

**A STUDY ON THE USE OF
NEW TECHNOLOGIES IN THE
IDENTIFICATION AND SEARCH
FOR MISSING OR DECEASED
PERSONS IN MIGRATION.**

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EXECUTIVE SUMMARY

In recent years, “new technologies” have become central in the development and evolution of security and migration control systems, within the European Union (EU) and globally. This concerns both the control and biometric tracing of bodies, as well as the development of technologies for profiling and tracking virtual identities, often linked to the use of artificial intelligence (AI). Against this backdrop, thousands of migrants have died on dangerous journeys to Europe. We do not know who the vast majority of these individuals are. This leaves friends and family in a state of limbo, not knowing the fate of their loved ones.

In this report, we examine the potential implications of the application of new technologies in the specific context of border deaths: the search for missing migrants along migration routes and the forensic identification of bodies of border deaths. Here, the deployment of new technologies has important consequences for the families of missing persons seeking answers from European authorities regarding the fate of their relatives, and ultimately, their search for justice. Through desk-based research and 30 qualitative interviews conducted with forensic experts, institutional representatives, civil society organisations, legal specialists, and family or community members we were able to map and critically evaluate new technologies in the search for the missing and the identification of deceased migrants.



To better explore the issue of use of new technologies in the identification and search for missing or deceased persons in migration, we begin by examining the role of forensic experts, who mediate between the demands of families and institutions, and the approaches they take. We explore different genealogies within the field of humanitarian forensic action, such as the “Latin American Model”, the work of the International Committee of the Red Cross (ICRC), counter-forensics and citizen-led forensics approach. We note that the emerging development of AI-based forensic technologies aimed at locating and identifying migrants who have died or gone missing in the Mediterranean is situated within a complex entanglement of the forensic, the humanitarian, and the political. We caution that centring material traces and forensic identification risks overlooking the broader context of missing migrants and the role and agency of families in the search. Furthermore, the case of missing migrants in the Mediterranean constitutes a unique setting for this work as the fundamental trace essential to forensic work is often absent: the body itself.

We explore, in detail, methodologies involving new technologies and artificial intelligence related to the search for the missing such as Complex Social Network Analysis (CSNA) and Open Source Intelligence (OSINT). As well as those more closely linked to forensic identification of the dead such as Disaster Victim Identification (DVI), DNA, fingerprints, facial recognition and databases, while acknowledging that this distinction (between search and identification) is not always possible or helpful. Despite significant attention to the potential of AI, these technologies have not yet achieved widespread adoption. Their application remains fragmented and localised, primarily because experimentation is confined to a limited number of actors and cases, with only minimal collaboration across different stakeholders.

We then outline the vitally important ethical considerations surrounding the use of new technologies in the context of missing migrants. Regulations and guiding principles are essential to mitigate potential harms from the use of new technologies, and the rights of families of the missing must be considered at all times. We conclude that new technologies are neither good nor bad, rather, it is a question of use, governance, and ethics and present our key findings and recommendations:

GENERAL RECOMMENDATIONS

Innovative technologies and methodologies can play a vital role in strengthening humanitarian responses to missing persons and deceased migrants. They can improve the technical work of identification while also supporting the families who continue to search for answers. However, their use must remain rooted in truth, justice and humanitarian principles: focused on restoring dignity and rights, rather than reinforcing systems of border control and migration management.

For this reason, any technological intervention must be supported by clear regulatory and operational frameworks that protect the dignity of the deceased and missing, and ensure the safety and rights of families, survivors, and all actors involved in the process. While new technologies can enhance the effectiveness of search and identification efforts, their value depends on a broader shift in regulatory, ethical, and political approaches:

Tools must be guided not only by technical performance, but also by the purposes for which they are developed and the contexts in which they are used.

Currently, many national and international migration policies continue to prioritise restrictive approaches. In this policy context, the development of identification technologies is likely to strengthen the EU's digital border infrastructure, further entrenching security-driven frameworks. Before moving to technical recommendations, it is therefore necessary to call for a structural reorganisation that places humanitarian, political and social priorities at the centre of action.

First and foremost, there are no binding national or international obligations requiring authorities to search for missing migrants, identify the deceased, or provide continuous support to families. Existing international frameworks – such as the Global Compact (Objective 8), the Rabat Process (National Focal Points Network), and the Council of Europe's Resolution 2569 (2024) – remain non-binding, and few States have translated them into sustained political or operational commitments. Practice on the ground is fragmented and shaped mainly by investigative approaches focused on establishing legal responsibility – i.e., identifying smugglers rather than border victims – undermining efforts to restore truth and dignity to families. As a result, identification processes depend heavily on local authorities' initiative, while families often rely on NGOs, community networks, and international organisations. Major incidents, such as shipwrecks in Italy and Greece, have prompted national authorities to activate exceptional identification mechanisms. However, despite their relative successes, these efforts have had limited influence on broader institutional practices and have not led to sector-wide scaling. As a result, they remain isolated and are exceptional cases.

Therefore, expanding action beyond judicial frameworks – while ensuring data protection, privacy, and personal security – would enable stronger engagement from families, NGOs, and community actors. Such changes would support better coordination among stakeholders. They would formally recognise the essential work already carried out by actors outside official forensic systems, who contribute daily to searches and early identification despite operating without institutional acknowledgement.

The recommendations that follow are grounded in this structural perspective. They address different actors and areas of action – including search, identification, and information management – and consider both existing technologies and how future systemic reforms could enable more humane, effective, and inclusive use of these tools.



1. Recommendations for State Actors

The primary recommendation for state authorities is both ethical and political. It calls for introducing a normative framework that compels the European authorities to provide answers, truth, and justice to families seeking information about their loved ones.

It is central to an approach that reconfigures the investigative system to ensure more effective search and identification of migrant persons, and the proper use of available tools (both old and new ones), within a framework that is non-discriminatory, non-criminalising, and protective of families, survivors, witnesses, and support actors. All technical and methodological recommendations should be understood within this ethical and political context. Specifically, identification procedures concern primarily the countries where bodies are recovered and received.

This includes:

The application of identification techniques.

- The organisation, standardisation, archiving, and tracking of information (biographical data, material evidence, testimonies) to enable future search and identification.
- Coordination among all actors involved, including investigators, law enforcement, medical examiners, municipal administrators, but also family members, survivors, migrant communities and civil society actors.

It is crucial to implement and reorganise identification systems, using new technologies or refining existing tools, while always ensuring the protection of families and witnesses'

rights. Standardising and systematising the collected information facilitates formal identification and the issuance of official death certificates.

To strengthen the link between searches for missing persons and the identification of bodies, cooperation with the countries of origin of missing persons — or the countries where their families reside — is essential. This ensures adequate technical support, including the collection and transmission of DNA samples, and enables the safe, secure exchange of sensitive information.

2. Recommendations for Transnational Institutions

Although the technical management of identification processes is primarily the responsibility of national authorities, transnational institutions (such as the African Union and the EU) should support practical collaborations to enhance family tracing and identification efforts. This support should be both structural — by helping to establish cooperation frameworks specifically designed to address the issue of missing migrants — and operational — by facilitating collaboration between states and engaging with humanitarian organisations and civil society actors, whose roles in this process should be further legitimised.

3. Recommendations for International Organisations

International organisations can play a fundamental role in this landscape, given their technical expertise and comprehensive vision. They must maintain a central role in interstate diplomacy, supporting national authorities with methodologies and practices that protect families, and helping legitimise and protect the role of civil society organisations in these processes.

4. Recommendations for AI Developers, Academic Institutions, Forensic Experts, CSOs, and funders

The primary goal of identification procedures is to provide families with clear, accurate, and timely answers. While the development of new technologies and scientific advancements is valuable, these efforts must never take precedence over the needs of families, who rely on prompt and reliable information about their missing loved ones.

Active participation of families, migrant communities, stakeholders, and civil society in the design, development, and use of new technologies is therefore strongly recommended. The implementation of research and identification technologies and methodologies is often tied to the work of research laboratories (private or public), funded by various international or national institutions. In that regard, we should emphasise the humanitarian and social dimension of research and identification activities, and separate research aimed at developing innovative tools for other purposes, particularly when associated with the control of human mobility and activities that restrict the rights of people on the move. Funding should be provided for the development of tools specific to the context of the search for and identification of missing migrants, rather than borrowing or adapting tools from other fields. Nowadays, the development of new identification technologies is primarily directed toward perfecting identification tools and currently prioritises the biological/biometric dimension (facial recognition, DNA comparisons, etc.) and the identification of bodies. This approach tends to increase the technical capacity of state authorities responsible for identification, while reducing the scope for intervention and participation of complementary (but essential to identification activities) actors and families. A family-centred approach should guide the development of any new technology-driven tool designed to improve the identification and search for missing migrants. Placing families at the heart of these processes ensures that their knowledge, needs, and lived experiences shape both the design and implementation of such tools, ultimately making them more effective, humane, and responsive to those most directly affected.

Search and identification procedures for missing migrants — including those using new technologies — must be understandable and accessible to families and their communities. Translation, for instance, should not be limited to linguistic interpretation; although essential, it is not sufficient. As demonstrated in the evolution of established identification techniques such as DNA analysis, families cannot be passive recipients of results. They must understand and engage with the process to ensure meaningful outcomes. A scientifically valid identification that families do not accept is, ultimately, a failed process. Families are not only a means to achieve identification — they are also its purpose. The methods used must be transparent and must aim for the highest possible accuracy. Evidence shows that combining multiple identification methods often yields the most reliable results. Moreover, an effective system must work not only in exceptional or high-profile cases but also in the many everyday tragedies that characterise migration journeys. This requires flexible, context-sensitive approaches that adapt tools and methodologies to each situation.

It is both ethically imperative and procedurally appropriate to prioritize the fastest and most effective techniques available, including AI technologies, in order to provide answers as soon as possible. Any tool used in the search and identification of migrants must take into account the profound uncertainty and emotional distress experienced by families, friends, and communities of the missing. The absence of certainty — or of a body to mourn — creates a “frozen grief” that can lead to prolonged anxiety and confusion. The humanitarian necessity to provide timely answers can come into tension with the development of cutting-edge forensic methods, which —also due to the limited pressure from families and the public to identify deceased migrants—may involve long experimental phases. While scientific research is essential, it must not overshadow the moral and political responsibility to place the well-being and rights of migrants and their families at the



centre of all efforts. It is therefore vital to implement the search and rapid response capabilities of a collaborative system based on a holistic forensic approach; at the same time, it is essential to develop medium- and long-term data archiving and management practices and techniques that allow families to continue their research over time.

A responsible and ethical use of technology requires resisting the temptation to treat AI as an automatic or superior solution and instead prioritising holistic, context-sensitive approaches that integrate multiple methodologies, local knowledge, and the perspectives of families and communities. There is growing pressure within research and pilot projects to reference AI – even when it is not substantively necessary – because doing so is often perceived as increasing the likelihood of securing funding. This funding-driven incentive risks distorting priorities in migrant identification, leading to the development of technologically sophisticated solutions that may not align with the real needs of families, practitioners, or affected communities. It also creates an environment in which emerging tools are promoted and tested prematurely, despite limited accuracy or insufficient validation in highly sensitive contexts such as the identification of people who die at sea. Humanitarian technophilia, an enduring belief that technological innovation can inherently improve humanitarian action, is not a new phenomenon. However, the deployment of new technologies, including AI, in humanitarian contexts carries significant, well-documented risks. Such technologies can, in practice, generate new forms of vulnerability, exacerbate existing power asymmetries, and ultimately cause more harm than good. Concerns range from data privacy and surveillance to the potential misuse of information by state or non-state actors, as well as the unintended reinforcement of exclusionary or securitised approaches to migration and displacement. These risks underscore the need for critical scrutiny and robust ethical safeguards before integrating any new technological solutions into the search and identification of missing migrants.

Those involved in developing AI tools used to search for and identify missing or deceased people in migration should adhere to the principles of trustworthy AI. These include inclusivity, explainability and reliability. Rigorous verification and validation of tools are recommended to build trust. Transparency is also essential in building trusted AI tools. This can be addressed through the concept of explainable AI, which requires making work in this field understandable and accessible to families and their communities, as described above. AI systems should not be “black boxes”. In addition, AI models must be trained on diverse, truly representative datasets to avoid perpetuating racism, discrimination, and social exclusion.

New forms of collaboration are emerging among forensic scientists, families, academics, humanitarian engineers, international agencies, private actors and civil society organisations. These converging efforts to identify and locate missing migrants call for deeper conversations about responsibility, accountability, and the ethics of technological intervention. It is essential that civil society stakeholders, in collaboration with the research community and in dialogue with other stakeholders, apply their skills and expertise in the use of research and information-gathering technologies for identification, and contribute to making these processes increasingly understandable and participatory for families. Civil society stakeholders often serve as a bridge between families and other actors (including forensic scientists, researchers, international organisations, transnational institutions, national and local authorities and the private sector). Their role is essential both for providing concrete support to families and for legitimising their practical engagement with authorities to counter their monopoly over technology. These ‘new’ constellations of actors interested in developing new technologies to support the identification and search for missing or deceased persons in migration provide valuable insights that can enrich debates on humanitarian forensic action.

THE RIGHTS OF FAMILIES OF THE MISSING AND THE USE OF NEW TECHNOLOGIES

Throughout the research, we could appreciate how some technological tools are being developed with families’ needs in mind, while others are being created in total isolation. Indeed, families are much more involved in the search for missing migrants than in the identification of migrant bodies. We argue that any tools developed in this field should be conceived, designed, and implemented with the “right to search and identification” that migrant families should be able to exercise. This entails, for example, as Gabriella Citroni taught us, that in work related to disappearances (both regarding migrants and enforced disappearances), it is essential to adopt the presumption-of-life approach (2025).

Following our research interviews, to follow a more holistic approach, discussions about integrating different types of databases should take place to provide families with more inclusive access to information and to exercise their “right to search.”

Families often carry unique forms of knowledge – such as details about personal items, social networks, migration routes, or last-known contacts – that can prove invaluable for tracing and identification. Yet their involvement has historically been limited by institutional gatekeeping, lack of transparency, and fragmented communication between humanitarian and activist actors, governments, and civil society organisations. A family-centred approach requires viewing families not as victims or passive beneficiaries but as co-producers of knowledge, partners, and rights-holders, including with respect to the right to search and the “right to identification” (Jørgensen, 2024).

An approach that places families at the centre therefore recognises them as primary stakeholders, as holders of essential data, but also as actors with agency who can reshape the direction of investigations – as the early cases of the Mothers of the Plaza de Mayo in Argentina teach us, and as numerous instances of forensic family-led actions continue to demonstrate (e.g., Cruz-Santiago 2020). Family participation in investigations and in the co-construction of identification models also has the advantage of producing outcomes that are more likely to be accepted by families themselves. As reported in an interview with a member of Border Forensics: *“A member of a family collective told me that they do not believe in, nor trust, the identification tool. A closed coffin arrives back home—how can they be sure it is their son? A DNA test that no one has explained*

to them?" Therefore, involving families is not only ethically appropriate but essential for creating procedures that make identification acceptable to all parties involved.

As discussed in this report, technological innovation has transformed the field of search and identification of missing migrants. Digital social media platforms, Open Source Intelligence, biometric databases, DNA matching, technologies like facial recognition, and blockchain technologies have the potential to provide more responses to families. Yet these tools also raise complex ethical questions about privacy, consent, and data ownership, particularly when dealing with highly sensitive personal and familial information. Therefore, a family-centred approach requires that new technologies be developed and deployed with families' rights and agency in mind.



VI. CONCLUSION

In this report, we explore various tools and methodologies categorised as new technologies. It is important to remember that many organisations working on the issue of missing migrants and the identification of bodies often lack sufficient resources. Currently, most CSOs, communities, and collectives, including those of families of missing persons, tend to organise informally and rely heavily on the goodwill of individuals for support. In these contexts, discussions about the use of new technologies, including AI, are rarely prioritised. When new technologies were used, we mapped their potential harms and misuse, and highlighted positive practices and possible benefits. When engaging with the latest technologies, it is crucial to examine their origins, intended beneficiaries, and, in particular, how these tools can be utilised by the families of missing migrants and the civil society organisations that support them in their search for loved ones.

Throughout our interviews, we learned about research projects, ideas, and tools under development related to new technologies and their potential applications for identifying and locating missing or deceased persons in migration. Additionally, we discovered a growing community of practice focused on this topic. However, the process of testing and validation can take many years when done correctly, and there currently appear to be very few operational tools available for daily use by forensic practitioners, humanitarian workers, civil society organisations, or families.

It seems inevitable that new technologies and AI will make their way into this field and contribute in meaningful ways. Therefore, this moment presents an opportunity to analyse the usefulness of these tools and the costs associated with their use. We aim to address these concerns by providing a critical evaluation of technology's role in this specific context.

We emphasise the crucial ethical considerations surrounding new technologies in the context of missing migrants. Regulations and guiding principles are essential to mitigate potential harm, and the rights of the families of the missing must always be prioritised. Ultimately, we conclude that new technologies are neither inherently good nor inherently bad; rather, their value depends on how they are used, governed, and the ethical frameworks surrounding them.



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