

The Invisible Wall: How Big Data and AI Are Replacing Physical Borders

When we think about borders, we usually imagine something visible: fences topped with wire, checkpoints, and guards deciding who may pass and who may not. However, across the European Union today, a very different kind of border is taking shape. This new boundary is not built from concrete or steel, but from data, digital systems, and algorithms that quietly regulate movement from a distance. What is often called an “algorithmic border” relies on technologies such as artificial intelligence, biometric databases, and predictive data analysis to monitor and sort people on the move. Instead of being stopped at a fence or questioned by a guard, individuals are increasingly assessed through data collected about them. This

data collection sometimes happens long before they reach Europe’s physical borders. Migration, in this context, becomes a matter of profiles and risk categories, where access is filtered through automated systems rather than direct human judgment.



International Data Transfer ([Dotmagazine](#), 2021)

Among policymakers, this transformation is frequently described as a step toward greater efficiency and security. Yet for

people whose lives depend on crossing these borders (those fleeing war, hunger, or persecution) the effects are far from abstract. The digital border may be invisible, but its consequences are deeply real. Decisions made by distant systems can determine whether someone is allowed to move, forced to turn back, or pushed onto more dangerous routes, often without explanation or accountability.

FROM PHYSICAL BARRIERS TO DIGITAL SURVEILLANCE

Over the past decade, the European Union has invested heavily in technologies designed to automate and centralize border management. One of the most significant developments is the Entry/Exit System (EES), which began rolling out in October 2025. This system records the entry and exit of non-EU nationals traveling into the Schengen area. Upon their first arrival, travelers have their passports scanned and biometric data (such as fingerprints and facial images) collected and stored in a central database. These records are then used for automated checks during

future crossings, replacing traditional passport stamps with continuous digital monitoring. Manual passport stamping is being replaced entirely by digital records by April 2026.



Entry-Exit System (EES) (Frontex, 2022)

According to the EU, this smart border approach enhances efficiency, tackles identity fraud, and improves the detection of visa overstayers. Yet the focus on data collection and automated processing has drawn concern. Human rights scholars warn that as decisions about movement increasingly rely on algorithms; migrants become subjects of automated risk assessment and classification, often without clarity on how those decisions are made or avenues to contest them.

EUROSUR AND REMOTE MONITORING

While EES structures movement at official crossing points, EUROSUR extends surveillance far beyond borders. Operational since 2013, EUROSUR is an extensive information-sharing and monitoring framework that links coastal authorities, national agencies, and Frontex (the European Border and Coast Guard). It channels data from satellites, drones and aircraft to create a real-time situational picture of border areas.

In practice, this means vessels in the Mediterranean can be detected long before they enter EU territorial waters. In theory, early detection enables both law enforcement and search-and-rescue responses. But for people crossing in unseaworthy boats, it also means their entire movement is tracked and mapped as a set of data points. Emphasis on detecting and preventing irregular movement can obscure humanitarian needs and rights. Automated systems are designed to flag risk and trigger intercepts, but they cannot distinguish the nuance of why someone is fleeing. The result is that a migrant's life and choices are interpreted

through algorithmic filters that prioritize compassion⁵.



Frontex satellite services for maritime surveillance (Monroy, 2022)

THE HUMAN COST: MORE DANGER, MORE DEATH

The humanitarian repercussions of fortifying borders with technology are clear in the Mediterranean Sea. Despite surveillance advances, tens of thousands of people continue to lose their lives trying to reach Europe. IOM statistics show that in 2024, over 2,200 people died or went missing while they were attempting the Mediterranean crossing, with close to 1,700 deaths on the central route from North Africa.

Global migration agency reporting further indicates that 8,938 migrants died worldwide crossings in during border 2024, with the Mediterranean one of the deadliest regions.

Across a decade of documented data, more than 63,000 people

have died or disappeared on migration routes, the majority in the Mediterranean. These figures only cover documented deaths; countless others remain unrecorded.

Many of these tragedies occur on longer, less monitored routes. As borders become smarter with surveillance and processing, rapid smugglers data and desperate migrants are driven to take more dangerous paths, outside of monitored corridors. The paradox of technological border control is that it can secure one area while pushing people into greater peril elsewhere.

EXTERNALISING BORDERS: THE PROXY WALL

The algorithmic border stretches even further through cooperation with non-EU states. EU agreements with Libyan and Tunisian authorities have bolstered coastguard capacity to intercept migrant boats and return them before they reach EU waters, effectively extending the border across international seas. Human rights groups have documented that many interceptions by Libyan authorities result in forced returns to detention centres

where conditions are abusive and dangerous. This raised serious concerns about violations of non refoulement, the principle forbidding return to harm.



Refugee detention center in Libya ([Human Rights Watch](#), 2025)

Tunisia, recent policy moves show how externalisation works in practice. In 2025, Tunisia reported the repatriation of approximately 10,000 irregular migrants under pressure from EU migration policy objectives. Tunisians have emphasized they do not wish to become a transit zone, but the effects on those returned (many of whom have limited protection options) are profound.

INVISIBLE WALLS THAT FOLLOW YOU

One of the most striking features of the digital border is that it no longer starts or ends at a passport control desk. Systems such as the Entry/Exit System, the Visa Information System, and other interconnected databases are

designed to “talk” to one another, allowing information collected once to resurface again and again in different settings. In this way, the border does not stay at the edge of Europe; it follows people through data.

For asylum seekers and irregular migrants, this can have serious consequences. Their identity and credibility may come to depend less on their own stories and more on how digital systems interpret and classify their information. Human rights observers have warned that these automated processes can reproduce bias, operate with little transparency, and leave very limited room for challenge or appeal. This would be a problem especially for people who lack legal assistance or the digital knowledge needed to navigate such systems.

CONCLUSION

The EU’s algorithmic border is not one single system, but a web of technologies that quietly decides who can move and who cannot. Although these tools are presented as neutral and efficient, their effects are deeply human. For people on the move, borders are no longer just fences or checkpoints, but databases and risk scores that shape their chances long before they reach Europe. This digital border does not simply control movement; it follows people, affecting their safety, their choices, and often their survival. Understanding borders today therefore means looking beyond territory and technology, and focusing on how these systems touch real lives.



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