; Protecció dels drets humans; Biaix i discriminació; Supervisió reguladora; Líban.

Summary

1. INTRODUCTION

Migration management today operates at the intersection of technology, security, and human rights. As artificial intelligence (AI, hereinafter) and other digital tools become increasingly integrated into identification processes for migrants, refugees, and displaced populations, their potential to enhance efficiency and response capabilities is evident. However, this technological shift also raises ethical, legal and operational concerns, particularly in fragile socio-political contexts and especially when it comes to taking decisions on people's lives. Although there are now some attempts to legally frame AI, (Sheikh, Prins & Schrijvers, 2023) various definitions have been elaborated to regulate the use of different technologies designed to support human activities, whereby at its broadest, AI equates to algorithms. Among the more recently developed regulatory frameworks, the Council of Europe drafted a legal instrument framing the use of AI in the areas of police, administration, justice, and border and migration management, as part of its future work on administrative law and AI. The proposed definition of AI systems is included in its Article 2 and follows that of the OECD.[1] Likewise, the European Union (EU) adopted the Regulation (EU) 2024/1689 laying down harmonized rules on artificial intelligence, or the AI Act, which is the first-ever comprehensive legal framework on AI worldwide. It includes references to the use of technology for migration management purposes.

With this background, this paper critically contemplates the role of AI in migration governance, assessing both its benefits and risks, via case study. Although the employment of AI technologies in the context of migration encompasses

[1] "For the purposes of this Convention, "artificial intelligence system" means a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations or decisions that may influence physical or virtual environments. Different artificial intelligence systems vary in their levels of autonomy and adaptiveness after deployment."

displacement, entry, and return of individuals across borders, this study explores how AI-driven identification systems can streamline migrant and refugee registration, border security, and asylum processing while also posing significant challenges, such as data privacy violations especially in humanitarian settings, wrongful identification, and algorithmic bias. Through case studies on Lebanon, including the community response to the 2013 Tripoli bomb attack and the United Nations (UN) peacebuilding initiative "Dreaming of Lebanon", the analysis illustrates how AI is being integrated into migration and security strategies.

A key concern in this discussion is the reliance on automated decision-making, which, despite enhancing interoperability and accuracy, can lead to discriminatory outcomes and privacy breaches when applied without adequate oversight. The analysis highlights international legal frameworks, including Article 17 of the International Covenant on Civil and Political Rights (ICCPR)[2] and Article 12 of the Universal Declaration of Human Rights (UDHR, hereinafter),[3] along with the principles of *non-refoulement* and non-discrimination, as essential safeguards in mitigating these risks.

This paper argues for a hybrid model that balances technological advancements with human oversight, ensuring a rights-based approach to migration management. Ultimately, it advocates for responsible AI deployment within a renewed social contract that upholds international legal standards, protects the most vulnerable, and fosters ethical innovation in migration governance.

2. METHODOLOGY AND SCOPE

This study offers a comprehensive analysis of the intersection between artificial intelligence (AI), human rights, and migration management, drawing on an extensive research project conducted in Lebanon from 2021 to 2023. By employing a multi-disciplinary methodology, the analysis combines a literature review, case studies, and legal analysis to critically assess the implications of AI and automated systems in migration governance. The central inquiry of this study revolves around how AI can be effectively integrated into migration management, ensuring compliance with international legal standards and safeguarding human rights.

The guiding research question examines the role of AI in migration governance, exploring how it can balance the need for efficiency, interoperability, and crisis response with critical legal and ethical considerations. Through a qualitative legal methodology, the study combines doctrinal analysis of international human rights standards, with an emphasis on the EU regulatory context, migration policies, and AI

[2] Article 17. 1. No one shall be subjected to arbitrary or unlawful interference with his privacy, family, home or correspondence, nor to unlawful attacks on his honour and reputation. 2. Everyone has the right to the protection of the law against such interference or attacks.

[3] Article 12. No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honour and reputation. Everyone has the right to the protection of the law against such interference or attacks.

regulations with secondary sources, including UN reports and scholarly articles, addressing the current paucity of case law on this issue. [4]

The methodological framework is multi-faceted: it begins with a literature review that offers a thorough examination of academic articles, policy papers, and reports from key international bodies such as the UN and the EU. Then, this review maps the evolving landscape of AI and automation in migration and border management, highlighting both the potential advantages and the associated risks. It assesses various AI applications in migration, particularly referencing the EU framework while focusing on case studies on Lebanon. The latter is a salient example due to its politically fragile and economically volatile context, exacerbated by the ongoing Syrian refugee crisis (Cottone, 2024). Despite its vulnerabilities, Lebanon presents a unique case to explore the integration of community-based responses with international and national initiatives, involving both state and non-state actors. The country's governance challenges and resource constraints create a high-pressure environment where AI-driven migration management tools can be tested for efficiency, interoperability, and crisis response. Particularly, this paper draws on two pivotal case studies to illustrate this dynamic: the 2013 Tripoli Bomb Attack, which saw digital tools facilitating a community-driven response in Northern Lebanon, and the "Dreaming of Lebanon" initiative, an UN-led Virtual Reality (VR, hereinafter) documentary designed to foster youth dialogue and social cohesion through technology.

The legal and ethical analysis critically engages with the risks posed by AI, especially regarding privacy violations, discrimination, and algorithmic bias, framed within international human rights law. Specifically, it examines the compatibility of AI-driven migration management systems with article 17 of the ICCPR, which guarantees the right to privacy, and article 12 of the UDHR,[5] which protects against arbitrary interference with privacy, family, and correspondence.

Following this and in line with the brief considerations on the EU's interoperable migration management framework, the comparative analysis focuses on human-based identification mechanisms with AI-driven systems. This evaluation considers both the benefits of AI, such as increased efficiency and accuracy, and the inherent risks, including algorithmic bias and errors in automated profiling.

The findings of this study demonstrate that while AI and automation offer significant improvements in migration management, such as enhanced efficiency and

[4] Council of Europe - Directorate General of Human Rights and Rule of Law (2025), Opening of the Judicial Year 2025 The Protection of Human Rights in the World of Artificial Intelligence, Algorithms and Megadata (Big Data) - 31 January 2025 Speech by M. Hanne Juncher. https://www.coe.int/en/web/human-rights-rule-of-law/-/opening-of-the-judicial-year-2025-the-protection-of-human-rights-in-the-world-of-artificial-intelligence-algorithms-and-megadata-big-data-31-january-2025, "cases involving algorithms and big data are for the moment, cases involving algorithms and big data are few, but it is to be expected that this will change. The debate today on the protection of human rights in the world of AI is therefore very timely."

[5] Article 12 No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honor, and reputation. Everyone has the right to the protection of the law against such interference or attacks.

predictive capabilities, they also present profound legal and ethical challenges. The risks of algorithmic bias, privacy infringements, and non-discrimination concerns highlight the urgent need for robust legal safeguards to ensure compliance with international human rights standards. Consequently, this research emphasizes the necessity of a human rights-centric approach to AI integration in migration governance. Ensuring transparency, accountability, and the application of both legal and human oversight is key to mitigating the risks associated with these technologies.

Ultimately, this study contributes to the ongoing discourse on AI's role in migration management by providing a legal framework for evaluating AI deployment, ensuring that migration and border policies respect fundamental rights and adhere to ethical principles. It underscores the importance of safeguarding human dignity and autonomy in the face of technological advancements that have the potential to reshape migration governance globally.

3. THE PROMISE OF TECHNOLOGY AND AI IN MIGRATION MANAGEMENT

The COVID-19 pandemic did not introduce the digital transformation of migration management, but it significantly accelerated it (Beduschi & McAuliffe, 2021). The global crisis underscored the urgent need for technology across sectors, including migration governance, where digital tools became essential for monitoring, controlling, and facilitating mobility while minimizing physical contact. The rapid implementation of telematic systems, digital identity verification, and automated decision-making during the pandemic demonstrated the flexibility and adaptability of technology in migration contexts.

One prominent application of technology during this period was observed in the context of alternatives to immigration detention for migrants and refugees in countries of transit or arrival. While detention is always an exceptional measure as applied for border management purposes, governments and organizations turned to digital solutions to enforce non-custodial alternatives that are more compliant with fundamental rights. These alternatives ranged from community-based placements and open facilities to conditional releases and financial guarantees.[6] In this context, resorting to technology through electronic monitoring, such as ankle bracelets or mobile tracking, became increasingly widespread, despite raising significant concerns regarding privacy, freedom of movement, and human dignity. Nevertheless, the use of such measures is regulated and encounters the limitations set by the principles of necessity, proportionality, and judicial oversight, which prevent excessive restrictions on fundamental rights. [7]

[6] International Detention Coalition (IDC) (2015). *There are alternatives. A handbook for preventing unnecessary immigration detention (revised edition)*, p. 59-74.
[7] Parliamentary Assembly of the Council of Europe (2010). *The detention of asylum seekers and irregular migrants in Europe.*

Beyond detention alternatives, technology and AI also proved critical in predictive displacement and migration analytics (Abeytia, et al, 2024) or "migration forecasting". This practice consists in the use of historical data by AI-driven systems to anticipate population movements, aiming to optimize responses, especially in times of crisis. While humanitarian organizations recognize AI's potential to improve efficiency,[8] enhance accountability, and allow for earlier crisis responses, there are concerns about the reliability of such predictions. Particularly in conflict zones, where data collection may be inconsistent or biased,[9] predictions then may lack accuracy, posing serious risks for individuals and undermining effective governance. Furthermore, the lack of a universally accepted definition of "international migration"[10] complicates efforts to standardize forecasting methodologies, making it difficult to assess the true potential of these systems.

Overall, the growing reliance on technology in migration governance reflects global trends linking security and migration (Dragomir & Morari, 2024). However, rather than reinforcing a securitized approach, digital tools can also support integration, improve identification, and enhance humanitarian efforts within a rights-based framework, as demonstrated in the present study.

3.1. The benefits of AI and technology

AI-driven systems offer transformative potential in migration management by enhancing efficiency, accuracy, and responsiveness (Batte, 2025). Automation streamlines data processing, expediting refugee identification, asylum applications, and border security (Hayes & Downie, 2025). AI also strengthens biometric identification, predictive analytics for policy planning, and surveillance to detect irregular crossings and combat illicit trafficking (Khoury & Hendow, 2025).

Beyond crisis response, AI improves migration governance by enabling faster decision-making and resource allocation.[11] Contact-tracing apps and real-time data analysis enhance public health and security efforts, while AI-driven tools support humanitarian aid and integration programs.[12] However, technological advancements maximize their benefits if they align with international legal standards, ensuring privacy, fairness, and accountability. Indeed, safeguards such as human oversight, proportionality, and adherence to data protection laws are essential to maintaining trust and upholding migrants' rights while leveraging AI's full potential for effective and ethical migration management. In doing so, they help to mitigate significant concerns related to privacy and data protection, particularly within the normative

[8] UNHCR (2024), *AI for efficient, evidence-informed humanitarianism*.
[9] IOM GMDAC (2020), *Future Migration Trends.*
[10] *Ibidem*
[11] *The Use of Digitalisation and Artificial Intelligence in Migration Management*, available. EMN-OECD Inform (February 2022)
[12] *Ibidem.*

frameworks established by Article 8 of the EU Charter[13] and Regulation (EU) 2016/679.[14] Moreover, managing emerging threats such as cyber insecurity, digital inequality, and misinformation requires a more integrated approach, recognizing the interconnected roles of state and non-state actors. This aligns with the UN Secretary-General's call for burden-sharing and rights-based migration governance.[15]

3.2. The risks of technological reliance

Research indicates that generative AI could boost the global economy by enhancing productivity in various sectors (Goldman Sachs Research, 2023). Yet, its application in contexts like migration management raises the question of whether such systems can accurately replicate the nuanced judgment that human actors bring to sensitive decisions (Financial Times, 2023). As AI shapes vulnerability screening for individuals at the borders, migration verification, and identity management, concerns over human rights compliance grow. Failures in these systems can lead to wrongful identifications and life-altering decisions without adequate oversight. Indeed, the errors in automated border systems risk to lead to misclassification, bias, and wrongful denial of asylum and applicable safeguards (Raso, et al, 2018). Hence the need to refine AI tools to ensure fairness and accuracy, allowing for human oversight to remain central to decision-making by personnel adequately trained on both obligations regarding border security and human rights safeguards.

To illustrate this point, the EU's extensive network of information systems, such as the Schengen Information System (SIS),[16] Visa Information System (VIS),[17] EURODAC,[18] and Automated Fingerprint Identification System (AFIS),[19] provides a model of interoperability in migration and border management. These systems are

[13] *Charter of Fundamental Rights of The European Union*. 2012/C 326/02
[14] *General Data Protection Regulation (GDPR)*
[15] United Nations (2021), *Our Common Agenda – Report of the Secretary-General*
[16] The Schengen Information System (SIS) is the most widely used and largest information sharing system for security and border management in Europe. As there are no internal borders between Schengen countries in Europe, SIS compensates for border controls and is the most successful cooperation tool for border, immigration, police, customs and judicial authorities in the EU and the Schengen associated countries. More information:
https://home-affairs.ec.europa.eu/policies/schengen/schengen-information-system_en
[17] The Visa Information System (VIS) is an essential component supporting the implementation of the European Union's common visa policy, facilitating the exchange of visa data between EU & Schengen States and simplifying the visa application process for travellers. VIS is managed by eu-LISA since 2013. More information: https://www.eulisa.europa.eu/activities/large-scale-it-systems/vis
[18] Eurodac: European system for the comparison of fingerprints of asylum applicants (until 2026). More information:
https://eur-lex.europa.eu/EN/legal-content/summary/eurodac-european-system-for-the-comparison-of-fingerprints-of-asylum-applicants-until-2026.html
[19] Automated Fingerprint Identification System (AFIS) is a biometric solution consisting of a computer database of fingerprint records, which is able to search and compare them to identify known or unknown fingerprints. Modern AFISes are able to search over a billion fingerprint records in a single second. More information:
https://www.innovatrics.com/glossary/afis-automated-fingerprint-identification-system/

designed to facilitate the efficient exchange of data between Member states to enhance security, improve border control, and streamline asylum and international protection processing (Gugliotta & Elbi, 2024). However, the merging of migration and security databases raises serious concerns about privacy violations, discrimination, and the potential for misidentification. Migrants and refugees, already in situations of vulnerability, risk being unfairly associated with criminal activity, further exacerbating their marginalization.

The European Union's interoperability framework,[20] while beneficial in streamlining information-sharing, risks infringing on privacy rights, particularly if safeguards are insufficient. As Blasi Casagran (2021) argues, connecting migration and law enforcement databases without adequate protections can blur the lines between migration management and criminal justice, with severe consequences for individuals. Therefore, the potential for data misuse, privacy breaches, and the erosion of individual freedoms underscores the need for clear legal safeguards and oversight mechanisms to ensure compliance with fundamental rights.

Moreover, the use of biometric systems, such as fingerprinting and facial recognition, also raises concerns about necessity and proportionality, particularly for individuals at risk of harm, especially unaccompanied minors (Pugliese, 2022). To put this into perspective, the European Union Agency for Fundamental Rights[21] emphasizes that biometric data collection must be handled with utmost caution to prevent privacy violations and protect those in precarious situations.[22] Indeed, the misuse or misinterpretation of such data can increase risks of exploitation, illicit trafficking, and abuse,[23] making careful handling essential to prevent excessive force or rights violations, especially for migrants in irregular situations and, most critically, children.

Nevertheless, interoperability can offer significant benefits, particularly for children who go missing at borders or unaccompanied minors at risk of violence, exploitation, and trafficking in persons. Cross-referencing biometric data can aid in family tracing, reinforcing the right to family unity and enhancing protection efforts. This was clarified by UNICEF (2019) stating that biometric technology, defined as means to measure individual uniqueness through facial and iris recognition or

[20] It is operational since 2012 and in charge of internal security, visa data and exchange of information concerning asylum claims. More information can be found at https://european-union.europa.eu/institutions-law-budget/institutions-and-bodies/search-all-eu-institutions-and-bodies/european-agency-operational-management-large-scale-it-systems-area-freedom-security-and-justice-eu_en#:~:text=European%20Agency%20for%20the%20operational,and%20justice%20(eu%2DLISA)

[21] European Union Agency for Fundamental Rights, *FRA Opinions Biometrics. Providing information in an understandable and transparent manner*, available at https://fra.europa.eu/en/content/fra-opinions-biometrics#

[22] European Union Agency for Fundamental Rights (2017), *Fundamental rights and the interoperability of EU information systems: borders and security*, p. 45, available at https://fra.europa.eu/sites/default/files/fra_uploads/fra-2017-interoperability-eu-information-systems_en-1.pdf.

[23] *Ibidem*.

fingerprints confirming one's claimed identity, benefits data linkage and a holistic service provision by authorities, especially for children on the move. However, such tools are usually designed for adults and might not perform as efficiently when applied to cases involving children. Among the risks identified, noteworthy are cases of misuse of personal data and data protection considerations, such as the so-called "scope creep", which occurs "when data is used for new purposes or shared with others for purposes outside of the scope of original collection, and for which informed consent has not been given". UNICEF, for example, lists three main risks for children that relate to: a) inaccuracy of digital identity management systems which do not capture certain age groups traits accurately, b) incapability of making informed decisions, especially in the most vulnerable cases, including on the participation of the template collection, and c) being at the forefront of the ongoing big data revolution, children are made more exposed to life-long data risks, including multiple collection of their data that ultimately amplifies the abovementioned risks.

It unfolds that AI, and digital tools play a growing role in migration management, offering efficiency and improved crisis response. However, they also raise concerns about privacy, accountability, and human rights that can be addressed through clear legal frameworks essential to regulate data use and protect individuals more exposed to harm. From this perspective, Lebanon presents a key case study, as it hosts one of the world's largest refugee populations,[24] relying increasingly on digital systems for aid distribution, identity verification, and border control (World Bank, 2024). Examining Lebanon's experience highlights both the potential and risks of AI-driven migration governance, emphasizing the need for a balanced approach that integrates technology with human oversight to uphold fundamental rights.

4. CASE STUDIES: LEBANON AS A TESTBED FOR DIGITAL TOOLS

Lebanon's experience with digital tools in crisis management highlights the complex interplay between technology, security, and human rights. Case studies reveal both the potential and risks of integrating digital technologies in humanitarian response, migration management, and social cohesion efforts. These challenges emphasize the need for a balanced approach that leverages technological innovation while upholding ethical principles.

One notable example is the pilot project by the startup "Marhub" (Peters, 2017), which introduced the chatbot "Mona" (Peters, 2019) to assist Syrian refugees in Lebanon. This AI-driven tool not only provided access to vital information regarding the assessment of personal situations and claims for protection, but also helped verify eligibility for resettlement, demonstrating how AI can enhance efficiency and timely

[24] UNHCR (2025). *Lebanon at a Glance*, available at https://www.unhcr.org/lb/about-us/unhcr-lebanon-glance last accessed May 2025; Cottone, L. (2024), *Lebanon's Resilient Approach to Migration and Security*, in La Comunità Internazionale, No. 4/2024, p. 729.

humanitarian aid, improving the response rate without overwhelming caseworkers and other non-state actors.

4.1. The Tripoli bomb attack (2013): A double-edged sword

The 2013 Tripoli terrorist bombing attacks response (Baytiyeh, 2018) showcased how mobile location data and AI-driven surveillance can support rapid emergency responses, helping identify danger zones and provide real-time updates to affected communities by community members themselves. While this use of technology demonstrated its life-saving potential, it also highlighted concerns over privacy and mass surveillance.

However, the collection of sensitive personal data, including individuals' movements and associations, exposed vulnerabilities in privacy protections, particularly during heightened security measures. As enshrined in Articles 17 of the ICCPR and 12 of the UDHR, individuals have the right to protection from arbitrary interference with their privacy, which represents an especially urgent issue for Lebanon's marginalized populations, such as migrants and refugees. In this sense, the *Tripoli case* underscores both the benefits and risks of digital tools in crisis management.

4.2. "Dreaming of Lebanon": Technology for social transformation

On the other side of the digital spectrum, Lebanon has seen the transformative potential of technology in peacebuilding efforts, particularly through the UN's "Dreaming of Lebanon" project.[25] This initiative employed virtual reality and AI-powered digital storytelling to promote social cohesion and foster dialogue among Lebanon's youth.[26] By offering a platform where young people could express their hopes for the country's future, this project exemplified how technology can be a powerful tool for community empowerment, social healing, and conflict resolution.

However, this case study also brings to light the complexities surrounding AI's role in social transformation. While the potential for AI in peacebuilding is indisputable,[27] it is essential that these digital tools are constantly scrutinized for ethical issues such as algorithmic bias. Even in seemingly neutral applications like VR and storytelling, AI systems can inadvertently perpetuate existing societal imbalances or reinforce stereotypes fuelling discrimination. Therefore, as highlighted by the UN, it

[25] UN Innovation Network. *Dreaming of Lebanon*. https://www.uninnovation.network/projects/dreaming-of-lebanon.
[26] UN Department of Peace and Political Affairs (2023), *Artificial Intelligence and Virtual Reality — Used Responsibly — Can Help Peacebuilding Efforts*, https://dppa.medium.com/artificial-intelligence-and-virtual-reality-used-responsibly-can-help-peacebuilding-efforts-e4aa700710bd
[27] *United Nations Activities on Artificial Intelligence (AI) 2022*. https://www.itu.int/dms_pub/itu-s/opb/gen/S-GEN-UNACT-2022-PDF-E.pdf

is possible to ensure that these technologies are deployed transparently, inclusively, and in full alignment with human rights only through stringent and forward-thinking regulatory frameworks.[28]

Despite the innovative nature of projects like "Dreaming of Lebanon", this case urges for a cautious approach when scaling up AI technologies, particularly in contexts involving marginalized populations exposed to heightened vulnerability. Just as AI can promote peace and understanding, it can also reproduce biases or become a tool for manipulation, if not carefully managed. This calls for stronger governance structures that not only monitor technological employs but also assess its long-term impacts on social cohesion.

4.3. Bridging the gap: Digital tools for migrant and refugee identification

Lebanon's experience with technology-driven crisis management extends to migration, where digital tools have been used for identification, registration, and resettlement. While AI promises efficiency in managing large-scale data, its application to vulnerable groups carries significant risks. Migrants and refugees often require individualized attention that automated systems struggle to provide, leading to potential misidentifications, wrongful categorizations, or oversimplifications especially for children, the elderly, or those with disabilities. The eventual errors in AI-driven identification can result in denied protection and asylum, wrongful detention, or deportation, exacerbating vulnerabilities rather than alleviating them. Hence, even if AI offers speed, scalability, and efficiency in migration management, its risks, such as the bias, inaccuracy, and lack of transparency, still require strong human oversight (Herath, et al, 2025). In this context, Lebanon's experience highlights the necessity of human intervention and assessment to complement AI systems structures, so that to ensure that migration management remains flexible, empathetic, and aligned with human rights principles.

5. LEGAL AND HUMAN RIGHTS FRAMEWORK

The deployment of AI in migration management can be seen as both a promising innovation and a potential minefield, with profound implications for human rights (Donahoe & Metzger, 2019). In this sense, the *UN Guiding Principles on Business and Human Rights* also highlight the prominent need for accountability, which extends to corporates and developers.

In principle, violations can be averted by aligning tools and their implementation to the existing international legal frameworks protecting migrants and

[28] Medium (2023, June 2). *Exploring the Potential and Pitfalls of Artificial Intelligence as a Tool for Prevention and Peacebuilding*, available at https://dppa.medium.com/exploring-the-potential-and-pitfalls-of-artificial-intelligence-as-a-tool-for-prevention-and-77fb3e15b442

refugees. Above all, fundamental safeguards are offered by the core human rights principles such as non-discrimination and *non-refoulement*, enshrined in the 1951 Refugee Convention (Article 33),[29] and the ICCPR article 26[30] providing for equality before the law and article 17 specifically protecting privacy and due process, preventing wrongful deportations or data misuse. In the context of the EU, these standards are complemented by the General Data Protection Regulation which reinforces strict standards for handling personal data.[31] Since algorithmic bias is a major concern in AI-driven migration management, potentially exacerbating inequalities and leading to wrongful asylum denials or unjust classifications, it is crucial to examine how the EU AI Act[32] addresses this issue, as it classifies migration-related AI as "high risk"(article 6) (Stewart, 2024) and requires rigorous assessments for fairness, accuracy, and human oversight. Similarly, the Council of Europe is taking a significant step forward with its Framework Convention on Artificial Intelligence and Human Rights, Democracy, and the Rule of Law, open for signature in September 2024. This agreement explicitly calls for compliance with principles such as human dignity, autonomy, equality, non-discrimination, and privacy protection, and sets a critical precedent for international cooperation on AI governance in the migration space.

While the implementation of these groundbreaking instruments remains in its beginning, existing legal standards and elaborated case-law, notably those set by the European Court of Human Rights (ECHR, hereinafter), provide critical insights into how AI in migration management could be regulated. Through its interpretation of Article 8[33] of the European Convention on Human Rights, [34] the Court has established

[29] Article 33. Prohibition of expulsion or return ("refoulement"). 1. No Contracting State shall expel or return ("refouler") a refugee in any manner whatsoever to the frontiers of territories where his life or freedom
would be threatened on account of his race, religion, nationality, membership of a particular social group or political opinion. 2. The benefit of the present provision may not, however, be claimed by a refugee whom there are reasonable grounds for regarding as a danger to the security of the country in which he is, or who, having been convicted by a final judgment of a particularly serious crime, constitutes a danger to the community of that country.

[30] Article 26. All persons are equal before the law and are entitled without any discrimination to the equal protection of the law. In this respect, the law shall prohibit any discrimination and guarantee to all persons equal and effective protection against discrimination on any ground such as race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.

[31]. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (...)

[32] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonized rules on artificial intelligence (...).

[33] Article 8. Right to respect for private and family life 1. Everyone has the right to respect for his private and family life, his home and his correspondence. 2. There shall be no interference by a public authority with the exercise of this right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety or the economic well-being of the country, for the prevention of disorder or crime, for the protection of health or morals, or for the protection of the rights and freedoms of others.

[34] *Gaughran v. the United Kingdom*, 2020, par. 70; *Breyer v. Germany*, 2020 par. 88; *Szabó and Vissy v. Hungary*, 2016 par. 68; *Roman Zakharov v. Russia* [GC], 2015 parr. 302-305; *S. and Marper v. the United Kingdom* [GC], 2008, par. 112.

a body of case law that emphasizes the need for data retention and surveillance measures to be justified, proportionate, and legally prescribed. The ECHR has repeatedly stressed that surveillance and data retention, including the use of advanced forensic techniques, must only be employed to serve legitimate societal interests, such as national security or combating terrorism, and that such measures must not unduly infringe on privacy rights.

Furthermore, the ECHR has issued clear guidance on the "quality of law" standard, which demands that surveillance laws be precise, foreseeable, and accessible, thereby minimizing the risk of arbitrary or discriminatory practices. In addition, the Court has cautioned against the dangers posed by mass surveillance and automated data collection, particularly when such practices are undertaken without strict controls. Thus, the Court reiterates and underscores the need for judicial oversight and effective remedies to ensure that surveillance and technologies are applied lawfully and that individuals have access to judicial remedies and claim their rights in case of violations.

This argument reinforces that while AI improves efficiency in migration management, it also poses risks if not accompanied by strict oversight and legal safeguards. Therefore, as regulatory frameworks evolve including the latest instruments adopted, responsible AI governance is increasingly focused on protecting fundamental rights rather than undermining them.

6. A COMPARATIVE ANALYSIS: AI VS. HUMAN-LED IDENTIFICATION

This section presents a comparative analysis of AI and human-led identification in the context of migration governance, grounded in empirical observations from Lebanon between 2013 and 2023 as demonstrated in the examples analysed. Drawing on the three case studies, the "Mona" chatbot developed by *Marhub* to support Syrian refugees, the deployment of AI-enabled surveillance and mobile data during the *2013 Tripoli bombings*, and the UN's "Dreaming of Lebanon" initiative using AI and virtual reality to foster youth dialogue, this analysis examines how AI technologies have been applied to migration and crisis management, and highlights both their transformative potential and their limitations. These cases were selected based on their diverse use of AI tools in contexts where migration intersects with humanitarian, security, and social cohesion challenges. They serve to illustrate the central argument of this section: that while AI systems can significantly enhance efficiency, scale, and responsiveness in migration management, particularly by accelerating asylum processing, cross-referencing data for vulnerability assessments, and supporting decision-making, they also introduce substantial risks related to bias, opacity, and the erosion of individual rights.

Section 6.1 explores how AI systems can process large volumes of data rapidly and accurately, particularly in tasks like biometric verification or eligibility screening, which were evident in the "Mona" pilot. This functionality is especially valuable during

crisis surges, when human capacity is stretched. However, Section 6.2 critically evaluates the limitations of such systems, drawing from the *Tripoli* case to illustrate how real-time data collection and surveillance, while effective for public safety, raised profound concerns about privacy, data misuse, and the risk of overreach, particularly for refugees and marginalized groups. Moreover, algorithmic bias, when left unchecked, can reinforce structural inequalities, as seen in automated misclassifications or profiling tendencies based on flawed historical data. Section 6.3 therefore underscores the indispensable role of human oversight in AI-driven processes. While AI offers speed, it lacks the nuanced judgment required to assess individual cases in a human-rights-compliant manner. Human evaluators and decision-makers, such as caseworkers trained in both security procedures and human rights and humanitarian standards, are essential for reviewing, contextualizing, and correcting AI outputs. This dual approach, combining technological efficiency with human ethical reasoning, is presented as the most viable path toward fair and accountable migration governance.

By weaving these empirical cases into the comparative analysis, this section supports a broader call for a human-rights-centric approach to AI in migration, one that ensures accountability, transparency, and proportionality. The discussion is especially relevant for policymakers and stakeholders, and particularly in the EU, who are evaluating regulatory frameworks for the deployment of AI in border and asylum procedures. Ultimately, Lebanon's experience offers a timely, grounded and concrete perspective on both the opportunities and the pitfalls of AI-driven migration governance, with clear implications for international practice and future regulation.

6.1. The strengths of AI systems

Based on the considerations expressed thus far, AI systems present notable advantages in the context of migration management, particularly due to their capacity for rapid data analysis and cross-border interoperability. These systems can process vast amounts of data quickly, enabling faster decision-making for example in asylum processing, and this is especially valuable when dealing with large volumes of applications during crises. AI's ability to analyse and cross-reference data across multiple platforms can improve the speed and efficiency of identifying migration patterns and individual vulnerabilities and needs, helping to predict trends and allocate resources effectively. Additionally, AI's precision in handling structured data can reduce the risk of human error in the collection and processing of information, particularly in repetitive tasks such as biometric identification. By automating such processes, AI presents the potential to streamline migration management operations, offering a more scalable approach to handling global migration and displacement challenges.

6.2. Limitations and risks

Despite its strengths, AI in migration management carries significant risks, particularly in terms of inaccuracies and biases. AI systems, while efficient, are not immune to errors. Inaccurate data analysis can lead to wrongful decisions, such as the misidentification of refugees or individuals with special needs, or the denial of asylum to individuals who are entitled to international protection. The interconnected nature of AI-driven databases further amplifies this risk, as an error in one database can propagate across multiple systems, compounding the impact. Moreover, AI systems are often prone to algorithmic bias, which can disproportionately affect marginalized or vulnerable groups, reinforcing existing racial and ethnic prejudices. Eventually this bias can result in discriminatory outcomes, such as unjust denial of asylum applications or profiling of certain communities based on flawed patterns or historical data mistakenly inserted or categorized. Another concern is the opacity of AI decision-making processes, which makes it difficult to hold these systems accountable for their actions. Without clear transparency or explanation for AI-driven decisions, individuals may face an erosion of their rights without recourse to challenge or redress.

6.3. The need for human oversight

While AI offers efficiency and speed, it is crucial to acknowledge the irreplaceable role of human judgment (Herath, et al, 2025), at least in a sensitive domain such as the migration management and protection-related matters. Human intervention remains essential in ensuring that AI-generated decisions are fair, accurate, and aligned with human rights norms. In fact, practice observed thus far highlights how AI is inherently limited when it comes to understanding the nuances of individual circumstances (Herath, et al, 2025), such as the complex, often sensitive, backgrounds of asylum seekers, refugees, displaced and migrants with special vulnerabilities. Properly trained personnel, who understand both security obligations and humanitarian principles, are better prepared to assess individual circumstances and make informed decisions that uphold the dignity and rights of those seeking refuge and protection. As such, human oversight is thus necessary to monitor AI systems, review decisions, and ensure that they comply with legal and ethical standards.

Additionally, it is crucial to train well-equipped personnel to work alongside AI systems to ensure the accuracy and integrity of referral mechanisms within protection and asylum processes. These skilled professionals act as a safeguard, carefully reviewing AI-generated results to identify any biases or inaccuracies before they can negatively affect individuals' lives. This dual approach, namely combining the efficiency of AI with the judgment of human decision-makers, ensures that migration management processes are not only faster and more scalable but also fair, transparent, and consistent with international human rights standards. Ultimately, AI in this context

represents an effective tool to assist, rather than replace, human expertise in the complex and highly sensitive realm of migration, displacement and asylum.

7. CONCLUSIONS. TOWARDS A HYBRID MODEL BALANCING TECHNOLOGY AND HUMAN RIGHTS-CENTRIC APPROACH

This analysis has explored the complex challenges of using AI in migration management, highlighting its potential for increased efficiency and enhanced response capabilities, as seen in the Tripoli bomb attack. However, AI's risks, such as bias, inaccuracy, and lack of transparency, require strong human oversight, especially in sensitive contexts like asylum decisions and protection-related matters. While AI can process vast data quickly, it cannot capture the complexities of human experiences or ensure fairness in decision-making. Automated systems also risk misidentifying individuals, breaching privacy, and perpetuating discrimination, which underscores the necessity for a balanced, human-centric approach.

The integration of AI into migration management is progressively oriented towards prioritizing the safeguard of fundamental rights, particularly the principles of non-discrimination, *non-refoulment*, and the right to privacy as outlined in the ICCPR and UDHR. AI can streamline certain processes, but its potential to perpetuate algorithmic biases, inaccuracies, and wrongful decisions is significant enough to demand continuous human oversight. In fact, relying solely on AI could jeopardize the rights of vulnerable groups such as refugees, asylum seekers, and displaced populations.

If deployed responsibly, AI can be a powerful tool in improving migration management, but only if governed by robust regulatory frameworks that uphold human rights, ensure transparency, and prevent harmful biases. Initiatives like the UN's "Dreaming of Lebanon" project demonstrate how technology can be used positively, yet to be carefully calibrated to avoid unintended consequences. While AI offers valuable insights and improves efficiency, human involvement remains critical to ensuring fairness, accountability, and the protection of individual rights.

This study advocates for a hybrid model that combines the strengths of AI with human expertise and critical oversight. This approach allows technology to enhance migration management while safeguarding the dignity and rights of migrants and displaced populations. It aligns with international legal standards, ensuring AI deployment in migration contexts is ethical, accountable, and responsive to individual needs. As AI continues to evolve, its role in migration management complements human judgment, not replace it. Consequently, future research and interdisciplinary approaches are urged to assess and prioritize the advancement of AI capabilities while safeguarding human rights and legal protections, thereby ensuring that migration systems remain efficient, equitable, and consistent with international legal standards.

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