Article

Migrant Identity in the Age of Artificial Intelligence: Technology, Surveillance, and Belonging

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Abstract
As artificial intelligence (AI) and digital surveillance technologies reshape governance systems worldwide, their impact on migration extends beyond efficiency and security to the very core of migrant identity and belonging. This conceptual paper critically examines how AI, biometric systems, and predictive analytics influence migrants' access to rights, cultural negotiation, and social inclusion. Grounded in Technological Determinism Theory, the study employs a thematic synthesis of peer-reviewed literature, policy reports, and migration data published between 2010 and 2025. Findings reveal that migrant identity is shaped by the interplay of legal recognition, cultural belonging, and technological mediation. While AI-driven systems streamline migration processes in developed economies, they often reproduce biases, heighten surveillance, and restrict agency. In contrast, uneven adoption in emerging economies, particularly in Africa, creates hybrid governance spaces where migrants navigate both formal and informal systems. Across regions, migrants actively negotiate identity through community networks, cultural hybridity, and resistance to digital profiling, demonstrating agency in the face of technological constraints. The study concludes that AI is not a neutral tool but a powerful determinant of how migrants are categorized, included, or excluded in contemporary societies. It recommends that migration governance balance technological efficiency with ethical safeguards, robust data protections, and inclusive policies that uphold migrants' rights and sense of belonging.

Keywords:
Artificial intelligence, migrant identity, digital surveillance, technological determinism, migration governance, Africa

Introduction

Migration has always been a been a central aspect of human history and, because it continues to occur across regions and cultures, international migration has become a defining feature of the modern world (Giguashvili, 2023). Reflecting on the on the growing scholarly discourse on migration, Kumar (2022) contends that the subject of migration is increasingly recognised

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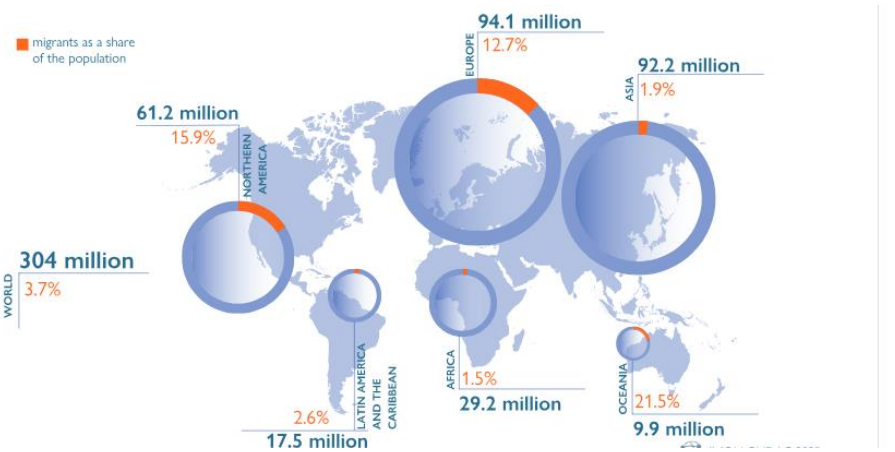
as a prominent area of research due to its formidable impact on social, economic, and cultural life.

Recent figures from the United Nations Department of Economic and Social Affairs (2025) estimate that 304 million people lived outside their country of origin in 2024. Europe hosted the largest share of international migrants (94.1 million), followed closely by Asia (92.2 million), while Oceania recorded the smallest number at 9.9 million. This evidence highlights the scale and global spread of contemporary migration.

Figure 1: International Migration by Destination Region

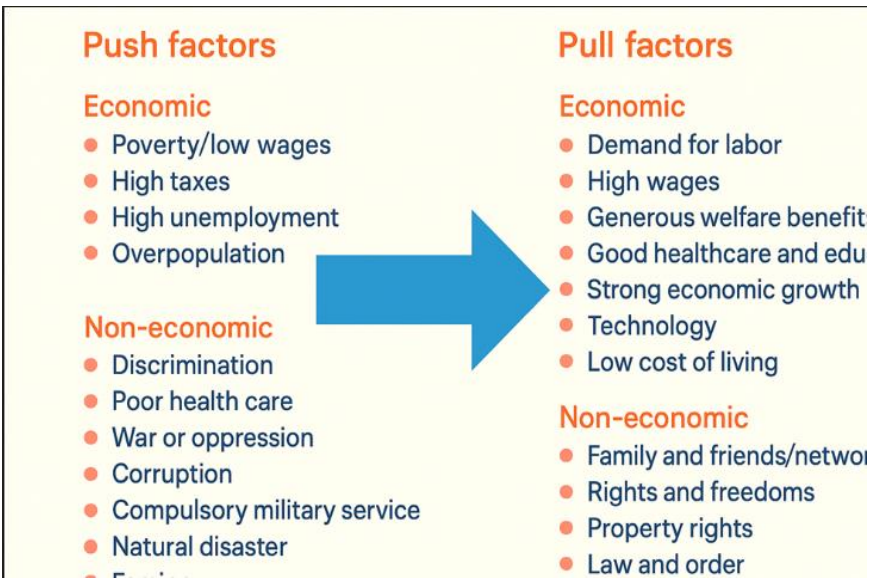


Source: United Nations (2025)

This pattern can be better understood through classical theories such as Lee's Push and Pull framework.

The Push and Pull Theory of Migration, advanced by Everett Spurgeon Lee in 1966, provides a framework for explaining why individuals migrate across regions. Consistent with this theory, Gupta and Miglani (2021) argue that migration occurs when certain factors push people away from their place of origin while other factors pull them toward a new destination. Push factors include poverty, low wages, and unemployment, while non-economic push factors include natural disasters, war, and discrimination (Jusufi & Ukaj, 2020). Conversely, pull factors comprise economic drivers such as high wages, strong economic growth, and access to quality healthcare, alongside non-economic drivers such as safety and the rule of law (Khan et al., 2023). While the model effectively explains economic and political drivers, it does not fully account for technological transformations in migration governance that have emerged in the 21st century.

Figure 2: Push and Pull Factors of Migration



In practice, both economic opportunities and crises continue to shape migration flows. Countries such as Canada and the United States remain among the leading destinations for migrants, offering diverse economic opportunities, political stability, and higher living standards that serve as strong pull factors (Ray & Pugliese, 2024). By contrast, regions affected by war or political unrest, such as parts of Ukraine, have experienced significant refugee outflows driven by powerful push factors such as violence and insecurity. Across Africa, conflicts and economic hardship have similarly compelled large populations to migrate, seeking security and improved socio-economic conditions (Targba, 2022).

Beyond these traditional drivers, the emergence of the Fourth Industrial Revolution (4IR) has reshaped migration dynamics through the incorporation of advanced technologies such as artificial intelligence, big data analytics, and biometric systems into migration governance (World Economic Forum, 2017). Across the globe, digital identity systems, biometric registration, and automated border controls are increasingly institutionalised as key instruments for regulating migration flows and enhancing national security (Khan & Efthymiou, 2021).

In countries with advanced migration infrastructures, such as Canada, artificial intelligence and automated decision-making influence how migrants

are processed, profiled, and granted access to services or legal status (Brunner & Tao, 2023). Even in emerging economies, particularly across Africa, elements of this technological shift are evident in the growing reliance on digital national identification numbers, biometric voter registration, and mandatory SIM card registration linked to personal data (Hersey, 2019). Rwanda has pioneered e-government services that streamline access to public services online (Uwingeneye & Akims, 2024), while Ghana's digital address system formalizes property identification and improves service delivery (Kubuga et al., 2024). Kenya's rollout of the e-passport similarly demonstrates how digital technologies are reshaping civic processes and travel documentation across the continent (Eseaga, 2025).

While these technologies provide substantial value in enhancing the efficiency of migration management, they also raise pressing concerns about privacy, surveillance, and the implications for migrants' identity and their sense of belonging. Despite extensive research on the economic and political drivers of migration, comparatively little attention has been paid to how digital technologies transform migrants' identities and lived experiences. Against this backdrop, this conceptual paper aims to critically examine how artificial intelligence and digital surveillance shape migrant identity and belonging in the contemporary era.

Literature Review

Migrant Identity in the Digital Age

The concept of "identity" is central in migration studies, as migration involves crossing not only physical borders but also social and cultural boundaries (Cohen & Sirkeci, 2011). Scholars such as Hack-Polay et al. (2021) and Amit and Dolberg (2023) argue that a migrant's sense of identity is shaped both by self-perception and societal perception. While migrants often retain cultural ties and personal histories, they must also navigate societal labels, which may conflict with their self-identity.

Legal status remains a critical determinant of migrant identity. Lodigiani and Sarli (2017) emphasise that legitimacy and belonging are anchored in formal recognition through visas, asylum papers, or residence permits. However, this perspective may overstate formal mechanisms; informal networks, cultural resilience, and social capital also significantly influence migrants' sense of belonging. Access to work, housing, and education is shaped not only by official recognition but also by community support and personal strategies for integration (Miežanskienė, 2023). When legal status is precarious, migrants risk exclusion, yet they often exercise agency to navigate bureaucratic and social barriers.

Cultural belonging represents another key dimension shaping migrant identity. Community ties, language, and shared practices reinforce belonging, while discrimination and exclusionary policies weaken it (Onyema, 2024).

Migrants frequently develop hybrid identities, blending elements from their origin and host cultures (Tullah, 2024). This hybridity underscores the tension between assimilation pressures and the maintenance of cultural distinctiveness, revealing the complex negotiation of identity in multicultural societies.

Digital technologies increasingly mediate these processes. Biometric registration, facial recognition, and AI-driven databases shape how migrants are recorded, tracked, and categorized by states (Beduschi & McAuliffe, 2021). Such profiling can determine access to legal documents and services while rendering some migrants invisible. Yet, migrants are not passive: they may resist or circumvent these systems through informal documentation, digital literacy strategies, or advocacy networks, challenging the assumption that technology unilaterally defines identity (Laupman, 2022).

Artificial Intelligence in Migration Governance

AI systems are increasingly adopted by governments and international agencies to manage complex migration processes and large volumes of applications efficiently (Rinaldi & Teo, 2025). Automation can streamline visa and asylum processing, flag inconsistencies, and detect potential fraud (Aljasmi et al., 2024; Brunner & Tao, 2024). Countries such as the UAE, Australia, and Canada exemplify these practices through AI-based risk assessment tools. Facial recognition technology enhances border security but raises ethical concerns, including misidentification due to algorithmic bias and privacy violations (Batte, 2025; Overbye-Thompson et al., 2024). Predictive analytics further support proactive migration management, yet overreliance may result in over-policing and restrictions for migrants (Yusuf et al., 2025; Duvvur, 2023).

While AI offers efficiency, ethical challenges necessitate critical attention. Transparency is often limited, making decisions opaque to both migrants and officials (Kosho, 2024). Accountability is also unclear, as automated systems complicate responsibility for errors or biased outcomes (Guillen & Teodoro, 2023; Lazollino, 2025). Bias in AI, especially facial recognition, can reproduce existing social and racial inequalities, affecting migrants' access to rights and services (Gosier, 2025). These considerations highlight the importance of critically assessing not only the functionality of AI systems but also their implications for migrant identity and agency.

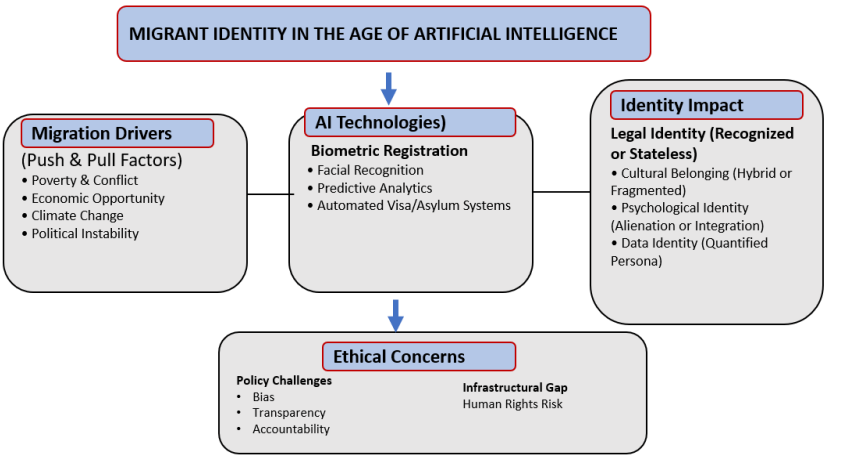
Artificial Intelligence and Migration in Emerging Economies: The African Context

Most literature on AI and migration governance focuses on developed countries with advanced digital infrastructures, often overlooking emerging economies where technological adoption is uneven (Ndiaye, 2025). African countries have made strides in digital identity programs and biometric systems (Hersey, 2019), yet reliance on paper-based processes, limited technical expertise, and funding constraints impede widespread AI integration (Maime & Naong, 2021). Consequently, AI's transformative potential in migration governance remains largely untapped.

Africa's migration flows are primarily internal or intra-regional, shaped by rural-to-urban migration and cross-border movement for work, safety, or better living conditions (Selod & Shilpi, 2021). Despite these patterns, countries such as Rwanda, Ghana, and Kenya have implemented digital governance initiatives, while South Africa is launching a fully digital Electronic Travel Authorisation (ETA) system in September 2025 for visa-required tourists (Kubuga et al., 2024; Obokoh, 2025). These efforts illustrate that technological adoption is contingent on socio-technical, institutional, and infrastructural factors rather than technology alone.

Across the literature, migrant identity is influenced by a combination of legal status, cultural belonging, and digital governance. While states employ AI and digital tools to manage migration, migrants exercise agency in navigating these systems. Hybrid identities, informal networks, and adaptive strategies highlight the complex, dynamic interplay between technology, social structures, and individual experiences. This literature underscores the need for research that critically examines how AI reshapes not only governance but also the lived experiences and identities of migrants, particularly in underrepresented contexts such as Africa.

Figure 3: Migrant Identity in the Age of Artificial Intelligence



Theoretical Framework

Technological Determinism Theory

Technological Determinism Theory, first popularised by thinkers like Thorstein Veblen and later expanded by Marshall McLuhan, argues that technological innovations are not just neutral tools but powerful forces that can drive social change, reorganise institutions, and redefine cultural norms (Omene, 2021). In its simplest form, technological determinism suggests that technology itself acts as a key driver of societal transformation, often with consequences that extend beyond the intentions of its designers (Momoh, 2015).

Researchers have used Technological Determinism Theory to explore a wide range of issues, from industrialisation and the rise of the internet to the impact of digital platforms on communication and governance (Asemah et al., 2022). In the study of migration, this perspective helps explain how new technologies such as artificial intelligence, biometrics, and digital identity systems are reshaping the way states manage population flows and control borders. Instead of seeing technology as a passive tool, the theory frames it as an active force that influences how governments exercise authority and how individuals experience inclusion or marginalisation.

The theory also draws attention to the unintended effects of technological change. Although digital systems may be designed to improve efficiency or security, they can also produce new forms of inequality, surveillance, and

social control that affect people's lives in ways that are not always anticipated (Trofymenko et al., 2023). For instance, automated decision-making tools used for visa processing or asylum claims may speed up approvals but can also replicate biases or produce errors that are hard to challenge.

The Technological Determinism Theory is relevant to this paper as it helps explain how tools such as artificial intelligence, biometric registration, and predictive analytics do more than streamline migration management. These technologies are also reshaping what it means to be a migrant in the digital age by influencing who is visible to the state, who gets access to resources, and who feels a sense of belonging.

Methodology

This study is positioned as a conceptual paper that critically examines the intersection of artificial intelligence, digital surveillance, and migrant identity. To achieve this, the paper employs a thematic literature synthesis, drawing on peer-reviewed journal articles, policy reports, and international organization publications published between 2010 and 2025. Sources were selected to provide a comprehensive understanding of both technological developments and their social implications for migrants.

The analytical strategy involves a thematic approach, whereby literature is organised according to key dimensions of migrant identity (legal status, cultural belonging, and digital profiling) and technological governance (AI-based processing, predictive analytics, and biometric systems). This approach allows for critical comparison of competing perspectives, identification of gaps in existing research, and examination of the ways in which migrants exercise agency within technologically mediated governance systems.

A conceptual synthesis is particularly appropriate for this study because the topic is emergent, with limited empirical research directly addressing the intersection of AI, surveillance, and migrant identity. By integrating insights from multiple disciplines—including migration studies, digital governance, and ethics, the paper aims to generate a cohesive framework that highlights both opportunities and ethical challenges associated with AI-mediated migration governance.

Findings

This study employed a conceptual synthesis of literature to explore how AI, digital surveillance, and governance shape migrant identity. The analysis revealed several interrelated themes:

Theme 1: Legal Recognition and Access

The analysis indicates that formal legal status remains a central determinant of migrant access to rights, services, and social inclusion across regions. While formal recognition through visas, asylum papers, or residence permits

facilitates access, migrants frequently rely on informal networks and community strategies to navigate bureaucratic constraints (Lodigiani & Sarli, 2017; Miežanskienė, 2023). This finding underscores the limits of state-centric approaches and highlights migrant agency in negotiating systems that are technologically mediated. Comparative evidence suggests that in developed economies, legal frameworks are more consistently enforced via AI-driven systems, whereas in emerging economies, inconsistencies in implementation create spaces for informal coping strategies.

Theme 2: Cultural Belonging and Identity Negotiation
Migrant identity is shaped by a dynamic tension between assimilation pressures and the maintenance of cultural distinctiveness. Across both developed and emerging contexts, migrants develop hybrid identities, integrating elements from their home and host cultures (Tullah, 2024; Onyema, 2024). Critical analysis reveals that while digital surveillance can reinforce rigid categorisations, migrants exercise agency to maintain cultural practices, form supportive communities, and navigate labeling systems. This negotiation reflects broader theoretical debates in hybridity studies, emphasizing that identity is both relational and context-dependent.

Theme 3: Technological Mediation of Migration
AI-driven tools, including biometric registration, facial recognition, and predictive analytics, significantly influence how migrants are categorized, processed, and granted access to services (Beduschi & McAuliffe, 2022; Brunner & Tao, 2024). While these technologies enhance administrative efficiency, they raise ethical concerns such as algorithmic bias, transparency deficits, and accountability gaps (Kosho, 2024; Gosier, 2025). Critically, the impact of technology is context-dependent: in developed countries, AI systems are pervasive and state-centric, whereas in emerging economies, uneven technological adoption allows migrants to exercise greater agency in circumventing or negotiating the systems.

Theme 4: Regional Comparative Insights
Patterns emerge when comparing regions: developed economies demonstrate highly automated, state-centric migration governance, whereas emerging economies exhibit hybrid systems blending digital tools with traditional processes (Ndiaye, 2025; Maime & Naong, 2021). Agency, infrastructural capacity, and institutional reliability are key moderators of AI's influence on migrant identity. These comparisons reveal that technological transformations are not uniform; local institutional and socio-technical conditions shape how migrants experience governance.

Across all themes, the evidence illustrates that migrant identity is shaped by the interplay of legal status, cultural belonging, and technological mediation. Migrants are not passive recipients of policies; they actively negotiate, resist, and adapt to digital governance systems. Regional variations underscore the importance of context-specific analyses, highlighting that technological adoption, institutional capacity, and socio-cultural conditions jointly determine the impact of AI on migrant identity. These findings demonstrate the need for a theory-informed, critically engaged approach to understanding AI-mediated migration governance.

Discussion of Findings

The objective of this paper was to critically examine how AI and digital surveillance shape migrant identity and belonging in contemporary migration governance. The findings indicate that legal status, cultural belonging, and technological mediation are key determinants of migrant experiences. Consistent with Lodigiani and Sarli (2017) and Miežanskienė (2023), formal legal recognition remains central to access to services and social inclusion. However, this study also shows that migrants exercise agency, navigating informal networks and community support structures to circumvent or negotiate the constraints imposed by both bureaucratic systems and digital governance tools. This extends the literature by highlighting the interactive role of migrants in shaping their own identity, rather than being passive subjects of governance.

Cultural belonging and identity negotiation emerge as critical dimensions that interact with technological systems. While Hack-Polay et al. (2021) and Tullah (2024) emphasize that migrants maintain hybrid identities by combining elements of home and host cultures, this study demonstrates that AI-driven digital profiling can reinforce rigid labels that constrain identity. Yet, migrants actively resist or adapt to these categorizations, reflecting a dynamic interplay between structural constraints and personal agency.

The study also reveals notable regional variations. In developed economies, AI and automated systems streamline visa processing, border control, and predictive analytics, resulting in consistent enforcement of policies but potentially limiting migrant agency. In contrast, emerging economies, particularly across Africa, often rely on hybrid systems due to uneven digital infrastructure, resource constraints, and limited technical capacity (Ndiaye, 2025; Maime & Naong, 2021). This uneven adoption allows migrants more room to navigate and negotiate governance systems, illustrating that technological effects are context-dependent. These regional contrasts build on the literature by situating the role of technology within socio-economic and infrastructural realities, rather than treating AI adoption as uniform across the globe.

The findings carry several policy and practice implications. First, AI and digital governance tools must be designed to balance efficiency with

transparency, fairness, and ethical accountability. Policymakers should recognize that rigid categorization may undermine migrants' sense of belonging, while supporting mechanisms that allow flexibility and agency can enhance integration outcomes. Second, hybrid governance systems in emerging economies highlight the need for capacity-building, infrastructural investment, and the inclusion of migrants' perspectives in system design to prevent exclusion or discrimination. Finally, these insights stress the importance of integrating ethical considerations into technological deployment, particularly around algorithmic bias, transparency, and accountability, confirming and extending concerns raised by Kosho (2024) and Gosier (2025).

This discussion is limited by reliance on secondary literature, which constrains the ability to observe firsthand migrant experiences with AI-mediated systems, particularly in emerging economies. Future empirical research could enrich understanding by capturing how migrants perceive and respond to digital governance tools, and how these interactions influence identity and belonging.

Implications for Policy and Practice in Emerging African Economies

In the migration landscape in Africa, Artificial Intelligence provides both challenges and opportunities. While AI systems have transformed how migration is managed in wealthier countries such as Canada, Australia, the United Arab Emirates, amongst others (Aljasmi et al., 2024), many African states still face basic issues of digital infrastructure, data protection, and institutional capacity. To benefit from the potential efficiencies of AI without deepening social divides, policymakers must first address foundational gaps in their digital governance systems.

One key implication for practice is the urgent need for investment in reliable digital identity frameworks. Many African countries, including Nigeria, have taken steps towards national identification systems, biometric voter registers, and digital financial services (Hersey, 2019). However, gaps remain in the reach, accuracy, and integration of these systems. For AI tools to be used fairly in migration processing, states must prioritise building robust, secure, and inclusive databases that do not leave out rural populations.

Policymakers also need to strengthen legal and ethical safeguards to protect migrants' data and privacy. As Nigeria expands its national identity database and considers digital migration controls, it is imperative for relevant stakeholders to develop clear guidelines on how AI systems should handle personal data.

Another important consideration is local capacity building. Advanced AI tools require skilled professionals to develop, monitor, and audit their use

(Eziefule et al., 2024). Emerging economies should invest in training for immigration officials who can ensure that technology serves its purpose without violating migrants' rights. Also, regional partnerships and knowledge sharing can help bridge gaps in technical know-how, especially for countries with limited resources.

Another key implication for practice is the urgent need for investment in reliable digital identity frameworks and integrated national data management systems. The absence of such integrated systems hampers real-time monitoring of internal movements, labour migration trends, and border inflows. This is clearly visible in Nigeria, where the National Migration Policy (NMP) of 2015 was a landmark legal framework designed to govern migration, diaspora engagement, and data management. Yet, nearly a decade later, its implementation remains more symbolic than systemic. To benefit from AI-driven efficiencies without deepening social divides, policymakers must close these foundational gaps by building robust, secure, and inclusive digital databases that support evidence-based decision-making and protect migrants' rights.

Finally, migration governance in Africa should remain people-centred even as technology evolves. Governments should balance efficiency with fairness by keeping human oversight in critical decisions. For instance, while Nigeria can benefit from using AI to detect document fraud or speed up processing, human reviewers should still make final decisions to avoid over-reliance on potentially biased systems.

Conclusion

This paper concludes that while artificial intelligence holds promise for transforming migration governance by improving efficiency, data management, and security, it also raises serious questions about fairness, privacy, and migrant identity. Issues such as bias in automated decisions, lack of transparency, and the potential for increased surveillance show that technology alone cannot resolve the complex realities of migration. For emerging economies like those in Africa, limited digital infrastructure, outdated systems, and poorly integrated data frameworks, as seen in the under-implementation of Nigeria's National Migration Policy, make the adoption of advanced AI even more challenging. Therefore, any move toward AI-driven migration management must be balanced with strong legal safeguards, clear oversight, and meaningful human involvement to protect migrants' rights and sense of belonging. Policies that strengthen integrated data foundations, invest in local expertise, and build trust through transparency and accountability are vital to ensure that technological innovation supports rather than undermines an inclusive and humane approach to migration.

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