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“Digital patrolling”. A comparative study of emerging borders control practices in Europe

Alice Fill

Abstract

Border control is becoming increasingly digitalised almost everywhere in the world. The European Union is no exception: in recent years, there has been an increasing reliance on drones for external border surveillance, remote detection and tracking systems, as well as on the introduction of preventive risk analytics. This trend has profound implications on the modalities and consequences of border patrols. This paper aims to contribute to the analysis of the digitalisation of European borders by defining and classifying the modes of what I suggest calling “digital patrolling”, carried out at various stages of the *borderwork*. To do so, building on an extensive literature review, the paper proposes a comparative analysis of the digitalisation of patrolling practices at the EU level, in Greece, and Spain. The analysis is articulated along the examination of the different capability areas underpinning digital patrolling systems, with a focus on situational awareness, detection and tracking, information management and risk analysis.

1. Introduction – 2. Between smart borders, digital patrolling, and capability areas: a look at the literature – 3. Operationalising the digitalisation of patrols – 4. Situational awareness, detection, and tracking: remote governance and pre-frontier areas – 5. Information management and risk analysis: beyond filtering and pre-empting mobility – 6. Divergent logics, multipurpose technologies, and remoteness – 7. Concluding remarks – 8. References.

Words count (excluding notes and bibliography): 10 506.

1. Introduction

«Leonardo’s Falco EVO drone is used to monitor irregular migration during Frontex operation» headlines a Leonardo press release, published in July 2019. The drone, it reads, helped to identify a «“mothership” trawler as 81 illegal migrants were transferred to smaller boats».¹ Without dwelling on the fact that the persons on board are *a priori* identified as “illegal migrants” and not, for instance, as potential asylum seekers, similar reports on the use of Unmanned Aerial Vehicles (UAVs) or Remotely Piloted Aerial Vehicles (RPAS) – commonly called drones – and other surveillance tools for the control of the external borders of the European Union are bound to become more and more widespread. According to an interview released by an official at the Frontex Press Office to a review specialised in unmanned systems, in 2022 Frontex aerial surveillance planes and drones detected over 35.000 migrants attempting to cross the Mediterranean Sea and heading to Europe.²

¹ Leonardo, ‘Leonardo’s Falco EVO Drone Is Used to Monitor Irregular Migration during Frontex Operation’.

² Gurierrez, ‘Putting Unmanned Systems on Task Over the Mediterranean’.

If, according to Frontex, drones are cutting-edge tools to make border patrols and search and rescue operations more effective,³ various non-governmental organizations (NGOs) and humanitarian groups argue that they mainly depict a well-defined strategy to further carry out illegal pushbacks in violation of the principle of *non-refoulement*.⁴ Remarkably, the Agency’s first official releases on the deployment of drones for patrol purposes were only published in the second half of 2022:⁵ until then, even against evidence,⁶ Frontex has always denied their use.⁷

These developments do not only concern EU agencies and drones, but fit into a broader framework of digitalisation of patrolling operations that seems to be taking hold almost everywhere in the world.⁸ Just to name some of the most resounding examples, Arizona’s southern borders are today dotted by Integrated Fixed Towers (IFTs) equipped with radars, thermal-energy cameras and night-vision allowing the detection of any sort of “suspicious” activity at a distance of up to seven and a half miles.⁹ Since February 2022, the United States has been testing four-legged robotic patrol dogs at the border with Mexico.¹⁰ In Australia, the Border Risk Identification System (BRIS) has been deployed by the Department of Immigration and Citizenship to define correlations and patterns through big data analysis in order to target “risky travellers”. In Europe, in 2019, the European Border and Coast Guard Agency supported a pilot project using a blimp that can remain in the air for up to forty days to monitor the border off the island of Samos.¹¹ Not far, at the border between Greece and Turkey, modern long-range acoustic devices (LRAD), aptly called “sound cannons”, have been tested in spring 2021: they can reproduce the volume of a jet engine, emitting sound levels up to 150 decibels that are likely to cause permanent hearing loss.¹² Similar sound systems can be found at Hungarian borders, where a recorded voice transmitted through loudspeakers announces in Farsi, Arabic, Urdu, and Serbian to aspiring border-crossers that the frontier is property of the Hungarian government: «I’m warning you to hold back from committing this crime».¹³ Meanwhile, in October 2021, Poland approved a €350 million wall expected to become the latest frontline for motion sensors.¹⁴

³ See Csernaton, ‘Constructing the EU’s High-Tech Borders’, 186; Alarm Phone et al., ‘Remote Control: The EU-Libya Collaboration in Mass Interceptions of Migrants in the Central Mediterranean’.

⁴ Mazzeo, ‘Border Surveillance, Drones and Militarisation of the Mediterranean’; Alarm Phone et al., ‘Remote Control: The EU-Libya Collaboration in Mass Interceptions of Migrants in the Central Mediterranean’; See Csernaton, ‘Constructing the EU’s High-Tech Borders’, 186.

⁵ Frontex, ‘Frontex Aircraft Fly 1000 Mission’.

⁶ Suffice it to mention the two new contract award notices for aerial surveillance services published already in August 2021 and addressed to Frontex, worth €84.5 million. See Tenders Electronic Daily, ‘Services - 395423-2021. Poland-Warsaw: Frontex Surveillance Aircraft Services for Border and Coast Guard Functions (FSA I) 2021/S 149-395423, Contract Award Notice.’; Tenders Electronic Daily, ‘Services - 395424-2021. Poland-Warsaw: Frontex Surveillance Aircraft Services for Border and Coast Guard Functions (FSA I), 2021/S 149-395424, Contract Award Notice.’ On the general lack of transparency surrounding the introduction of new technologies in border systems, see also Everuss, ‘AI, Smart Borders and Migration’, 352.

⁷ Peter and Jo, ‘Crossing A Line. The Use of Drones to Control Borders’.

⁸ An interactive map of new technologies for migration and borders control is regularly updated by the Migration Tech Monitor, available here: <https://maphub.net/Migrationtechmonitor/map>

⁹ See Aizeki et al., ‘Smart Borders or a Humane World?’

¹⁰ Holmes, ‘US Tests of Robotic Patrol Dogs on Mexican Border Prompt Outcry’.

¹¹ See Monroy, ‘Frontex Has Air Superiority’; Leese, Noori, and Scheel, ‘Data Matters’.

¹² Gatopoulos and Kantouris, ‘In Post-Pandemic Europe, Migrants Will Face Digital Fortress’.

¹³ See Cockerell, ‘Greece Aims Long-Range Sound Cannons at Migrants across Its Border’.

¹⁴ Joly and Sandford, ‘Poland’s Senate Approves €350 Million Wall along Belarus Border’. These are, of course, some of the most disquieting drifts of the borders digitalisation and are not presented here to provide an exhaustive picture of how smart borders work. Nevertheless, the very existence of such systems makes the analysis of the deployment of emerging border technologies a pressing need.

What ties all these cases together, other than a certain urge towards technological experimentalism at the borders, is a rethinking and changing of what may appear as one of the most physical and on-the-ground components of borderwork,¹⁵ perhaps most atavistically connected to a modern conception of State sovereignty: the act of patrolling. The diffusion of these technologies often takes place within a security tangle area, whose investigation is far from transparent and linear, and seems to offer a further interesting research angle within the study of border digitalisation. Trying to critically analyse these processes by bringing them into perspective, this paper aims to further the debate around border surveillance and digitalisation through the prism of what I suggest calling *digital patrolling*.

At large, digital patrol systems can be described as encompassing unmanned aircraft, drones, satellites, offshore sensors, thermal cameras, radars, autonomous surveillance towers with infra-red cameras, high-resolution imagery, smart walls, and geographic information systems.¹⁶ The peculiarity of adopting this prism of analysis lies with the specificities, tensions, and clashes that run through border patrols carried out by States, where securitarian logics linked to border violence intertwine with humanitarian objectives, such as attempts to systematise search and rescue (SAR) activities at sea. In light of the studies developed at the intersection of critical security and migration studies, patrolling may appear as one of the core activities of border control, cutting across the sorting and filtering work carried out at the frontiers (especially the *smart* ones).

It should be premised that this understanding of patrolling deliberately focuses on State-led border control activities, which largely intersect with migration management purposes. Thus, patrols carried out by other entities, such as humanitarian organisations, fall beyond the scope of this study.¹⁷

Focusing on the European Union, the article aims to suggest a definition and preliminary classification of the modes of digital patrolling carried out at various stages of the *borderwork*, building on the analysis of different *bordering* strategies,¹⁸ both at the European and national levels, that showcase the digitalisation of patrolling activities, especially with regards to the deployment of drones at the external borders and to the functioning of integrated surveillance systems.

To do so, the following sections will provide a brief literature review, that will be mobilised to sketch a critical mapping of the operations conducted by *smart* borders under the umbrella concept of digital patrolling. Secondly, an attempt will be made to problematise the articulation of the operations that can be ascribed to digital patrolling by referring to different tools and systems in use at the European borders, including devices and systems currently being tested. To this end, it will be proposed to focus on the *capability areas* identifying specific border security functions made possible or (re)assembled by

¹⁵ By *borderwork*, I follow here the understanding and definition formulated by Chris Rumford, who describes it as the process of «envisioning, constructing, maintaining and erasing borders». See Rumford, 'Introduction: Citizens and Borderwork in Europe'.

¹⁶ See Csernaton, 'Constructing the EU's High-Tech Borders'; Peter and Jo, 'Crossing A Line. The Use of Drones to Control Borders'; Topak, 'Humanitarian and Human Rights Surveillance'.

¹⁷ Mention must here be made to the work of AlarmPhone, especially the Alarm Phone Sahara division, which periodically organises solidarity patrol operations in the Sahara Desert to try to locate and rescue migrant people in distress. See, for example, Alarm Phone Sahara, 'Civilian Patrol in the Desert beyond a Snag'.

¹⁸ On the relevance of the term *bordering* to analytically capture the continuous processes of fixating and regulating mobility, see Amelung, Granja, and Machado, *Modes of Bio-Bordering The Hidden (Dis)Integration of Europe*, 18; Tazzioli, *Spaces of Governmentality: Autonomous Migration and the Arab Uprisings*.

the digitalisation of patrolling.¹⁹ In particular, capabilities related to situational awareness, detection and tracking, information management and risk analysis will be presented as constitutive of digital patrolling. To this end, a cartography of emerging patrolling systems will be sketched focusing on case studies identified both at the EU level and in two Member States: Greece and Spain. Here, where the most significant investments in border digitalisation are taking place, different border areas could be described as «surveillance sandbox[s] at the frontiers of Europe»²⁰, as the line between border security and migration-related measures is increasingly indistinguishable.²¹ Projected towards the Eastern and the Western migratory routes,²² both countries can thus provide remarkable insights on the digitalisation of patrolling, opening up a space to problematise how such process is situated at the entanglement of national and European policies. Finally, some considerations on the far-reaching consequences resulting from digital patrolling will be proposed.

2. Between smart borders, digital patrolling, and capability areas: a look at the literature

International relations scholars and political geographers have contributed to a growing literature discussing how digitalisation influences the border-crossing experience,²³ producing a vibrant and largely interdisciplinary debate that has resulted in the emergence and development of new subfields, such as digital migration studies.²⁴ The literature at the intersections between critical security studies and Science and Technology Studies (STS), has grown to illuminate the impact of materiality in shaping security practices,²⁵ while not leaving aside considerations on the subjectivity and agency of both those who *operate* the border and those who cross it.²⁶ Borders digitalisation has thus been described as a turn towards «techno-securitisation»,²⁷ a process of «smartening» of border security,²⁸ the «datafication of mobility and

¹⁹ Different (and complementary) approaches focusing on borders as infrastructures and socio-technical apparatuses are already largely discussed in the literature. See, e.g., Bellanova and Glouftsiou, 'Controlling the Schengen Information System (SIS II)'; Noori, 'Suspicious Infrastructures'; Vaughan-Williams, *Europe's Border Crisis*.

²⁰ Molnar, 'Territorial and Digital Borders and Migrant Vulnerability Under a Pandemic Crisis', 54.

²¹ See Topak and Vives, 'A Comparative Analysis of Migration Control Strategies along the Western and Eastern Mediterranean Routes'.

²² The Central Mediterranean route, that in 2022 remains the main route to Europe and the world's deadliest migration route, is not addressed in detail here for two sets of reasons. Firstly, the Member States interested in the route are not currently achieving relevant advancements in digital patrolling along their southern coasts. Secondly, the surveillance of the area remains highly "Europeanised" and hegemonized by Frontex, thus leaving individual national initiatives in the background.

²³ See Amoores, 'Biometric Borders'; Bigo, 'The (in)Securitization Practices of the Three Universes of EU Border Control: Military/Navy – Border Guards/Police – Database Analysts'; Dijstelbloem and Broeders, 'The Datafication of Mobility and Migration Management. The Mediating State and Its Consequences'; Leese, 'Exploring the Security/Facilitation Nexus'.

²⁴ Among others, a critical account of the emergence of this new field of research can be found in Candidatu, Leurs, and Ponzanesi, 'Digital Diasporas'; Gough and Gough, 'Disrupted Becomings: The Role of Smartphones in Syrian Refugees' Physical and Existential Journeys'; Leurs and Smets, 'Five Questions for Digital Migration Studies'; Sandberg et al., *Research Methodologies and Ethical Challenges in Digital Migration Studies*.

²⁵ On the "materiality turn" in migration studies and STS, see Scheel, Ruppert, and Ustek-Spilda, 'Enacting Migration through Data Practices', August 2019.

²⁶ See Amicelle, Aradau, and Jeandesboz, 'Questioning Security Devices'; Jeandesboz, 'Smartening Border Security in the European Union: An Associational Inquiry'.

²⁷ Marin, 'The Humanitarian Drone and the Borders'.

²⁸ Jeandesboz, 'Smartening Border Security in the European Union: An Associational Inquiry'.

migration management»,²⁹ the diffusion of «techno-borderscapes»,³⁰ and the emergence of new forms of «dataveillance».³¹

Digitalisation and high technologization also fit into – and cannot be adequately understood aside from – a widely documented and discussed shift towards the criminalisation and containment of non-pre-vetted travellers through risk-based taxonomies,³² the externalisation of borders control, and the outsourcing of migration management to private companies,³³ international organisations, and third countries.³⁴ These strategies intertwine with the development of forms of contactless, remote and de-territorialised control, preventive and *non-entrée* policies, cooperative deterrence mechanisms with partner States, and *neo-refoulement* practices that are deemed as making an essential contribution to the shrinking of the access to asylum and international protection.³⁵ This process takes place in a climate of growing suspicion that ends up justifying the use of increasingly hard-line, out-of-the-box, and intrusive technologies for policing the periphery of the European Union.³⁶ Scholars called the choice of high-tech solutions «the transformation of the EU into a technological fortress»,³⁷ a deliberate security strategy for controlling and monitoring irregular (or unwanted) migration³⁸ in a *milieu* of «emergent, recursively performed, and mutable» digitalised borders.³⁹

Precisely because of this approach, Karolina Follis aptly describes border surveillance as a project of trans-territorial expansion made possible by the adoption of technologies that enable surveillance and governance also in spaces that previously remained unseen and in the “pre-frontier area”, *i.e.* sea and land adjacent to the border but beyond the jurisdiction of any EU Member State.⁴⁰ In this sense, digitalisation facilitates strategic «borders manipulation»,⁴¹ changing frontiers’ physical location according to security priorities.

²⁹ Broeders and Dijstelbloem, ‘Digitizing Identities: Doing Identity in a Networked World’.

³⁰ Godin and Donà, ‘Rethinking Transit Zones’.

³¹ Degli Esposti, ‘When Big Data Meets Dataveillance’; Peoples and Vaughan-Williams, *Critical Security Studies: An Introduction*, 162. “Dataveillance” is understood here as the monitoring and mining of multiple forms of data aimed at identifying potentially risky groups and individuals.

³² On recent developments concerning borders as a domain of criminal law enforcement, see Aliverti and Bosworth, ‘Introduction’.

³³ For an indepth study of the role of private actors at the borders of the European Union and the implications in terms of sovereignty, see Mitsilegas, ‘Contested Sovereignty in Preventive Border Control’.

³⁴ See, among others, Csernatonì, ‘Constructing the EU’s High-Tech Borders’, 177; Giuffré and Moreno-Lax, ‘The Rise of Consensual Containment: From Contactless Control to Contactless Responsibility for Migratory Flows’; Ferraris, ‘Il migrante datificato nei confini del futuro: senza potere di fronte a un oscuro potere?’; Nagore Casas, ‘The Instruments of Pre-Border Control in the EU: A New Source of Vulnerability for Asylum Seekers?’

³⁵ See Mountz, *The Death of Asylum*; Tholen, ‘The Changing Border: Developments and Risks in Border Control Management of Western Countries’, 273.

³⁶ See Csernatonì, ‘Constructing the EU’s High-Tech Borders’, 180.

³⁷ Marin, ‘Is Europe Turning into a “Technological Fortress”?’

³⁸ Csernatonì, ‘Constructing the EU’s High-Tech Borders’, 177.

³⁹ Glouftsiós, *Engineering Digitised Borders: Designing and Managing the Visa Information System*, 9.

⁴⁰ The pre-frontier area is to be understood as «the geographical area beyond the external borders» described by the EUROSUR Regulation or as an area of cooperation and interoperability reflected by FRONTEX operations in EU’s neighbouring territories. See Follis, ‘Vision and Transterritory’.

⁴¹ Weber, ‘The Shifting Frontiers of Migration Control’, 22.

Scholars have explored in detail specific segments of the border network, delving into the «technopolitics of border control»,⁴² the role of security professionals,⁴³ the «dronisation» of borders,⁴⁴ the use of satellite technology for external border surveillance,⁴⁵ biometric databases,⁴⁶ the datafication of migrant populations,⁴⁷ risk analysis algorithms,⁴⁸ the emergence of new rationalities of the «deep border» resulting from machine learning schemes,⁴⁹ large-scale information systems,⁵⁰ digital mapping interfaces deployed for rendering visible border zones and transboundary flows,⁵¹ as well as the discriminatory consequences produced by the datafication of mobility and migration.⁵²

Of course, considerations on border patrols are not absent from the literature. However, the transformations of border patrolling activities are rarely questioned in their own rights as a key lens of analysis in this field: here, a space arises to attempt to contribute to this important debate.

Building on the literature, border patrolling can be understood as the set of control and surveillance practices carried out at the external borders and adjacent zones to maintain the security of the border areas, first and foremost to prevent irregular crossings. At the EU level, this definition is in line with the primary purpose of border surveillance as outlined by the Schengen Borders Code, *i.e.* to prevent unauthorised border crossings, to counter cross-border criminality (for instance, related to terrorism, smuggling, or other illicit traffics), and to take measures against persons who have crossed the border illegally.⁵³ Border patrolling, therefore, comprises countering such activities also through intelligence, surveillance, and reconnaissance missions; at the same time, however, it can be extended to search and rescue operations (SAR) or to address specific environmental issues such as oil spills. Patrolling, therefore, necessarily appears multipurpose and – consequently – ambiguous, or at least non-neutral, in relation to the diverse objectives it pursues.

As mentioned in the Introduction, this definition is clearly partial as it lies on an understanding of patrolling tied to the expression of State sovereignty in border areas (while acknowledging that such sovereignty is fragmented and redistributed among multiple actors through digitalisation itself⁵⁴), and thus leaves aside other forms of patrolling whose existence (and relevance) cannot be neglected. For example, it does not cover patrol activities carried out within and across State territory, largely for the same purposes justifying border patrols. Louise Amoore argues in this regard that border spaces are becoming «feature spaces», with the result that border policing activities potentially enter every space –

⁴² Dijstelbloem, *Borders as Infrastructure: The Technopolitics of Border Control*.

⁴³ Bigo, 'The (in)Securitization Practices of the Three Universes of EU Border Control: Military/Navy – Border Guards/Police – Database Analysts'.

⁴⁴ Csernaton, 'Constructing the EU's High-Tech Borders', 178.

⁴⁵ Słomczyńska and Frankowski, 'Patrolling Power Europe'.

⁴⁶ Scheel, *Autonomy of Migration?*

⁴⁷ The process of «datafication» is understood as the application of new technologies of surveillance and networked database technologies that allow enhanced forms of observation, detection, identification and statistical risk calculation. See Broeders and Dijstelbloem, 'Digitizing Identities: Doing Identity in a Networked World'.

⁴⁸ Amoore, 'Biometric Borders'.

⁴⁹ Amoore, 'The Deep Border'; Amoore, 'Machine Learning Political Orders'.

⁵⁰ Glouftsiou, 'Governing Border Security Infrastructures'.

⁵¹ Tazzioli and Walters, 'The Sight of Migration: Governmentality, Visibility and Europe's Contested Borders'.

⁵² Leurs and Shepherd, 'Datafication & Discrimination'; Broeders and Dijstelbloem, 'Digitizing Identities: Doing Identity in a Networked World'.

⁵³ Schengen Borders Code, no. 2016/399, Article 13(4).

⁵⁴ See Bigo, 'The Digitalisation of Border Controls and Their Corporate Actors'.

«the city street, the university campus, the clinic».⁵⁵ In the same way, this definition does not cover patrolling activities conducted by organisations or civil society associations under rather opposite rationales, thus not fully unfolding the ambivalence of «digital passages and borders».⁵⁶

Yet, exploring digital border patrolling under this rather narrowed approach can give a peculiar contribution to critically unravelling some of the implications of digitalisation, as patrolling here represents a way in which terrains and spaces are actively reorganized through the exercise of sovereignty in the form of border control: the underlying rationales can thus have a concrete impact on the areas before the borders, re-defining migratory routes or attempting to redesign rules and practices in human mobility.⁵⁷ According to Rogier van Reekum, patrolling in migration monitoring cannot prescind from rendering visible both migration and the violence that borders policing involves. In fact, patrolling does not simply aim at «enacting the “really real” border»; rather, patrolling is about «encountering life in webs of terrains and tactics», in the intersections between the vision allowed by the tactical domain and the specificities of individual border areas.⁵⁸ An encounter that can be more or less technology-mediated, or even avoided through variously externalised forms of expulsion or abandonment. Digital patrolling, therefore, extends to the intersections between the proposed understanding of border patrolling and the capability areas along which smart borders are articulated.

At this point, it is necessary to take a step back to the analysis of the capability areas introduced by smart borders, trying to establish a dialogue between the different taxonomies examined in the literature.

Richa Kuman, for example, offers an interesting classification of the tools that, when assembled or deployed, enable smart borders to function.⁵⁹ She mainly focuses on the differences and interactions between aircraft and drones, biometric communication systems, port access control systems, information and communication technologies (ICTs), radio frequency identification systems and perimeter security systems used to detect movement and prevent unregulated border crossings. The notion of «perimeter security systems» partially overlaps with the proposed definition of digital patrolling systems, since it encompasses those tools that enable the surveillance of both border and pre-frontier areas.

Focusing instead on the operations carried out by digitalised borders, van Reekum identifies three main domains where they are deployed: patrolling, recording and publicizing – the latter two linked respectively to the production of documentary objectivity and the pictorial capture of fleeting realities.⁶⁰ Here, the idea of patrolling is therefore shaped in dialogue with the ability to build an archival memory and to make it public, choosing carefully what should be shown (and what should not). The report of the Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia and Related Intolerance published in September 2021, by contrast, identifies six areas where the digitalisation of borders is having implications not only in quantitative terms – because of the extent and complexity of

⁵⁵ Amoore, 'The Deep Border', 4.

⁵⁶ Latonero and Kift, 'On Digital Passages and Borders: Refugees and the New Infrastructure for Movement and Control'.

⁵⁷ See Scheel, Ruppert, and Ustek-Spilda, 'Enacting Migration through Data Practices', August 2019, 584.

⁵⁸ van Reekum, 'Patrols, Records and Pictures', 629.

⁵⁹ Kuman, 'The Role of Security and Defence Companies in EU Migration and Border Control and the Impact on the Protection of the Rights of Refugees, Migrants and Asylum Seekers'.

⁶⁰ van Reekum, 'Patrols, Records and Pictures', 625.

the data collected – but also in qualitative terms.⁶¹ From a significantly different perspective, also Frontex identifies five key capability areas resulting from the analysis of border security functions in light of considerations based on Artificial Intelligence: situational awareness, information management, communication, detection/identification, training, and exercise.⁶² In this case, particular emphasis is placed on the ability of smart borders to strengthen the capacity of States to act and increase the comprehensiveness of surveillance of “border areas” in a particularly broad sense.

Such considerations can be critically mobilized to engage in a broader and overarching study of the capabilities areas of digital patrolling, highlighting their peculiarities with respect to different patrolling systems, in a way that can serve as a valuable analytical tool for the analysis of our case studies on the digitalisation of patrolling in Spain and Greece.

3. Operationalising the digitalisation of patrols

Trying to add a critical contribution to these taxonomies of digital borders, I propose to identify two main functions that underlie the whole rationale of border digitalisation, as well as seven main capability areas where smart borders are applied. Among the latter, four seem to be particularly relevant to unpacking the notion of digital patrolling. First of all, the two capability areas *par excellence* in border and migration control – whose role is significantly expanded by digitalisation – are the deepening of control and surveillance capabilities on the one hand, and the capillarization of filtering and sorting functions on the other. Faced with the impossibility of simply blocking “unwanted” flows,⁶³ at the heart of the latter is the establishment of different patterns of social sorting or *triage* between trusted and untrusted travellers, increasingly built on data-based knowledge.⁶⁴ According to Holger Pötzsch, for example, IT systems pursue the primary aim of shaping exclusion decisions at the border through the interaction of biometrics, predictive analytics, and robotics.⁶⁵ Following Huub Dijstelbloem, these same mechanisms turn borders into «extreme infrastructures», *i.e.* places where technological mediation naturalizes and normalises exceptional situations through the exasperation of the processes of inclusion and exclusion produced by borders.⁶⁶

To explore these two main axes more operationally, I propose to identify the main capability areas of the smart borders as follows: screening, scanning, identification, and authentication; application of predictive analytics; communication; situational awareness; detection and tracking; information management; and risk analysis.

⁶¹ The reference is, in particular, to the use of online platforms, racial profiling, biometric data collection and digital identification systems, language recognition systems, mobile data extraction and social media intelligence on migrant and refugee populations. See Human Rights Council, ‘A/HRC/48/76’.

⁶² Frontex, ‘Artificial Intelligence-Based Capabilities for the European Border and Coast Guard Final Report’, 18.

⁶³ See the discussion of Thomas Nail’s conceptualisation of ‘flow’ and ‘bifurcation’ as proposed in Glouftsiou and Panagiotis, ‘Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision’.

⁶⁴ Sorting-out threatening, racialized and alienated subjects to facilitate the circulation of persons expected to generate capital, the exclusionary practices implied in the digitalised borderwork are fostered to sort individuals based on their desirableness and belonging. See Bosworth, ‘Border Control and the Limits of the Sovereign State’; Ferraris, ‘Il migrante datificato nei confini del futuro: senza potere di fronte a un oscuro potere?’; Glouftsiou, *Engineering Digitised Borders: Designing and Managing the Visa Information System*, 2; 12.

⁶⁵ Pötzsch, ‘The Emergence of IBorder’, 113.

⁶⁶ Dijstelbloem, *Borders as Infrastructure: The Technopolitics of Border Control*, 181.

The first capability area involving screening, scanning, identification, and authentication encompasses the work typically carried out by large-scale IT systems such as SIS II, VIS and EURODAC. The collection of information through screening processes aims to identify people and other targets involved in border operations or to authenticate their identities. In opposition to the maintenance of generalized and extensive surveillance, smart borders allow here for a “hyper-individualisation” of persons and entities.⁶⁷ The collection and use of biometric data,⁶⁸ the authentication of digital identity,⁶⁹ the Automated Border Control (ABC),⁷⁰ but also the employment of facial recognition technologies – used, *e.g.*, in the trials of lie detectors – fall within this spectrum.⁷¹

The second area, related to the application of predictive analytics, can be understood as encompassing all the analysis on travellers, as well as the background archiving and recording processes. For example, the Passenger Name Record (PNR) analyses data to support the authorities through criminal intelligence information, primarily detecting travellers that are deemed to be potentially risky or suspicious. Social media intelligence or data extraction processes (*e.g.* from the mobile phones of the persons concerned)⁷² can also be traced to this area, and tend to be used both in predictive terms and as verification tools in the field of both border security and access to international protection.⁷³

Thirdly, the communication capability area involves technologies that facilitate information sharing in the context of border control, for instance to ensure secured communications and wireless broadband data links.⁷⁴

The three capability areas mentioned so far fall outside the cross-sectional work of digital patrolling and will therefore not be further discussed here; on the contrary, the last four areas will be dealt with in detail. First of all, the promotion of situational awareness is crucial in patrolling, as it represents the conceptual and operational prism that allows «the intermingling of vision and action».⁷⁵ Operational documents of the EU border agencies often describe situational awareness as the capacity to identify anomalies and track whatever crosses the EU borders.⁷⁶ Enhancing situational awareness is indeed the European Border Surveillance System (EUROSUR) central mission and a dominant narrative in the

⁶⁷ Latonero and Kift, ‘On Digital Passages and Borders: Refugees and the New Infrastructure for Movement and Control’, 6.

⁶⁸ See Muller, ‘Risking It All at the Biometric Border: Mobility, Limits, and the Persistence of Securitisation’.

⁶⁹ On the issue, see Beduschi, ‘Written Observations’.

⁷⁰ The Automated Border Control (ABC) is a system that allows automated border crossing by authenticating a machine-readable electronic travel document. According to Simon Noori, promotes various modes of suspicion related to the detection of identity fraud. Noori, ‘Suspicious Infrastructures’.

⁷¹ In Europe, the most relevant case on the use of lie-detecting technologies concerns the *iBorderCtrl* project, funded through a Horizon 2020 and concluded at the end of August 2019.⁷¹ In March 2019, the functioning of *iBorderCtrl* was brought before the General Court of the Court of Justice of the European Union (CJEU) by the Member of the European Parliament (MEP) Patrick Breyer (CJEU, *Breyer v. Commission*, Case T-158/19, 15 March 2019). The case followed the European Commission’s refusal to grant open access to relevant documents on *iBorderCtrl*, thereby leaving its functioning behind the “black-box barrier”. While the applicant raised questions on the democratic oversight of surveillance technologies in the EU, the Court decided to safeguard commercial interests related to the project, thus providing only partial and limited access to the documents at stake. It is however interesting that the Court ascertained the existence of public interest in the democratic oversight of the development of surveillance and control technologies and that there is a public interest in discussing the desirability of developing similar technologies recurring to public money.

⁷² On the use of social media and mobile phone in border enforcement procedures, see Bolhuis and van Wijk, ‘Seeking Asylum in the Digital Era’; Leurs and Patterson, ‘Smartphones’; Taylor, ‘No Place to Hide?’

⁷³ See Aradau, ‘Experimentality, Surplus Data and the Politics of Debilitation in Borderzones’.

⁷⁴ See Frontex, ‘Artificial Intelligence-Based Capabilities for the European Border and Coast Guard Final Report’, 18.

⁷⁵ Dijkstra, van Reekum, and Schinkel, ‘Surveillance at Sea’.

⁷⁶ Loukinas, ‘Surveillance and Drones at Greek Borderzones’, 8.

discourse on the deployment of military surveillance systems and techniques, within which various perimeter security systems – namely drones – are embedded.⁷⁷

Similarly, processes of detection and tracking of targets of interest are core functionalities in digital patrolling and, more generally, one of the main objectives pursued through the digitalisation of borders. In the migration realm, detecting and tracking in close to real-time vessels in distress or suspected of conducting illegal cross-border activities is perhaps the most evident manifestation of what William Walters famously calls «the dream of *live governance*».⁷⁸ Of course, situational awareness, detection, and tracking are closely intertwined, as the former constitutes the framework of possibility for the latter. A major role is played here by drones, satellite-based services, and data fusion services provided by Frontex: it could be argued that it is mainly because of their innovative capacity to detect and track suspicious objects beyond the borders that increasing attention and investments are being turned to these technologies.

The capacity area of information management expands both to ICTs (*e.g.* concerning the interoperability between different databases) and to digital patrolling. About the latter, the exchange of information from EU Member States to third countries, the deployment of joint patrol operations and – once again – the collection of data converging to EUROSUR (and its fusion services) is of remarkable relevance.⁷⁹

The seventh and final capacity area to be analysed regards risk analysis and the adoption of pre-emptive mechanisms are particularly significant because they support processes of categorization and classification that differ from those of identification, often relying on deterrence narratives. Of course, anticipating risks based on past trends and generalizing potential individual behaviour can be problematic, particularly from a fundamental rights perspective. In particular, this understanding of risk allows the development of “parallel border regimes”, within which violations of the principle of non-discrimination might occur.⁸⁰ At the EU level, examples of such mechanisms can be found in EUROSUR, JORA (Joint Operation Reporting Application, a data collection and exchange system used in joint operations), and the Vessel Detection Service provided by the European Maritime Safety Agency (EMSA), which enables the processing of archival data on migratory routes, past incidents, and interceptions.⁸¹ The key difference with the second capability area analysed, lies with the immediate connection between risk analyses and patrolling activities, the first being understood as a tool to better target the latter.

⁷⁷ See Csernaton, ‘Constructing the EU’s High-Tech Borders’, 183.

⁷⁸ Walters, ‘Live Governance, Borders, and the Time-Space of the Situation’.

⁷⁹ It could here be argued that, regardless of the level of digitalisation reached, border patrolling has always been about data collection and analysis: in fact, it is first and foremost about bringing together information on what is happening in border areas and reacting to this information. However, when it comes to digital patrolling, the data dimension becomes even more crucial, to the point that the emerging forms of patrolling have been described as «performing the datafication of space and its encounter of bodies». See van Reekum, ‘Patrols, Records and Pictures’, 630–31.

⁸⁰ Human Rights Council, ‘A/HRC/48/76’, para. 10.

⁸¹ See Glouftsiou and Panagiotis, ‘Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision’; Tazzioli, ‘Spy, Track and Archive’, 2.

Overarching capability areas in <i>borderwork</i>		Description in digital borders operations	
Control and surveillance of border and pre-border area		Deployment of control and surveillance technologies increasingly “far away” in space and time from the geographical borders, in a preventive logic.	
Filtering and sorting		Capability to perform data-based or (semi-)automated <i>triage</i> between trusted and un-trusted travellers.	
Capability areas in digital <i>borderwork</i>	Description in digital borders operations	Illustrative examples in use in the EU	
Screening, scanning, identification, and authentication	Capability of screening and scanning information to identify people and other targets involved in border operations and/or to authenticate their identities.	SIS II, VIS and EUODAC Automated Border Control Different forms of document authentication	
Application of predictive analytics	Capability of managing data to facilitate pattern recognition in a future-oriented approach through AI-based systems.	PNR Social media intelligence Mobile phones data extraction	
Communication	Capability of bringing together information for communication purposes in a digitally-mediated way, facilitating information sharing in border surveillance.	Secured communications Wireless broadband data links Chatbots and virtual agents	
Situational awareness	Capability of collecting, fusing, and analysing different kinds of data issued by different sources at the border and the pre-frontier area (<i>lato sensu</i>), aimed at enhancing reaction capabilities.	AI-enabled surveillance towers Drones Border surveillance systems (EUROSUR, SIVE)	
Detection and tracking	Capability of specifically detecting and tracking people and/or objects at and before the border, in a framework of enhanced situational awareness.	Satellite and drones-based services Robotic border patrol agents Border surveillance systems	
Information management	Capability of managing and exchanging information among different actors, also beyond the EU (thus facilitating joint operations), ensuring secured and interoperable systems.	Data fusion services Geospatial data analytics	
Risk analysis	Capability of producing risk taxonomies based on AI-based systems, aiming at evaluating the impact of an event in the border or pre-border area and at categorizing people on the move, adopting a pre-emptive and deterrence approach.	Early warning technologies Joint Operation Reporting Application Vessel detection services	

Table 1. Capability areas in digital borderwork and capability areas defining digital patrolling.

4. Situational awareness, detection, and tracking: remote governance and pre-frontier areas

After discussing the proposed taxonomy, we shall now move on to analyse the different modes of digital patrolling, focusing on exemplar technologies and functionalities. We will thus try to reason about the shift from a “patrolling-driven” to an “intelligence-driven” strategy in border control,⁸² with a focus on the technical and political justifications for such a move. As already mentioned, the capability areas of situational awareness, detection, and tracking intertwine and complement each other within different devices and systems that enable digital patrolling, and should thus be studied together. Case studies will be selected from the EU and from bordering practices in Greece and Spain, with specific attention being devoted to integrated border surveillance systems and drones.

4.1. Integrated border surveillance systems: EUROSUR, NIMSS and SIVE

Among integrated border surveillance systems, at the European Union level, a textbook example can be identified in EUROSUR. When it became operative, in December 2013, it was immediately presented as the future of border and migration management, a system capable of decoupling surveillance from patrolling and of providing the right information to the right person, at the right time, in the right format.⁸³

EUROSUR is often described as a “system of systems”, aimed at contrasting irregular migration while protecting migrants’ lives by establishing a common framework for information exchange and cooperation between the EU Member States and Frontex. The Surveillance System consists of national hubs – the National Coordination Centres (NCCs) – connected through a secure communication network among themselves and with Frontex. In practice, EUROSUR builds pictures and visualises maps by combining information coming from sources such as radars, drones, satellites, intelligence reports, and sensor systems.⁸⁴ With the data thus gathered and by combining the National Situational Pictures assembled by the NCCs, the EUROSUR Fusion Services (EFS) generate the European Situational Picture (ESP) and the Common Pre-frontier Intelligence Picture (CPIP). As described by Article 3(d) of Regulation 1052/2013, EUROSUR aims to «support the Member States in reaching full *situational awareness* on the situation at their external borders and increase the *reaction capability* of their law enforcement authorities» (emphasis in original). Here, situational awareness is denoted – in extremely broad terms – as the ability to monitor, detect, identify, and track irregular cross-border activities to find «reasoned grounds for reaction measures on the basis of combining new information with existing knowledge». Remarkably, the system promotes a clearly *extraterritorial* understanding of situational awareness, detection, and tracking in the pre-frontier area: the CPIP itself results in fact directly from the information obtained from the surveillance of territorial waters in third countries.⁸⁵

EUROSUR mandate thus makes it possible to replace border patrolling with the reading of interactive maps that, through the data they assemble, mediate the border agent’s view of the situation

⁸² See Dijstelbloem, *Borders as Infrastructure: The Technopolitics of Border Control*, 105.

⁸³ Bellanova and Duez, ‘The Making (Sense) of EUROSUR: How to Control the Sea Borders?’, 12; Tazzioli and Walters, ‘The Sight of Migration: Governmentality, Visibility and Europe’s Contested Borders’, 450.

⁸⁴ Jeandesboz, ‘European Border Policing: EUROSUR, Knowledge, Calculation’, 2.

⁸⁵ Marin and Krajčíková, ‘Deploying Drones in Policing Southern European Borders’, 119.

at and before the frontier, directly from an operations room. Coherently, scholars have described situational awareness as a form of «operational vision», meaning that visibility resulting from technologically mediated monitoring practices does not simply aim at producing knowledge, but at managing and governing the detected events.⁸⁶ The digitalised and EUROSUR-mediated evolution of situational awareness, detection, and tracking thus brings significant changes in the understanding of border patrolling.

Furthermore, as mentioned, EUROSUR heavily relies on data directly provided by Member States, indicating an abundance of national systems dedicated to digitalising situational awareness, detection, and tracking capabilities within border patrols. Interesting examples can be found both in Greece and Spain. In Greece, since 2009, the Coast Guard can rely on the Automatic Identification System (AIS), a tracking system for ships and boat movements that has proven to be useful for identifying in advance boats used by migrants heading to Lesbos, Chios, Samos or Patmos, just a few kilometres away from Turkey.⁸⁷ Furthermore, Greece is significantly investing in the deployment of a National Integrated Maritime Surveillance System (NIMSS), a network of integrated surveillance stations connected to an operational control centre whose operation seems to echo at least partially the pursuit of more advanced situational awareness, detection and tracking systems, as discussed with regards to EUROSUR.⁸⁸

In Spain, also because of geographical reasons that make it impossible to secure external frontiers through physical barriers (with of course the exception of Ceuta and Melilla), integrated border surveillance systems have long been of the utmost interest when it comes to digital patrolling. Over the years, the precocious investments in building technologically enhanced situational awareness as a precondition to hone detection and tracking capabilities have turned Spain into a model for several Member States (especially Romania, Portugal, and Finland) and for the European Union itself.⁸⁹ Already in 1999, when the Strait of Gibraltar became the main gate towards Europe, the Spanish government approved a roadmap for intensified surveillance of the area. At the centre of the plan, amounting to €150 million for the period 1999-2004, was the installation of the surveillance system *Sistema Integrado de Vigilancia Exterior* (SIVE). This system offers an interesting angle to further explore the capability areas here addressed.

First of all, the SIVE, often presented as the “father” of EUROSUR,⁹⁰ is defined by the *Guardia Civil* as an operational system that allows improving surveillance at the country’s borders while responding to two impelling challenges: the fight against drug trafficking and irregular migration.⁹¹ Remarkably, the range of the actions encompassed by the system is multi-purpose and has progressively been expanded to the fight against terrorism, to intelligence objectives, to the contrast against illegal fishing or piracy, to the protection of marine and land resources, and to the conduct of search and rescue

⁸⁶ See Tazzioli and Walters, ‘The Sight of Migration: Governmentality, Visibility and Europe’s Contested Borders’.

⁸⁷ See Topak, ‘The Biopolitical Border in Practice’, 824.

⁸⁸ The NIMSS was expected to be fully operational by mid-2021, but due to different delays in running the tender, the first surveillance stations will likely be fully functional only in 2023. Greek Ministry of Citizen Protection, ‘National Programme ISF - Identification of the Designated Authorities’.

⁸⁹ See European Union Agency for Fundamental Rights, *Fundamental Rights at Europe’s Southern Sea Borders*, 59.

⁹⁰ See Ellebrecht, *Mediated Bordering*, 217.

⁹¹ Guardia Civil, ‘Sistema Integrado de Vigilancia Exterior (SIVE) - Nota de Prensa’.

operations among others.⁹² The whole system aims to extend the possibilities of *vision* along and beyond maritime borders, guaranteeing a wider situational awareness designed to make detection more targeted.

From the outset, the SIVE has raised a number of controversies, first and foremost regarding particularly high costs of deployment and maintenance (in significant part covered by EU funds)⁹³ that call into question its efficiency.⁹⁴ However, the steady growth of such investments unequivocally shows a strong prioritisation of the digitalisation of patrolling, at both national and European levels.

More broadly, the SIVE can be defined as an operational system that – on technical support – facilitates the surveillance of the sea border and its surroundings, sharing with control centres the real-time information obtained through a network of fixed stations and mobile units that make use of still cameras, heartbeats detectors, closed-circuit television cameras (CCTV), night viewfinders, infrared optics, long-radar systems, and thermal cameras along the coastal areas most affected by migration movements.⁹⁵ The design of the SIVE is underpinned by two fundamental principles, that are emblematic of border patrolling more broadly: early detection and central command.⁹⁶

Typically, the SIVE detects migrants' boats approaching 10 to 25 kilometres from the shore and, with good weather conditions, can take fairly good quality photographs and videos.⁹⁷ At this point, the *Centro de Mando y Control* – located in Algeciras – receives the alert on the suspect target and follows it remotely. Other smaller control centres can be found in the regions of Cadiz and Malaga, as well as in Ceuta. However, the exact localisation of the SIVE stations is not public, as the *Guardia Civil* argues that disseminating such information would undermine the system's effective functioning.⁹⁸

In a nutshell, the ultimate aim of the SIVE is thus to detect and apprehend people attempting to enter Spain in the most efficient way possible, keeping together a deterrence-based approach with a

⁹² See Fernández Jurado and Sabariego Rivero, 'Servicio Integral de Vigilancia Exterior (S.I.V.E.). Consecuencias de Su Implantación'.

⁹³ To provide some perspective on the investment at stake, consider that under the European Borders Fund (2007-2014) Madrid obtained about €134.5 million, invested in large majority to expand the SIVE – reportedly resulting in the interception of 5.279 irregular migrants over the financial period covered by the fund. See European Commission, 'COM(2014) 235 Final'. In 2018, taking into account both national public funds and the European contribution under the Internal Security Fund, more than €6 million was allocated for the maintenance and expansion of the SIVE and to repair its broken radars and sensors. About €3.6 million in 2019 and more than €8.5 million in 2020 were used for the same purpose. In 2020, a further €1.4 million has been assigned to promote the digitalisation of borders and the development of increasingly automated smart borders. See Secretaría de Estado de Seguridad, 'Relación de Proyectos Presentados En La Cuenta Financiera 2018 Del FSI'; Secretaría de Estado de Seguridad, 'Relación de Proyectos Presentados En La Cuenta Financiera 2019 Del FSI'; Secretaría de Estado de Seguridad, 'Relación de Proyectos Presentados En La Cuenta Financiera 2020 Del FSI'.

⁹⁴ According to a study published by Jørgen Carling, the SIVE costed about €1.800 for each migrant reportedly intercepted during the first five years of activity of the system. Carling, 'The Merits and Limitations of Spain's High-Tech Border Control'. It is certainly not the purpose of this paper to attempt to provide an impact assessment of the digitalisation of patrolling. In relation to the SIVE, however, it is worth mentioning that, if along with border industry circles it has been celebrated as a successful example of border control as it contributed to significantly reducing the number of migrants along the routes effectively put under its surveillance, these considerations do not take into account the aforementioned deflection of migratory flows towards more dangerous routes and the associated risk in terms of fatalities. See Alscher, 'Knocking at the Doors of "Fortress Europe": Migration and Border Control in Southern Spain and Eastern Poland'; Asociación Pro Derechos Humanos de Andalucía, 'Balance Migratorio Frontera Sur 2021'.

⁹⁵ See Jumbert, 'Control or Rescue at Sea?', 16; Sub-Directorate General for Planning and Infrastructures Management and Material for Security of the Ministry of Interior, 'Ex-Post Evaluation Report on the Results and Impacts of Actions Co-Financed by the External Borders Fund Annual Programmes 2007 to 2010 (Report Set out in Article 52(2) (B) of Decision No 574/2007/Ec)'.

⁹⁶ Carling, 'The Merits and Limitations of Spain's High-Tech Border Control'.

⁹⁷ As reported in different interviews conducted in 2013 by the EU Fundamental Rights Agency, meteorological factors still have a significant impact on the overall functioning of the system. Moreover, blind spots still persist also in favourable weather conditions. European Union Agency for Fundamental Rights, *Fundamental Rights at Europe's Southern Sea Borders*, 59.

⁹⁸ The system is entirely operated by the *Guardia Civil*, a joint military and civilian police force that is also in charge of the Coast and Border Service and the Maritime Service. See Catalán, 'Funcionamiento Del Sistema Integrado de Vigilancia Exterior (SIVE)'; González, 'La Guardia Civil Declara "Información Reservada" Los Fallos de Los Radares Para Detectar Pateras En Canarias'; Instituto Universitario de Investigación sobre Seguridad Interior, 'La Gestión de Las Fronteras Exteriores de La Unión Europea'.

discourse encompassing the fight against illegal traffics, as well as humanitarian aspirations.⁹⁹ Nevertheless, it is worth recalling that sea rescue operations facilitated by the SIVE remain rather limited and it has often proven to be unable to prevent dreadful incidents.¹⁰⁰ In addition, the system presents serious difficulties in detecting particularly small and lightly structured boats: as a result, migrants are choosing these types of vessels, which are dramatically more exposed to the risk of accidents at sea.¹⁰¹ It could therefore be argued that the situational awareness reached through digital patrolling leads to selective detection and targeting processes, whose political scope is patent.

As in the case of the EUROSUR and the NIMSS, situational awareness as enhanced by the SIVE clearly promotes a form of remote patrolling, whose implications should not be underestimated. It seems in fact to facilitate a form the de-humanisation of migration governance through digital patrolling:¹⁰² for example, for people working in control centres, a migrant entering the land border area in Ceuta and Melilla by night would appear on the screen as a «black, pixelated shape that is still vaguely-humanoid».¹⁰³ Such description brings attention to a distinctive concern related to the digitalisation and outsourcing in border control, which will be discussed further below: as far as containment measures can be implemented remotely, it may become unnecessary or even impossible for patrolling personnel and migrants to come across each other. From here, the risk of overlooking the fundamental rights (and human dignity) of the people involved seems just behind the corner.

4.2. A view from above: the use of drones at external borders

Just as integrated border surveillance systems, drones deployed at and beyond external frontiers and increasingly integrated into the European borders network can substantially contribute to achieving situational awareness in the pre-frontier areas. They do so by engaging in the intersections between visibility and action, where the heart of digital patrolling lies, and play a pivotal role in fostering a computer-mediated perception of space and events.¹⁰⁴

The deployment of drones for borders and migration control is perhaps among the most interesting cases of military-style UAVs being used in the civilian world, a change of domain that Luisa Marin calls a real *metamorphosis*.¹⁰⁵ As in the case of military surveillance technologies (upon which critical literature is focusing the most), “sightless” vision enabled here by real-time monitoring through radars, cameras,

⁹⁹ See Carling, ‘The Merits and Limitations of Spain’s High-Tech Border Control’.

¹⁰⁰ In 2011, the SIVE was actually responsible for only one-sixth of the rescue operations: most alerts on distressed boats continued to come from private persons, aid workers, individuals on other boats, or from means deployed by Frontex under operation Indalo. Unfortunately, more recent comparable data could not be found. According to the APDHA (Asociación Pro Derechos Humanos de Andalucía), this would represent further evidence that the SIVE is ineffective in achieving its objectives, while on the other hand, it is causing greater suffering to migrants who are pushed towards more dangerous routes. Furthermore, showing concern about the number of apparently unidentified shipwrecks, in 2020 several civil society associations as well as the Canary Islands Government Delegation asked the *Guardia Civil* to produce a «concrete, clear and forceful» report on the functioning of the SIVE and its technical status. See Asociación Pro Derechos Humanos de Andalucía, ‘Derechos Humanos En La Frontera Sur 2021’, 51; European Union Agency for Fundamental Rights, *Fundamental Rights at Europe’s Southern Sea Borders*, 59; González, ‘La Guardia Civil Declara “Información Reservada” Los Fallos de Los Radares Para Detectar Pateras En Canarias’.

¹⁰¹ In addition, it is also reported that migrants throw their engines overboard after leaving Moroccan waters and wait until they are spotted by the SIVE – hoping to be rescued and not refouled. Asociación Pro Derechos Humanos de Andalucía, ‘Derechos Humanos En La Frontera Sur 2021’, 53; Fisher, ‘Situating Border Control’, 73.

¹⁰² See Chapter 4.

¹⁰³ Fisher, ‘Situating Border Control’, 71.

¹⁰⁴ Dijkstra, *Borders as Infrastructure: The Technopolitics of Border Control*, 103.

¹⁰⁵ Marin, ‘The “Metamorphosis” of the Drone’.

and impressive data-processing capacities do not serve to simply observe objects, but to target them while being able to act in advance on processes and events.¹⁰⁶

Furthermore, drones should be understood as particularly pro-active data collection technologies, versatile enough to serve both as security, humanitarian, environmental, and law enforcement support tools.¹⁰⁷ Through these data, drones assist in detection and tracking operations that public agents would otherwise carry out undertaking border control functions.¹⁰⁸

While it may not be easy to study the exact functions of drones operated for digital patrolling due to limited access to detailed information about the type of aircraft both because of confidentiality for commercial and for security reasons, gaining an overview of the significant advancements in this field can provide a general understanding of the scope of this phenomenon. In the European Union, the opportunity to fund research programmes on drones for border surveillance has been explored since the early 2000s,¹⁰⁹ and their deployment can be deemed considerable at least since 2016. Today, although they do not directly own UAVs, the three European Agencies Frontex, EMSA and EFCA (the European Fisheries Control Agency) lease drone services provided by private companies to the Member States, a process facilitated by inter-agency agreements to share reconnaissance capabilities – including, of course, the use of drones.¹¹⁰

Already in 2017, EMSA established the provision of drone services supporting the Member States' coast guard activities. A pilot project followed, with the involvement of Frontex, aimed at creating operational and technical synergies between different European Coast Guards and the three European agencies.¹¹¹ On that occasion, Greece, Italy, and Spain were identified as privileged host States: the joint deployment of Remotely Piloted Aircraft Systems coordinated by EMSA and of Fixed Wings Aircrafts managed by Frontex for patrol purposes was acclaimed as a successful example of interagency cooperation.

Again in 2017, a pilot was conducted under the framework contract known as Frontex Aerial Surveillance Services (FASS); in the following months, support was also extended to the Balkans, Aegean Sea, Black Sea, Slovakia, Poland, southern Portugal, and Denmark, as well as to joint operations such as Themis and Poseidon.¹¹² Moreover, the FASS leased aircrafts were used to bring real-time data to the EUROSUR Fusion Services.¹¹³

Currently, EMSA retains a fleet of various types of drones that are lent free of charge to the Member States to support coastguard monitoring in sea areas surrounding the European Union, with an

¹⁰⁶ Csernaton, 'Constructing the EU's High-Tech Borders', 181; Follis, 'Vision and Transterritory', 10–11.

¹⁰⁷ Loukinas, 'Drones for Border Surveillance', 2.

¹⁰⁸ As Georgios Glouftisios and Panagiotis Loukinas show, drone surveillance ability to detect and track deeply reflects the two main rationales that inform the *Kinopolitics* as described by Thomas Nail: it is the politics of movement, based both on the theory and analysis of social motion. The main idea is that societies should be primarily understood as «regimes of motion», rather than as static entities. From here, Nails derives a «political theory of movement», providing a theoretical framework stressing the primacy of motion and questioning stasis as the ontological starting point. See Glouftisios and Panagiotis, 'Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision'; Marin and Krajčiková, 'Deploying Drones in Policing Southern European Borders', 103; Nail, 'Kinopolitics: Borders in Motion'.

¹⁰⁹ Csernaton, 'Constructing the EU's High-Tech Borders', 185.

¹¹⁰ Loukinas, 'Drones for Border Surveillance', 8; Peter and Jo, 'Crossing A Line. The Use of Drones to Control Borders'.

¹¹¹ Frontex, EMSA, and EFCA, 'Pilot Project "Creation of a European Coastguard Function" – Final Report'.

¹¹² Council of the European Union, 'Frontex Annual Activity Report 2017 - 10525/18'; Frontex, 'Answer to the Written Question E-003553/2019'; Monroy, 'Border Drones (Part 1): Unmanned Surveillance of the EU's External Borders by Frontex'.

¹¹³ However, information on the specific aircraft used within the framework of FASS is considered commercially confidential and therefore not made public. See Frontex, 'Answer to the Written Question E-003553/2019'; Frontex, 'Written Question P-2306/20: Blocking Real-Time Position Display for Frontex Assets'.

EU or European Free Trade Association (EFTA) country serving as a starting point for flights.¹¹⁴ The drones now in use are mainly aimed at general maritime surveillance, or, in some cases, pollution or emissions monitoring. According to the Agency Outlook published for 2022, EMSA is committed to continue offering Remotely Piloted Aircraft System (RPAS) services to Member States and EU agencies to support all types of authorities with responsibility at sea.¹¹⁵ Moreover, the Agency states that it will continue to work on developing multipurpose regional services to facilitate the sharing of operational capabilities among neighbouring coastal States using RPAS, whose capability will be extended.

In 2019, EMSA records indicate that Greece was offered remote-controlled surveillance aircraft for a total of 155 hours of flight operation. The intended users were both the Hellenic Coast Guard and Frontex.¹¹⁶ Within the multipurpose framework outlined, the fact that drones are leased to the same national and European agencies in charge of patrolling maritime borders makes it extremely daunting to verify to what extent the deployment of RPAS remains strictly within the limits of the objectives set out by EMSA.

On the other edge of the Mediterranean, Spain is currently making extensive use of EMSA's drones, mainly with the purpose of containing pollution at sea, facilitating SAR operations, and of enhancing maritime surveillance – in partial overlap with the objectives pursued by the SIVE.¹¹⁷ According to an infographic produced by the *Guardia Civil*, already in 2008, UAVs were deployed under the framework of the SIVE.¹¹⁸ However, it remains rather unclear how these vehicles were integrated into the system, while no information could be found on their number and deployment areas.

Unlike EMSA, Frontex can only deploy drones, airborne surveillance technologies or other assets for detection and tracking purposes in the territorial waters of EU Member States on the basis of an agreement reached with each country. However, these restrictions do not apply to surveillance operations in the pre-frontier area:¹¹⁹ in that case, as evidence of the extraterritorial tension that characterises Frontex's operations, the initiative lies with the Agency – regardless of States' involvement.¹²⁰

If areas of shadows and secrecy persist with regard to the deployment of drones by EU Agencies, inscrutability on digital patrolling increases further at the national level. Once again, both Greece and Spain provide excellent examples. As is known, the border along the river Evros is today a military exclusion zone, where there are «cameras, searchlights, night vision and sensors everywhere»¹²¹ and from which it is almost impossible to obtain information other than that provided by the Ministry of Interior. Several NGOs have complained about a “blackout of information” from the area, where researchers, human rights activists, and humanitarian personnel have increasingly restricted access. Also in Spain, *no-go-zones* proliferate around particularly violent border areas, such as those marked by the high barbed-

¹¹⁴ Peter and Jo, 'Crossing A Line. The Use of Drones to Control Borders', 17.

¹¹⁵ European Maritime Safety Agency, 'EMSA Outlook 2022'.

¹¹⁶ European Maritime Safety Agency, 'RPAS Operations'.

¹¹⁷ European Maritime Safety Agency, 'RPAS Drone Flights Get Underway in Spain to Assist SASEMAR in Its Search and Rescue and Pollution Monitoring Operations'; European Maritime Safety Agency, 'EMSA Outlook 2022'.

¹¹⁸ Casas-Cortes, Cobarrubias, and Pickles, “Good Neighbours Make Good Fences”, 7.

¹¹⁹ Follis, 'Vision and Transterritory', 8.

¹²⁰ Glouftisios and Panagiotis, 'Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision'.

¹²¹ Euro-Med Monitor, 'EU Use of Hi-Tech to Deter Asylum Seekers Is Condemnable and Dangerous'.

wire barriers in Ceuta and Melilla.¹²² In both cases, these are areas where digitised patrol strategies are being experimented with remarkable speed and urgency, often intersecting with well-known border control methods that may be less digitalised, but certainly no less violent.

Despite the limitation of first-hand information from the border, there is evidence that drones – together with other surveillance technologies such as night-vision goggles, thermal cameras, laser rangefinders and pulse radars surface – are being tested and used in the Evros region.¹²³

Already in September 2020, in response to a tense situation with Turkey where migrants were being used as a political weapon, the Greek Ministry of Civil Protection declared that the armament fortification of Evros would be strengthened with the deployment of four drones for aerial surveillance and fifteen thermal cameras to detect migratory movements at night.¹²⁴ If in Greece the use of UAVs for border surveillance purposes is primarily attributable to Frontex and EMSA, the role of national authorities should not be underestimated: even within the framework of the European Union, competencies in the field of border security and control remain in fact deeply rooted to the exercise of State sovereignty. Consequently, as UAVs are available, national authorities gradually expand their claims and competencies on their use.

As further evidence of a major convergence of resources and priorities at the national and European levels on the digitalisation of patrolling, it should be recalled that national programmes designed within the framework of EU funds such as the Internal Security Fund (ISF) are extremely relevant to this analysis, as they clearly call for a turn towards digitalised patrol systems systematically integrating drones, aiming at strengthening preventive policing and containing migrants before the EU's external borders.¹²⁵ With regards to Greece, for example, the projects funded under the Internal Security Fund (ISF, 2014-2020)¹²⁶ emphasized the importance of the development and installation of the Maritime Borders Surveillance System, together with the extension of an automated surveillance system at the Greek-Turkish border:¹²⁷ this project aimed to ensure a «shift from a man-based to a technologically

¹²² In the two Spanish enclaves, a new “frontera inteligente” is currently being installed, an automated entry and exit control system that envisages - among other provisions - the use of facial recognition cameras in border areas. It will enable a more pervasive tracking system of persons that is raising serious alarms from a fundamental rights perspective. See Frontera Digitales, ‘La Implantación de La Inteligencia Artificial En Frontera y La Vulneración de Derechos’.

¹²³ Molnar, ‘Territorial and Digital Borders and Migrant Vulnerability Under a Pandemic Crisis’, 53.

¹²⁴ See e-evros.gr, ‘Έβρος: Με Drones, Θερμικές Κάμερες & Θωρακισμένα Τζιπ Οχυρώνουν Τα Σύνορα’. Interestingly, the Evros border area is increasingly digitally patrolled also from the Turkish side, where drones are used at least since 2019: while for the majority of cases these patrolling activities take place in a coordinated way with Greece, in moments of political tensions it is not rare for the Turkish Armed Forces to publish online video collected through drones showing violent push backs carried out by the Greek Coast Guard, to report such abuses. See e-evros.gr, ‘Έβρος: Φράχτη Εμείς, Drones Οι Τούρκοι’ and “Drone footage shows Greece pushing back asylum seekers in Aegean – 05.04.2021”, available at: <https://www.yenisafak.com/en/video-gallery/news/drone-footage-shows-greece-pushing-back-asylum-seekers-in-aegean-2206349>.

¹²⁵ For example, during the 2007-2014 financial period, the European Borders Fund mainly supported the purchase and use of coastal patrol vessels capable of performing at different speed levels – with a preference for very high-speed coastal patrol vessels (VHSCPVs) and high-speed boats for special operations (HSBSOs), the latter being particularly useful for urgent patrols at night. See External Borders Fund, ‘Annex 1-Multi Annual Programme’.

On the preventive turn of Greek border policies under the ISF, see Human Rights Watch, ‘Greece: New Biometrics Policing Program Undermines Rights Risk of Illegal Racial Profiling and Other Abuses’.

¹²⁶ For a compendium of key documents on national legislation for the use of ISF funds, see (only in Greek): [https://www.vdeap-gr.translate.goog/isf-b-v-tameio-esoterikis-asfaleias-synora-kai-theoriseis/nomiko-pleio1/? x tr sl=el& x tr tl=it& x tr hl=it& x tr pto=sc](https://www.vdeap.gr.translate.goog/isf-b-v-tameio-esoterikis-asfaleias-synora-kai-theoriseis/nomiko-pleio1/? x tr sl=el& x tr tl=it& x tr hl=it& x tr pto=sc)

¹²⁷ Greek Ministry of Citizen Protection, ‘National Programme ISF - Identification of the Designated Authorities’, 36.

assisted surveillance system, with the contribution of Frontex». ¹²⁸ More broadly, different national strategies on the issue set the priority of investing relevant European funds for the deployment of «modern technological equipment, such as mobile scan units, mobile heartbeat detection devices and CCTV camera systems and UAVs» to detect «illegal migrants». ¹²⁹ Similar projects can also be found in Spain, which has actively engaged in several projects on drones financed under the EU 7th Framework Programme for Research, once again proving the influence the Union can have on different policies through funding and research schemes. Among these projects, it is worth mentioning CLOSEYE, a multi-million-euro programme aimed at fostering more transversal cooperation between the *Guardia Civil* officers in charge of managing the SIVE and Frontex personnel. The project, ended in 2017, led to extensive testing of Unmanned Aerial Vehicles to monitor Europe’s maritime borders. ¹³⁰

Furthermore, drones leased by EU Agencies are not the only ones available to patrol national borders. In Greece, at least since 2017, there is in fact evidence of drones being used by the Armed Forces, Police Services, and National Intelligence Services. ¹³¹ According to the written answer given by the European Commission to a request for information by a MEP on the use of ISF by Greece, it is acknowledged that the Greek authorities have been procuring unarmed drones for the surveillance of the sea borders in the East Aegean before 2019. ¹³² In 2020, the Hellenic Police published a (controversial) procurement contract amounting to €136.000. ¹³³ it provides for the purchase of two drones dedicated to border patrols under the framework of the HEFESTOS project (Hellenic anti-Fraud Equipment and relevant training for Strengthening the Operability against Smuggling). ¹³⁴ A few months later, the Western Greece Region concluded the contracts for the procurement of UAVs and other modern equipment for its Security Forces, serving various purposes that range from environmental and civil offence detection to smuggling prosecutions and area surveillance. ¹³⁵ In addition, according to a November 2021 release, the Greek Navy purchased five unmanned helicopters for maritime security and

¹²⁸ Greek Ministry of Citizen Protection, ‘National Programme ISF - Identification of the Designated Authorities’. These measures have led to increasingly remote management of surveillance aimed at preventing mobility and taking place also through the installation – according to media reports – of cameras and radars able to “see” up to 15 kilometres into Turkish territory. e-evros.gr, ‘Φράχτης Έβρου: Τέσσερα Τοπικά & 2 Περιφερειακά Επιχειρησιακά Κέντρα Της ΕΛ.ΑΣ Θα Τεθούν Σε Λειτουργία’.

¹²⁹ Reference is here to the national programme defined by the Greek Ministry of Citizen Protection on the allocation of the Internal Security Fund (ISF, 2014-2020). Greek Ministry of Citizen Protection, ‘National Programme ISF - Identification of the Designated Authorities’, 18.

¹³⁰ Marin, ‘The “Metamorphosis” of the Drone’.

¹³¹ Despite falling beyond the scope of our analysis, it should be mentioned that it is worth mentioning that the deployment of drones for monitoring migrant populations is increasing also over migrants and refugees’ camps, across the Greek mainland and islands. At the heart of this security system is “Centaur”, an integrated digital system of electronic and physical security management placed inside and around the targeted facilities, using cameras and motion analysis algorithms (and fully funded through the EU’s Recovery and Resilience Facility to support the digital transition in Greece). Various media and NGO sources report the presence of seven patrolling drones, magnetic gates with integrated thermographic cameras, x-ray machines, and security cameras being installed at the entry and exit points of the camps. See Ministry of Digital Governance - Hellenic Republic, ‘Αρ.Πρ: 90026’; See also Emmanouilidou and Fallon, ‘With Drones and Thermal Cameras, Greek Officials Monitor Refugees’; Geese and Marquardt, ‘Letter to the Commission on the Surveillance Technology Centaur, Hyperion and RAE Used in the MPRIC on the Greek Islands and Their Funding Through the RRF’.

¹³² Lagos, ‘Question for Written Answer E-004115/19 to the Commission Ioannis Lagos (NI)’.

¹³³ Ελληνική Δημοκρατία Υπουργείο Προστασίας Του Πολίτη Γενική Διεύθυνση Οικονομικών Υπηρεσιών, ‘Α/Α Ε.Σ.Η.Δ.Η.Σ. : 90188’.

¹³⁴ See also Chelioudakis, ‘Greece: Technology-Led Policing Awakens’; Homo Digitalis, ‘COVID-Tech: COVID-19 Opens the Way for the Use of Police Drones in Greece’.

¹³⁵ Περιφέρειας Δυτικής Ελλάδας, ‘Drones Και Άλλος Σύγχρονος Εξοπλισμός Στα Σώματα Ασφαλείας Από Την Περιφέρεια Δυτικής Ελλάδας – Επιχειρησιακός Κόμβος Πολιτικής Προστασίας Το Αεροδρόμιο Του Επιταλίου’.

surveillance.¹³⁶ Investments in the digitisation of patrolling through drones are therefore becoming conspicuous also at the national level.

In Spain as well, there is evidence that national authorities are turning to drones for border patrols. The first attempts to deploy UAVs to patrol Ceuta and Melilla, integrating them into an artificial intelligence surveillance system named *Surveiron*, date to 2017.¹³⁷ However, the plan was soon abandoned because of the damages caused by the strong easterly wind Levante. In 2020, the *Guardia Civil* declared once again the intention to include drones in the SIVE network,¹³⁸ resulting two years later in the emergency purchase of four UAVs to be used over Ceuta and Melilla that seem this time able to defy the wind.¹³⁹

The increasing relevance of drones as a substitute for other modes of patrolling to achieve enhanced situational awareness, detection and tracking capabilities discussed so far thus entails significant changes in the understanding of patrolling itself. Perhaps most relevant, as with integrated border surveillance systems, is the act of making visible and governable areas that were previously unreachable – far beyond the borders. Once again, the resulting remote-control logic challenges the rules of patrolling.¹⁴⁰

5. Information management and risk analysis: beyond filtering and pre-empting mobility

The two further capability areas which – through increased levels of technological mediation – make digital patrolling possible are information management and risk analysis. These capability areas are so deeply intertwined in different technologies that it seems pointless to delve into different patrolling tools or systems separately, as in the previous paragraphs.

First, data exchange and circulation are at the heart of an increasingly externalised and outsourced management of borders and people’s mobility, with a growing relevance accorded to third countries agencies as well as to private companies.¹⁴¹ To provide a few examples, this trend clearly affects the use of drones, as well as the EMSA’s vessel detection service provided in the framework of the EFS, the routine satellite surveillance of maritime flows in the pre-frontier area and in third countries, and the use of data mediated by EUROSUR. To provide an account of the scale of the phenomenon, it should be mentioned that – according to a report published by Statewatch and discussed by Glouftsiotis and Panagiotis – Northern African countries will soon be able to connect via satellite communication technologies to the NCCs of seven Member States, so that it will be possible to exchange a large amount of information on migration.¹⁴² Such developments certainly do not seem unlikely in light of the current circumstances. Consider that several EUROSUR contact points with Frontex headquarters in Warsaw

¹³⁶ These are particularly advanced models known as *New Alpha 900*, characterised by the fact that all its critical systems are redundant, a feature that – according to the producing company Altus LSA – makes them particularly suitable for target acquisition and reconnaissance operations. See McNabb, ‘Unmanned Helicopters: Alpha 900 Flying with Greek Navy’.

¹³⁷ See Testa, ‘Así Funcionan Los Drones Que El Gobierno Planea Usar Para Vigilar La Frontera Española’.

¹³⁸ See Carrasco, ‘Vigilancia de Fronteras: Hacia El Blindaje Tecnológico’.

¹³⁹ See Infodron.es, ‘La Guardia Civil Compra de Urgencia Drones Para Detectar Asaltos a Las Vallas de Ceuta y Melilla’.

¹⁴⁰ Tazzioli and Walters, ‘The Sight of Migration: Governmentality, Visibility and Europe’s Contested Borders’.

¹⁴¹ On the privatisation process and the related accountability concerns, see Valdivia et al., ‘Neither Opaque nor Transparent’.

¹⁴² Glouftsiotis and Panagiotis, ‘Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision’.

already exist not only in the Member States, but also in various North African countries – in particular Morocco, Algeria and Libya – where the data collected by satellite Earth stations, coastal surveillance stations, and remote surveillance platforms are enabled to converge.¹⁴³ It should also be borne in mind that part of the information shared by third countries confluences directly in the National Situational Pictures thanks to agreements over which there is no substantial form of public control, as they are often kept under the veil of secrecy.

Moreover, the exchange of satellite surveillance information under the framework of the EU's Copernicus space programme¹⁴⁴ with third countries' authorities clearly shows how data sharing allows fragmenting and externalising patrolling activities, perfecting mechanisms for filtering *undesirable* mobility and strengthening surveillance of key areas of interest. As far as Frontex is concerned, cooperation with third countries typically takes place through working arrangements in which information exchange and risk analysis are particularly relevant:¹⁴⁵ through these provisions, the data collected by drones and other tools deployed for digital patrolling in the pre-frontier area can be made available to authorities of neighbouring third countries. Furthermore, such agreements are not required if the exchange of communications takes place, in accordance with the Law of the Sea, with the nearest Maritime Rescue Coordination Centre (MRCC).¹⁴⁶ The importance of Frontex's shift towards a risk management approach to border control, which focuses on organizing interventions from a distance to secure against «unknown futures», becomes thus evident in how it facilitates the digitalization of patrolling.¹⁴⁷

Additionally, mainly through the Maritime Simulation Module Service (MSMS), the images captured through the different digital patrolling tools converge on EUROSUR as well. The MSMS basically allows producing predictions on suspicious or abnormal behaviours concerning the movement of tracked vessels.¹⁴⁸ This is made possible by various ship reporting systems, such as the Automated Identification System (AIS) and algorithmic analysis developed by EMSA, which allow events taking place before the border to be identified and made visible (and, once again, potentially governable).¹⁴⁹

These considerations are even more relevant if read within the discourse on deterrence and prevention that informs much of the capability area of information management, under the umbrella of digital patrolling. Frontex's attention on the deployment of preventive surveillance operations goes in this same direction: the CPIP itself, resulting from the fusion of data from very different sources, locates in fact the present within an anticipatory matrix crosscutting political, bureaucratic and legal considerations.¹⁵⁰ This approach defines border policies basing on potential flows, regardless of territorial

¹⁴³ See the infographic produced by Frontex and reported in Monroy, 'Border Drones (Part 1): Unmanned Surveillance of the EU's External Borders by Frontex'.

¹⁴⁴ Copernicus is the EU's Earth observation programme, managed by the Commission in partnership with the Member States, the European Space Agency (ESA), and other centres and organisations. It collects vast amounts of global data from satellites and ground-based, airborne, and seaborne measurement systems. See: <https://www.copernicus.eu/en/about-copernicus/copernicus-detail>. See also Zaiotti, *Externalizing Migration Management*.

¹⁴⁵ Marin and Krajčiková, 'Deploying Drones in Policing Southern European Borders', 119.

¹⁴⁶ See Glouftisios and Panagiotis, 'Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision'.

¹⁴⁷ See Amore, *The Politics of Possibility*, 153.

¹⁴⁸ Monroy, 'Border Drones (Part 1): Unmanned Surveillance of the EU's External Borders by Frontex'.

¹⁴⁹ See Glouftisios and Panagiotis, 'Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision'.

¹⁵⁰ Csernaton, 'Constructing the EU's High-Tech Borders', 180; Walters, 'Live Governance, Borders, and the Time-Space of the Situation', 807.

demarcations, while, focusing on general patterns or routes, fosters an idea of migration that leaves behind individual rights.¹⁵¹

Also in relation to the operation of SIVE, the progressive involvement of different actors and States in border surveillance and migration containment seems unequivocal. Through growing digitalisation, the geographical extent of the area covered by the SIVE has in fact increased over the years, stretching well beyond EU borders. As an example, since 2006, the system includes coordination centres in Mauritania, Senegal, Guinea, and Cape Verde aimed at promoting the construction of interoperability mechanisms and information exchange patterns in the pre-frontier area, in line with policy objectives pursued also at the European level – often with significant support by Frontex.¹⁵² Of course, cooperation on digital patrolling through the SIVE is always complemented by “old-fashioned” forms of containment, based on pure border externalisation policies: as the ethnography carried out by Fisher in 2017 shows, the work of the *Guardia Civil* officers operating the SIVE significantly depends on the «clean up» operations conducted by their Moroccan counterparts.¹⁵³

In Greece, similar dynamics and preventive efforts can be isolated regarding the rapid evolution of the Integrated Border Management System, which comprises the Surveillance Operational Centre (SOC): the latter keeps different sections of the border under surveillance at the same time, while communicating with patrol units by simultaneously analysing real-time data from different surveillance sources. The SOC is connected to the Greek National Coordination Centre (NCC), which transmits data directly to EUROSUR. According to an interview conducted by Özgün E. Topak, the SOC strength is, on the base of risk analysis considerations, to monitor the situation at the borders while at the same time sending patrol units exactly where migrants are approaching.¹⁵⁴ This sounds like a particularly effective overview of how the capability areas underlying the digitalisation of patrolling are intertwined and a deterrence effect is sought after.

The same deterrent effect, according to relevant interviews conducted by Martina Tazzioli, is at the core of the functioning of monitoring systems such as EUROSUR, expected to discourage illegal border crossings.¹⁵⁵ Paradoxically, deterrence is largely presented as evidence of the humanitarian vocation of borders digitalisation: by drastically increasing the probability of being detected (and intercepted), EUROSUR would reduce departures, thus decreasing the number of deaths at the external borders of the Union.

It could be argued that the pursuit of deterrence has always been central to border patrols regardless of the systems used for this purpose, but it is opportune to note that, even in terms of deterrence, the digitalisation of patrols entails distinctive features. In fact, if in his ethnography on the patrolling of “clandestine migration” in the Euro-African borderlands Ruben Andersson points out that patrols tend to be highly visible since the view of the police serves as a deterrent,¹⁵⁶ things change with the shift to digital patrolling. In a remotely controlled pre-frontier space filled with «technological deterrents»¹⁵⁷

¹⁵¹ Jeandesboz, ‘European Border Policing: EUROSUR, Knowledge, Calculation’, 3.

¹⁵² See European Union Agency for Fundamental Rights, *Fundamental Rights at Europe’s Southern Sea Borders*, 59; Markard, ‘The Right to Leave by Sea: Legal Limits on EU Migration Control by Third Countries’, 612.

¹⁵³ Fisher, ‘Situating Border Control’, 72.

¹⁵⁴ Topak, ‘The Biopolitical Border in Practice’, 826.

¹⁵⁵ Tazzioli, ‘Spy, Track and Archive’, 11.

¹⁵⁶ Andersson, ‘Hunter and Prey: Patrolling Clandestine Migration in the Euro-African Borderlands’, 128.

¹⁵⁷ Csernaton, ‘Constructing the EU’s High-Tech Borders’, 178.

capable of collecting, exchanging, and assembling the information in close-to-real time, making patrolling visible through fences or patrol troops just ceases to be relevant. On the contrary, it is precisely the «double invisibility» – expression used by Loukinas to describe drone patrols – that becomes the main surveillance tool.¹⁵⁸ This would result in a sort of «chilling»¹⁵⁹ or self-disciplining effect, that favours the normalisation of pervasive levels of surveillance to discourage and deter even legitimate behaviours, such as reaching the EU borders to seek international protection. In this sense, digital patrolling would be even more pervasive than traditional patrolling.

However, it cannot be ignored that these same effects, explicitly pursued also in Spain and Greece, are largely ungrounded. If a lesson can be drawn from studies on migration and border control policies, it is probable that migrants would not be deterred no matter how violent and dangerous the terrain would become.¹⁶⁰ Simply, in most cases – as studies examining the autonomy of migration clearly prove – people are pushed towards more hazardous and dangerous routes: the incorrigibility of migration addresses precisely the appropriation and reinvention of strategies of movement despite structural changes in border policies.¹⁶¹

On the other hand, it is precisely these strategies of movements – such as the choice of route, the point of departure, and the specifics of the means of transport – that become the target of risk analysis, the last dowel of our excursus through the capability areas enhanced by digital patrolling. Once again, the vessel detection service and EUROSUR are particularly relevant. As for the former, it is based on the processing of archival data to locate areas of interest identified through risk analysis that account, for instance, for patterns and trends in illegal immigration and cross-border crimes.¹⁶² As already mentioned, these calculations are extended along geographically dispersed areas, beyond the jurisdiction of Member States.¹⁶³

Similarly, EUROSUR – through its operational maps – allows collecting information coming from third countries and the pre-frontier area to subsequently fragment the external border of each Member State into more manageable “border sections”, assigning them a different level of risk: its dynamic situational pictures are formed by red, yellow and green lines that overlap with the external frontiers of the EU reflecting the migratory risk on different border sections.¹⁶⁴ Such evaluations are based on an elaboration of past events and on possible future scenarios concerning the migratory risk.¹⁶⁵ Besides assessing the risk in border areas, EUROSUR reinforces external borders through the classification or categorisation of groups of people:¹⁶⁶ EMSA drones, for instance, can gather data on the number of people or the activities taking place on a detected vessel.¹⁶⁷

¹⁵⁸ Loukinas, ‘Surveillance and Drones at Greek Borderzones’, 15.

¹⁵⁹ Marin and Krajčičková, ‘Deploying Drones in Policing Southern European Borders’, 118.

¹⁶⁰ van Reekum, ‘Patrols, Records and Pictures’, 629.

¹⁶¹ Tazzioli, ‘Spy, Track and Archive’, 4.

¹⁶² See European Commission, ‘Annex to the Commission Recommendation Adopting the Practical Handbook for Implementing and Managing the European Border Surveillance System (EUROSUR Handbook) - C(2015) 9206 Final’, 11.

¹⁶³ Glouftsiou and Panagiotis, ‘Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision’.

¹⁶⁴ Tazzioli, Martina, Walters, William (2016), op. cit., p.456.

¹⁶⁵ Tazzioli, ‘Spy, Track and Archive’, 9.

¹⁶⁶ See Latonero and Kift, ‘On Digital Passages and Borders: Refugees and the New Infrastructure for Movement and Control’, 2.

¹⁶⁷ Loukinas, ‘Surveillance and Drones at Greek Borderzones’, 8.

Risk analysis in the context of digital patrolling thus goes in the direction of classifying people into risk categories, proceeding in the opposite direction to their identification.¹⁶⁸ Consequently, even the *potentiality* of having access to procedures and individual assessments in accordance with fundamental rights seems jeopardised or directly bypassed through digital patrolling.

At the national level, different technological innovations seem to point exactly in the same direction. In Greece, for example, the national programme on the ISF significantly supported the purchase of hardware and software for risk assessment analysis aiming at preventing illegal entries at the borders. In the Spanish SIVE, risk evaluations play a major role as well: when a boat is about 5 kilometres from the coast, the control centre is in fact able to estimate the number of people on board, the vessel's course, and the expected time of arrival. It thus assigns a risk score to the vessel based on considerations of the governability of the migratory event (not necessarily, for example, on the condition of vulnerability of the people on board). Information from different sources is thus fused, processed according to risk criteria, and evaluated before being notified to patrol units (helicopters, boats, or other vehicles) or other bodies (Maritime Rescue, Red Cross, National Police Corps, etc.) that are ordered to intercept and/or rescue persons likely to enter Spanish territory without authorisation.¹⁶⁹

In conclusion, increased levels of technological mediation in the areas of information management and risk analysis are playing a key role in the digitalization of patrolling. The exchange of data and surveillance information between different countries, EU Agencies, and third-party companies has facilitated the fragmentation and externalization of patrolling activities, thereby strengthening surveillance mechanisms informed by a tension towards deterrence and prevention of arrivals.

6. Divergent logics, multipurpose technologies, and remoteness

By examining European and national case studies through the capability areas giving shape to digital patrolling, a number of emerging trends and insights into evolving forms of border control has so far been identified – and is worth further examination.

First of all, it has been highlighted the substantial ambivalence and divergent logics underlying and justifying digital patrolling. This is particularly the case concerning the use of drones for border and pre-frontier patrols, where the discussion unfolds around the distinction between so-called “security drones” and “humanitarian drones”.¹⁷⁰

¹⁶⁸ Of course, the notion of “irregular migrant” is often vague and tends to be extended to asylum seekers trying to reach the Member States’ territory: before the border, in fact, the different statuses do not exist straightforwardly and it is extremely difficult for asylum seekers to be recognised as such within the “mixed flow”. Peoples and Vaughan-Williams, *Critical Security Studies: An Introduction*, 141.

¹⁶⁹ See Instituto Universitario de Investigación sobre Seguridad Interior, ‘La Gestión de Las Fronteras Exteriores de La Unión Europea’, 42.

¹⁷⁰ Despite it falls beyond the scope of this study, it is worth mentioning that humanitarian drones have been used both for search and rescue missions in operations such as Mare Nostrum and by NGOs. This is the case, for example, of the drones deployed in 2016 in the central Mediterranean by the Maltese NGO Migrant Offshore Aid Station (MOAS) to conduct SAR operations. There have also been attempts to promote the testing of semi-automatic systems using Earth Observation data to enhance surveillance and support in SAR operations, which, however, posed severe political and legal problems related to the use of the data collected, See Csernatoni, ‘Constructing the EU’s High-Tech Borders’, 184; Loukinas, ‘Drones for Border Surveillance’; Marin, ‘The Deployment of Drone Technology in Border Surveillance. Between Techno-Securitization and Challenges to Privacy and Data Protection’.

On such ambivalence and mixture of rationales lies what Sanja Milivojevic describes as «the drone dilemma» – a perspective that can be generalised to digital patrolling more broadly.¹⁷¹ For example, it is argued that on the one hand drones could play a key role in saving lives at sea – for example, if loaded with water or life jackets;¹⁷² on the other hand, as Marin and Follis point out, even when drones are deployed under a humanitarian rationale, the successful arrangement of rescue operations should not be given for granted just because increased situational awareness, tracking and targeting capabilities allowed for the identification of a vassal in distress.¹⁷³

Such operations in fact always require the deployment of additional resources that cannot be given for granted. Critics from both the academic and humanitarian spheres have indeed raised serious concerns that even so-called humanitarian drones integrated into border surveillance systems would serve not so much to rescue, but to *hunt* migrants and potential asylum seekers, or at least to improve reactions capacities against unwanted mobility by strengthening the scope of border intelligence work.¹⁷⁴ What can be argued with certainty, is that the digitalisation of patrols is not preventing people from dying in border-crossing situations.¹⁷⁵

Furthermore, the move to aerial surveillance at the expense of naval patrols has been condemned as an attempt to evade the obligations and responsibilities under international law to which vessels are subject, but which do not currently extend to drones.¹⁷⁶ The digitalisation of patrolling, therefore, could give rise to conflicting justifications and, at the same time, emphasise accountability gaps.¹⁷⁷

Similar considerations have been raised about the EUROSUR's contribution to rescue operations. There is in fact evidence that specific practices and timing of data-entering into the system are often incompatible with rescue operations and mainly useful for generating risk rating trends and analytics.¹⁷⁸ Building on this, critical literature has largely depicted humanitarian objectives in border digitalisation as a fig leaf, a pretext to justify and make politically acceptable the integration of drones and other patrolling systems into integrated border management schemes, thus further consolidating the securitisation of European borders.¹⁷⁹

However, coming to clear-cut conclusions on the matter relying on empirical evidence is by no means straightforward, also due to the very multipurpose approach that characterises the digital patrol means analysed so far. The lines between digital patrolling operations for security reasons, to dismantle

¹⁷¹ Milivojevic, 'Re-Bordering the Peripheral Global North and Global South', 87.

¹⁷² See Loukinas, 'Surveillance and Drones at Greek Borderzones', 12.

¹⁷³ Follis, 'Vision and Transterritory', 11; Marin, 'The Humanitarian Drone and the Borders', 129.

¹⁷⁴ See Milivojevic, 'Re-Bordering the Peripheral Global North and Global South', 89; Marin, 'The Humanitarian Drone and the Borders'.

¹⁷⁵ See Sattar, 'Evidence of Abuse by Greece: Migrants Found Frozen To Death'.

¹⁷⁶ Oliveira Martins and Jumbert, 'EU Border Technologies and the Co-Production of Security "Problems" and "Solutions"', 7; On this issue, see also the expert's interviews reported in Howden, Apostolis, and Loewenstein, 'Once Migrants on Mediterranean Were Saved by Naval Patrols. Now They Have to Watch as Drones Fly Over'.

¹⁷⁷ A particularly relevant example in this sense is the maritime EUNAVFOR MED Operation Sophia which – despite not being a mission with a humanitarian mandate – by the mere fact of respecting the International Law of the Sea helped to save more than 45 000 lives between 2015 and spring 2019, when it was replaced by Operation Irini, with the mandate to monitor the implementation of the UN arms embargo on Libya. With Irini, the withdrawal of naval ships was replaced with on-air operations conducted by aeroplanes and drones, apparently resulting in fewer rescues at sea. All this, in a context of clear criminalisation of solidarity, especially against humanitarian NGOs at sea. See Peter and Jo, 'Crossing A Line. The Use of Drones to Control Borders', 22.

¹⁷⁸ Jumbert, 'Control or Rescue at Sea?'

¹⁷⁹ Marin, 'The Deployment of Drone Technology in Border Surveillance. Between Techno-Securitization and Challenges to Privacy and Data Protection'.

trafficking, to facilitate illegal pushbacks, to make SAR operations more efficient, or to help contain maritime pollution are purposely blurred.¹⁸⁰

Furthermore, from the different examples of digital patrolling reviewed, it emerges how the use of multi-purpose tools is often encouraged through efficiency concerns. The purchase and deployment of drones, for example, is often justified by the operational advantage guaranteed by lower personnel costs, greater efficiency and accuracy in terms of tracking and detecting, longer duration, and higher patrolling capacity compared to piloted vehicles, as well as greater ease of patrolling particularly complex or risky areas.¹⁸¹ However, this efficiency is often overstressed in Frontex and EMSA reports, which state that digitalisation could help alleviate all the «various challenges that the EU external border management might face in the coming years»,¹⁸² probably in the attempt to validate the increasingly larger budgets devoted to drones research and leasing activities.¹⁸³ First of all, while digitalisation and smart borders are often presented as almost infallible,¹⁸⁴ it should be recalled that they are persistently subjected to rupture and subversion:¹⁸⁵ for example, drones and satellites' surveillance gaze is not perfectly timely and accurate, uninterrupted, nor removed from human error, and thus does not represent a *panacea* for all patrolling problems.¹⁸⁶ On a second note, it can be agreed that such a narrative at least does not take into account costs and benefits in systemic terms, for example with regards for instance to the profound normative contradictions that the acceleration towards techno-solutionism or the militarization of border security can entail.¹⁸⁷

Here, as Follis rightly points out, the central issue is not necessarily the adoption of military technologies *per se*, but rather the consequent paradigm shift in the nature of border security where migrants are detected and treated as “targets” moving through space – targets that are trackable even beyond the jurisdictional boundaries of EU Member States.¹⁸⁸ For example, being equipped with electro-optical, thermal cameras and maritime surveillance radars, drones used for patrolling are in fact able to follow the route of targeted vessels, collect images and videos, and – apparently – even prevent a cell phone from receiving a signal:¹⁸⁹ the result pursued is first and foremost the decrease in the number of people arriving undetected at European land or sea borders.

A last point worth emphasising is the possibility (or indeed the likelihood) of being «policed at distance».¹⁹⁰ The question is once again on the kind of actions (*i.e.*, the direction in which the enhanced

¹⁸⁰ See Loukinas, ‘Surveillance and Drones at Greek Borderzones’, 7; Koslowski and Schulzke, ‘Drones Along Borders’.

¹⁸¹ Marin and Krajčiková, ‘Deploying Drones in Policing Southern European Borders’, 108; Koslowski and Schulzke, ‘Drones Along Borders’, 306; SESAR, ‘European Drones Outlook Study Unlocking the Value for Europe’.

¹⁸² Frontex, ‘Artificial Intelligence-Based Capabilities for the European Border and Coast Guard Final Report’, 1.

¹⁸³ See Glouftsiou and Panagiotis, ‘Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision’.

¹⁸⁴ See Amoore, ‘Biometric Borders’, 342.

¹⁸⁵ See Everuss, ‘AI, Smart Borders and Migration’; Glouftsiou, *Engineering Digitised Borders: Designing and Managing the Visa Information System*.

¹⁸⁶ Glouftsiou and Panagiotis, ‘Perceiving and Controlling Maritime Flows. Technology, Kinopolitics, and the Governmentalisation of Vision’.

¹⁸⁷ On the effects of border militarisation, see Csernaton, ‘Constructing the EU’s High-Tech Borders’, 178; İşleyen, ‘Technology and Territorial Change in Conflict Settings’, 1089; Koslowski and Schulzke, ‘Drones Along Borders’, 306; Reece and Corey, ‘Border Militarisation and the Re-articulation of Sovereignty’. On techno-solutionism, see Bigo, ‘The (in)Securitization Practices of the Three Universes of EU Border Control: Military/Navy – Border Guards/Police – Database Analysts’; Broeders, ‘The New Digital Borders of Europe’.

¹⁸⁸ Follis, ‘Vision and Transterritory’, 12.

¹⁸⁹ See Marin and Krajčiková, ‘Deploying Drones in Policing Southern European Borders’, 118.

¹⁹⁰ Bigo and Guild, *Controlling Frontiers*, 234.

reaction potential is pointed) that increased situational awareness, detection, tracking, information sharing, and risk analysis capabilities may entail and trigger, how early detection tactics are operated in practice.¹⁹¹

It is not possible here to propose a wide-ranging assessment of the known casuistry, still it suffices to raise a few critical points related to the support that digital patrolling tools or systems might provide in identifying the right moment for an interception at sea – regardless of who will actually carry out such operation.¹⁹² According to the Special Rapporteur’s report mentioned above and to different reports published by human rights organisations, for instance, surveillance drones deployed within the framework of EUROSUR in the Mediterranean can be (and are) used to notify the Libyan coastguard when and where to intercept potential asylum seekers and migrants’ boats, *de facto* helping the coordination of pullback operations from remote and exposing the detected people to terrific violence and human rights violation.¹⁹³

Also in Greece, while it is difficult to prove a direct causality between digital patrolling operations and pushbacks and no Court has yet been seized of the matter, the cases in which this dynamic could be proven are increasing. For example, according to some interviews collected in 2020 and 2021 by the Border Violence Monitoring Network (BVMN), there are cases of people attempting to enter Greece claiming to have seen a drone before being involved in violent and indiscriminate push-back operations, especially along the Evros border.¹⁹⁴ Furthermore, the NGO ProAsyl, reported cases of Greek authorities using digital patrolling tools to locate and push back migrant boats towards Turkish territory.¹⁹⁵ Other reports also claim that the surveillance technology operated by Frontex is used to oversee illegal rejections, arguing that the intersection of technology and human rights violations by the Agency should be further examined.¹⁹⁶

In Spain, the SIVE seems able to push these strategies even further: according to different sources, there is in fact evidence that when the system spots a migrant boat, the alarm is not only notified to the *Guardia Civil* and the *Salvamento Marítimo* in charge of rescue operations, but also to Moroccan patrol boats. If the vessel is located in Spanish waters, the subsequent operation is carried out only in case of distress; however, if the vessel is located in Moroccan waters, the “rescue” operation is carried out regardless of the need for such an operation. Simply, the migrants’ boat is intercepted and pulled back.¹⁹⁷

Despite it can be extremely difficult to collect thick evidence on the issue, it could thus be argued that the fact that digital patrols are also integrated into different forms of pushback operations is somehow a “common secret”.

Furthermore, the *remoteness* amplified by digital patrolling in enabling policy operations at a distance, has several consequences. In Greece, for example, according to Dijkstra et al. the

¹⁹¹ See Bachiller López, ‘Border Policing at Sea’, 2.

¹⁹² See Follis, ‘Vision and Transterritory’, 17.

¹⁹³ Human Rights Council, ‘A/HRC/48/76’; See also Alarm Phone et al., ‘Remote Control: The EU-Libya Collaboration in Mass Interceptions of Migrants in the Central Mediterranean’; Courtois, ‘Le Drone de Frontex “Facilite Les Interceptions et Les Retours En Libye” d’après Des ONG’; Monroy, ‘Border Drones (Part 1): Unmanned Surveillance of the EU’s External Borders by Frontex’.

¹⁹⁴ Border Violence Monitoring Network, ‘If We Had Known, We Would Not Have Come to Thessaloniki. But I Thought We Have Papers, We Have UNHCR Documents, Nothing Will Happen to Us!’

¹⁹⁵ ProAsyl, ‘Pushed Back - Systematic Human Rights Violations against Refugees in the Aegean Sea and at the Greek-Turkish Land Border’, 28.

¹⁹⁶ Habib, ‘The Ongoing Digitisation of Europe’s Borders’.

¹⁹⁷ Fisher, ‘Situating Border Control’, 73.

introduction of new surveillance systems has created a sharp cleavage between Greek agencies and officials working *from the screen* within operational centres on the one hand, and those physically carrying out patrols on the ground on the other.¹⁹⁸ This divide would in itself exacerbate the risks of a divergence between the perception of the situation “remotely” and that “on the ground”, with possible serious consequences from a fundamental rights perspective.

The growing reliance on digital patrolling in fact reduces the number of people who physically encounter migrants. While it can be argued that the limitation of this encounter could minimise episodes of arbitrary violence at the external borders, the consequences of its progressive dehumanisation – also resulting from the reduction of non-pre-vetted travellers to surveillance targets – should not be underestimated. In fact, the resulting “averting” of such encounters, making borders even more unreachable, raises social, political, and legal challenges that further research should address. As Didier Bigo puts it, «dehumanis[ing] border controls» is a significant step in the production of «a structural indifference on the fate of refugees»¹⁹⁹ (and of other people on the move).

7. Concluding remarks

This paper has tried to contribute to the ongoing debate surrounding the digitalisation of EU borders by undertaking a thorough analysis of the various capability areas giving scope to the digitalisation of patrols. By introducing the concept of digital patrolling and articulating its different operative dimensions, this study has aimed to offer new insights into this rapidly evolving field.

Through a review of different case studies at both the EU and national levels, a taxonomy of the different capability areas has been developed, highlighting the various changes in pace that are occurring as a result of digitalisation processes. The in-depth mapping of the patrol systems examined aspires to represent an empirical contribution to the cartography of digital patrolling, which remains, particularly at the national level, a challenging area of study.

Adopting a critical approach and moving beyond the discourse of technological impartiality, this paper has tried to emphasise the importance of contextual factors and the broader *borderwork* in which digital patrols are embedded and intertwined. In particular, attention has been drawn to the changing form of measures to deter and prevent arrivals, hinting at the exclusion and discrimination dynamics arising therefrom, to the progressive expansion of the pre-frontier area covered by digital patrolling and the role of third countries, and to the far-reaching implications of the normalisation of remote control. To conclude, it emerged that the transition towards digital patrolling is not just about «doing the same job better and faster»,²⁰⁰ but involves profound transformations that truly make it a game-changer.

¹⁹⁸ Dijkstra, van Reekum, and Schinkel, ‘Surveillance at Sea’.

¹⁹⁹ Bigo, ‘The Digitalisation of Border Controls and Their Corporate Actors’, 231.

²⁰⁰ Broeders and Dijkstra, ‘Digitizing Identities: Doing Identity in a Networked World’, 242.

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