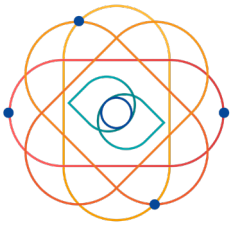
Surveillance technologies at European borders

Assessment of Croatia

Border Violence Monitoring Network



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Border Violence Monitoring Network

Digital Borders? Decoding Croatia's Tech Approach from Policing to Surveillance,

2024

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For a while now, civil society organizations have been denouncing the dangers of the use of new technologies and Artificial Intelligence in the field of migration and border control, including the deployment of intrusive surveillance technology and the collection of biometric data from people on the move. The lack of transparency and regulation surrounding these processes and their impact results in a lack of accountability on the part of the authorities, tech companies, as well as public research institutions, as it poses severe difficulties in the monitoring of likely violations of human rights. The recently adopted EU Artificial Intelligence Act is a missed opportunity to safeguard against the harms of intrusive AI. Instead, it excludes the field of migration and law enforcement from important regulations. This report is one in a series of research publications produced by the members of the Border Violence Monitoring Network, with the objective of expanding the knowledge and evidence of new technologies being used as part of the European migration regime. With a lack of concrete case studies and research from countries along the so-called Balkan Route, we look into the developments in border surveillance in these regions and analyze the (actual and potential) harmful impacts of these technologies on people crossing borders.

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AI Artificial Intelligence

AIS Automatic Identification System

AMIF Asylum and Migration Fund

BVMN Border Violence Monitoring Network

EMSA European Maritime Safety Agency

EU European Union

EURODAC European Dactyloscopy

EUROSUR European Border Surveillance System

EMPACT European Multidisciplinary Platform Against Criminal Threats

FIELD Frontex-Interpol Electronic

GDPR General Data Protection Regulation

IOM International Organisation for Migration

IPA Instrument for Pre-Accession

ISF Internal Security Fund

IMSI International Mobile Subscriber Identity

OSINT Open Source Intelligence

SOCMINT Social Media Intelligence

SIS Schengen Information System

UNHCR UN High Commissioner for Refugees

TETRA Trans-EuropeanTrunked Radio

0. Introduction

The rapid development of technology, particularly Artificial Intelligence (AI), in recent years and its subsequent public discussion play a dominant role in practices of bordering and migration governance. The role of technology in human rights violations at the border and how it contributes to repressive procedures and compound vulnerability and danger is often problematized[1]. It is demonstrated that "the use of digital technologies can negatively impact human rights and place illegalized migrants in vulnerable situations, exacerbating power differentials already inherent throughout migration processes"[2] and "exacerbates the violence that is already there, giving border guards extreme power"[3]. In that sense, the different forms of technology, from cameras to sensors, drones, and databases function as an extension of the police's capability to actually monitor illegalized migration.

While it is obvious that technology plays some role for practices of bordering and migration, the exact nature of this role remains unclear. Even though borders are often analysed as testing ground for new surveillance technologies,[4] the actual impact of this technology remains contested[5] and its interrelation with other fields, such as classical surveillance by patrols, geopolitical developments, economic considerations and contextual local variables, remain not sufficiently addressed. Importantly, technology is not only a hindrance, but also an enabler of "wanted" mobility, especially in relation to transport infrastructures and smart borders. In addition, technology is, in some aspects, also an enabler of "unwanted" mobility as it is used by illegalized migrants to facilitate their border crossings.[6] Starting from this point, the following report aims to understand what role technology plays in the case of the Croatian-Bosnian and Croatian-Serbian border. Understanding the role of technology aims to provide an informational basis for activist work on the ground and for campaigning and advocacy towards policy-making.

1 Milivojević, Sanja (2019). Border Policing and Security Technologies: Mobility and Proliferation of Borders in the Western Balkans. London: Routledge; Askew, Joshua (2023). Mass surveillance, automated suspicion, extreme power - How tech is shaping EU borders. EuroNews Online. https://www.euronews.com/next/2023/04/06/mass-surveillance-automated-suspicion-extreme-power-how-tech-is-shaping-the-eus-borders; McGregor, Lorna & Molnar, Petra (2023). Digital Border Governance: A Human Rights Based Approach. UN OHCHR, University of Essex; Border Violence Monitoring Network (2023). EU Member States' use of new technologies in enforced disappearances. Input for the thematic study by the UN Working Group on Enforced or Involuntary Disappearances on "new technologies and enforced disappearances". February 23, 2023. Retrieved from: https://borderviolence.eu/app/uploads/Input-for-the-thematic-study-on-new-technologies-and-enforced-disappearances_version-2.pdf; Sapoch, Jack & Baker, Hope (2021): The role of technology in illegal push-backs from Croatia to Bosnia-Herzegovina and Serbia. Submission to the Special Rapporteur on contemporary forms of racism, xenophobia and related intolerance for the report on Race, Borders, and Digital Technologies.Border Violence Monitoring Network. Retrieved from: https://www.ohchr.org/sites/default/files/Documents/Issues/Racism/SR/RaceBordersDigitalTechnologies/Border_Violence_Monitoring_Network.pdf

2 McGregor and Molnar 2023

3 Rodelli cited in Askew, 2023

4 Molnar, Petra (2020). Technological Testing Grounds - Migration Management Experiments and Reflections from the Ground Up. EDRi & Refugee Law Lab. https://edri.org/wp-content/uploads/2020/11/Technological-Testing-Grounds.pdf; Molnar, Petra (2024) The Walls Have Eyes: Surviving Migration in the Age of Artificial Intelligence, New York, NY

5 Andersson, Ruben (2012). A game of risk: boat migration and the business of bordering Europe. Anthropology Today 28(6): 7–11.

6 Molnar, 2024

The report focuses on the situation in between September 2023 when most of the interviews and field visits were fulfilled, complemented with additional desk research conducted throughout 2024. This time period offers a relevant deviation: in comparison to before and after, this time was marked by an increased mobility of illegalized migrants into Croatia, with less reported push-backs.[7] Before 2023, the increasing use of violence against illegalized migrants and the rise of push-backs had severe impacts on the possibilities of free movement, leading to large numbers of illegalized migrants being stuck at the Bosnian-Croatian border for a long time.[8] From some perspectives, the continuous intensification of the deployment of technology at the border and an increased presence of police at the border was considered as a key factor leading to this situation.[9] During 2020, Croatia demonstrated its capability to almost completely close its border from illegalized entry, especially through the deployment of technology such as drones, thermal cameras and biometrical identification systems.[10] However, border policies at the Croatian-Bosnian border changed drastically in 2023 leading to an increase of almost 40% of illegalized border crossings compared to 2022. Regarding the use of technology at the border, the question arises about the role technology plays in these supposedly changed practices of border policing and crossings. This report presumes that the technology is still there, yet its use and the impact on practices of illegalized migrations shifted. Therefore, we depart from the actual developments on the ground and analyse the role of technology in its interrelation with politics, law, topography, and the border-industrial complex.

1. Contextual background

The Republic of Croatia (Republika Hrvatska) is a parliamentary republic situated on the Balkan Peninsula, bordered by Slovenia to the northwest, Hungary to the northeast, Serbia to the east, and Bosnia and Herzegovina and Montenegro to the southeast. It also shares a maritime border with Italy. Croatia seceded from the Yugoslav Republic and became an independent state in 1992.[11] Croatia has been a member of the EU since 2013 and, as of 2023, is part of the Schengen Area.

7 Croatian Law Centre (2024). Access to the Territory and Push Backs - Croatia. Country Report. Asylum Information Database (AIDA). Retrieved July 20, 2024 from https://asylumineurope.org/reports/country/croatia/asylum-procedure/access-procedure-and-registration/access-territory-and-push-backs/

8 Bochenek, Michael Garcia (2023). Like We Were Just Animals -Pushbacks of People Seeking Protection from Croatia to Bosnia and Herzegovina. Human Rights Watch Online. https://www.hrw.org/report/2023/05/03/we-were-just-animals/pushbacks-people-seeking-protection-croatia-bosnia-and

9 Sapoch & Baker, 2021

10 Sapoch & Baker, 2021; Milivojević, 2019

11 Marko Valenta, Jo Jakobsenb, Margareta Gregurovićc and Drago Župarić-Iljić (2024) Changes in the Croatian migration system: conceptualising the complexities of migrations, 1990-2023, Labor history, VOL. 65, NO. 4, 510–527

1.1 Context of Migratory Movements

Croatia has historically been a country of emigration, but the dissolution of Yugoslavia, the Bosnian War (1991-1995) and the process of EU accession rendered it also a country of immigration, asylum and transit.[12] In the 1990s, migratory movements to Croatia were dominated by Bosnians fleeing the war and its aftermath in their country.[13] Conflicts in Kosovo and Macedonia in later years also triggered forced migrations towards Croatia. [14] The process of EU accession and later membership increased labour migration patterns as well as rendering Croatia a transit country for illegalized migrants.[15]

Croatia has long been part of a South Eastern mobility corridor towards central Europe, Since 2015, this route became popularly known as the 'Balkan route' - a term previously used to refer to various forms of mobility through the area[16] - to refer to the mass transit of people from the Middle East and North Africa through Turkey and Greece, entering from Bosnia and Herzegovina and Serbia.[17] Between September 2015 and 2016, an estimated 660,000 people from Syria, Afghanistan and other countries crossed into Croatia. [18]Croatia initially became part of a 'formalised corridor' for people moving from Turkey to Greece towards Central Europe.[19] The reinforcement of the Serbian-Hungarian border, with the erection of a fence, diverted crossings to the Croatian border from Serbia and Bosnia as an alternative transit route.[20] Further, increasing security at the border shifted routes towards more remote, mountainous areas of the Bosnian-Croatian and Serbian-Croatian borders.[21]

While the 'formalised corridor' was closed in 2016, Croatia thus remained an important country of transit for illegalized migrants. Numbers of irregular crossings recorded a significant reduction in 2017 and 2018, the years following the increased restriction of migration along the South East route (see table 2). Yet, with the exception of 2021, numbers of irregular crossings have been increasing since then. Croatia recorded the highest numbers of border crossings in 2023 since 2015-2016.

12 Valenta et al; Snježana Gregurović, Dubravka Mlinarić (2012) The Challenges of Migration Policies in Croatia: Migration History, Trends and Prospects, Association of European Migration Institutions, Vol 10

13 Ibid; Augustová, K., Farrand-Carrapico, H. Obradovic-Wochnik, J. (2023) Push and back: The ripple effect of EU border externalisation from Croatia to Iran, Environment and Planning C: Politics and Space, Vol 41, Issue 5

14 Gregurović and Mlinarić 2012

15 Ibid; Valenta et al 2024

16 Strazzari, (2007): The Decade Horribilis: Organized Violence and Organized Crime along the Balkan Peripheries, 1991–2001, Mediterranean Politics, 12:2, 185-209

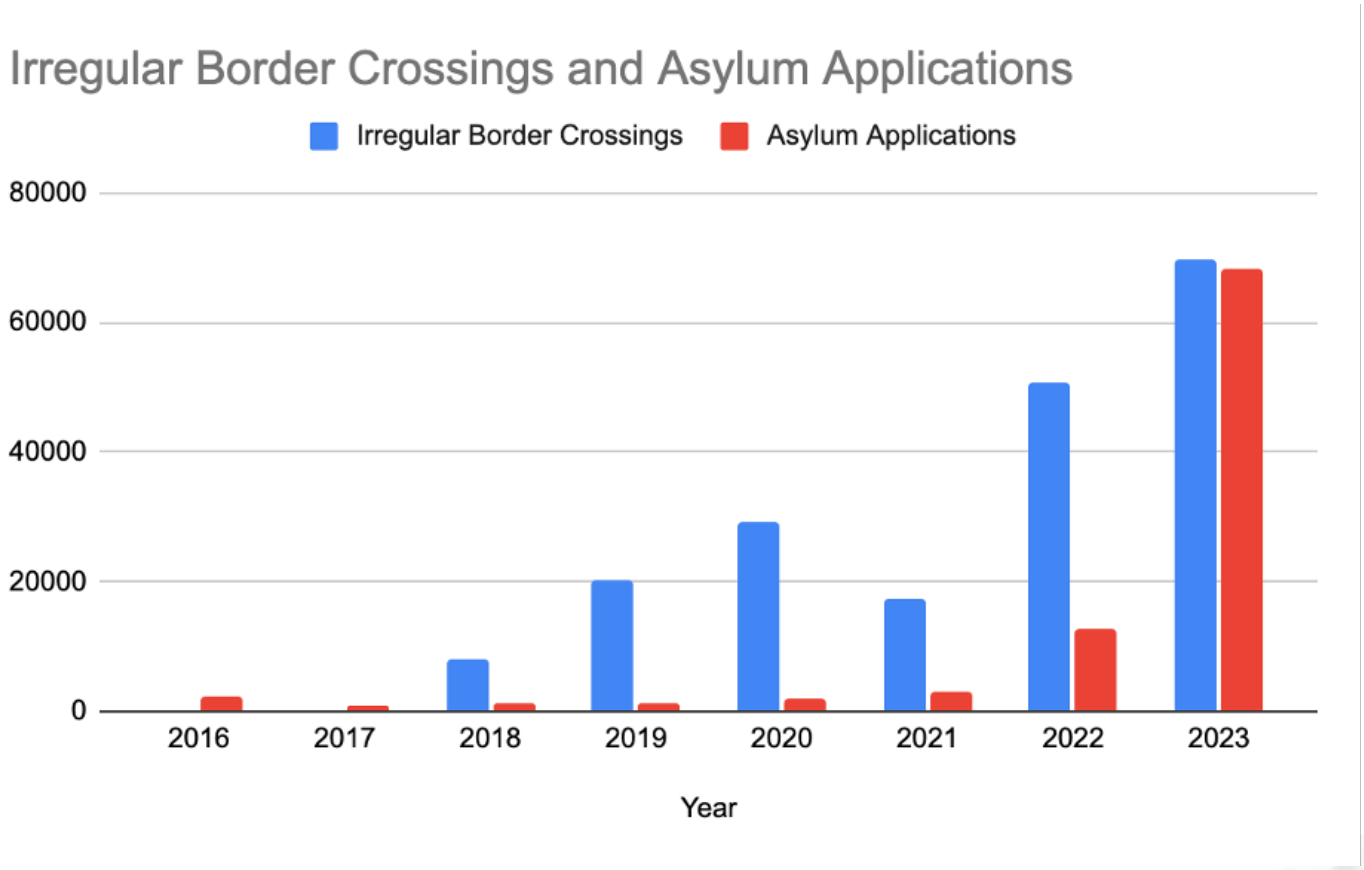
17 Valenta et al; Karolína Augustová, Jack Sapoch (2020) Border Violence as Border Deterrence Condensed Analysis of Violent Push-Backs from the Ground, Movements, Vol. 5, Issue 1/

18 Valenta et al; IIED (2016) Responding to transit refugees in Croatia, https://www.iied.org/responding-transit-refugees-croatia; IOM (2016) IOM Migrants and Refugees in Croatia https://croatia.iom.int/sites/g/files/tmzbdl1171/files/documents/leaflet_CEB_IOM_final_event_04_04_2016.pdf

19 Hameršak, M., Hess, S., Speer, M. and Stojić Mitrović, M. (2020) The Forging of the Balkan Route, Movements Vol. 5, Issue 1; Beznec, Speer, and Stojić Mitrović 2016

20 El-Shaarawi, N. & Razsa, M. (2019) Movements upon movements: Refugee and activist struggles to open the Balkan route to Europe, History and Anthropology, 30:1, 91-112; mEUterei Authors' Collective (2020).Borders of Vıolence The EU's Undeclared War on Refugees. Assoziation A: Hamburg/Berlin, Rosa Luxemburg Stiftung (2017) "Governing the Balkan Route", https://www.rosalux.de/en/publication/id/14554/governing-the-balkan-route; Augustová et al 2023

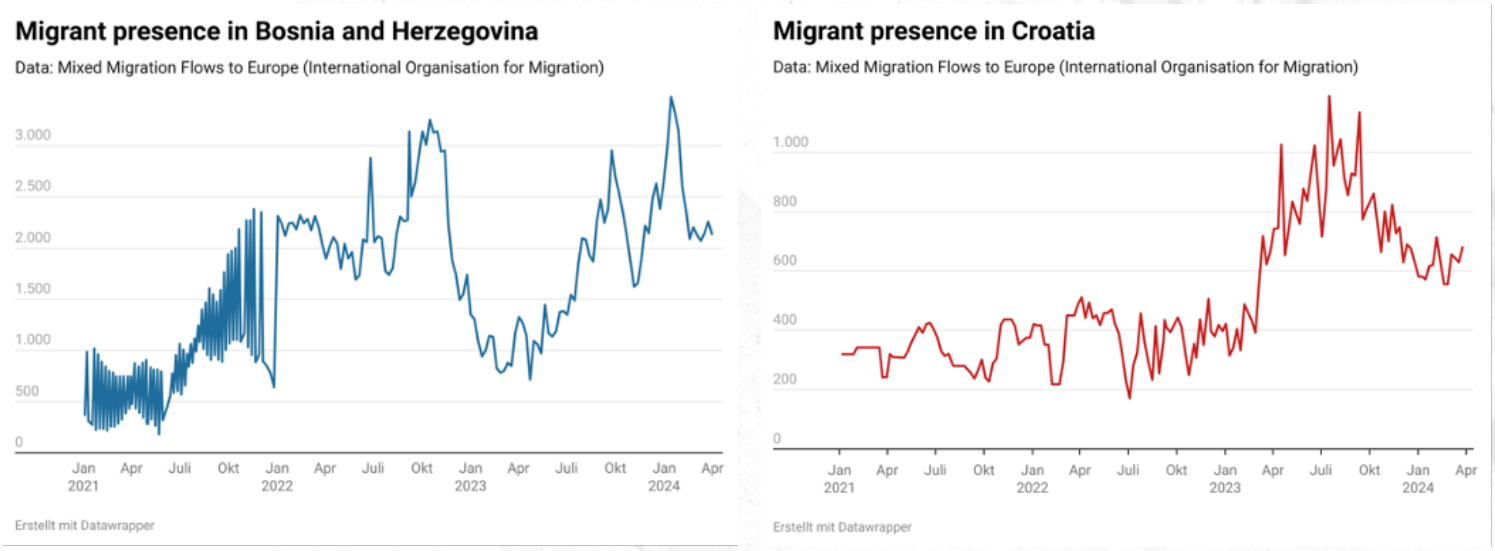
21 Carolin Leutloff-Grandits (2023) "We are not Just the Border of Croatia; This is the Border of the European Union … " The Croatian Borderland as "Double Periphery", Journal of Borderlands Studies, 38:2, 265-282, DOI: 10.1080/08865655.2022.2104340



Source: AIDA Asylum Database (2022), European Migration Network (2020)

There was also a notable shift in the movement of illegalized migrants on the routes in South Eastern Europe in 2023. The situation transformed from hundreds of people being stuck at the Bosnian-Croatian border for months and even years to a faster, more fluid transit towards Rijeka, Croatia, and from there to Slovenia and Italy. The presence of illegalized migrants at the Bosnian side of the border decreased significantly, with people staying in the border area for only 2-3 weeks (Interview0413; informal conversation 02 and 03). The data published by IOM (see Figure 2 and 3) underlines our perception.

Figure 2 and 3: Migrant presence in Bosnia and Herzegovina, and Croatia.



Source: Own visualisation, data retrieved from the IOM Displacement Tracking Matrix (2024).

1.2 Policy Developments

The development of asylum, border and migration policies in Croatia was largely shaped by the process of becoming a member of the European Union, and following accession, becoming a member of the Schengen area.[22] These policy imperatives were identified and driven by European Union institutions in the process of aligning Croatian legal frameworks and infrastructures with the EU acquis and at the time evolving integrated border management frameworks.[23] As early as 2002, the European Commission identified a need to address 'border management issues' in Croatia by adopting an integrated border management strategy[24], as well as developing 'asylum systems and migration management according to European standards' in response to 'increased irregular migratory flows'.[25] These priorities were reiterated in the 2008 Accession Partnership agreement.[26]

In terms of asylum and refugee protection, the legislative framework underwent significant reforms in preparation for EU membership. Legislation governing asylum was introduced in 2003 and subsequently amended in 2007 and 2010 to adapt to the EU acquis.[27] Refugee status was granted for the first time in 2006, and asylum recognition rates remained extremely low in the 2000s - only one of 94 applicants in 2006 were granted status and only 5 out of 290 in 2010.[28]

The low asylum recognition rates were attributed to restrictive legal frameworks and the lack of accommodation capacity at the time. The first asylum reception centre opened in 2006 near the town of Kutina.[29] A second reception centre was opened in Zagreb in 2012, housed in a former hotel.[30] Another facility, Ježevo, operated as a closed detention centre, with a capacity of 116 but lacked formal status.[31] Its capacity was quickly exceeded by the number of illegalised migrants detained, causing severe overcrowding.[32]

Reforms and capacity development to improve shortcomings in asylum and reception conditions were supported by EU programmes such as CARDS.[33] Yet, asylum accommodation and systems remained underfunded as EU pre-accession funding was invested mostly on border control and surveillance.[34]

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22 Chonkova et al 2011

23 European Commission (2002) Croatia Country Strategy Paper 2002-2006. Available at: https://neighbourhood-enlargement.ec.europa.eu/system/files/2018-12/croatia_strategy_paper_en.pdfand; Collantes-Celador, G. & Juncos, A. E. (2012). The EU and border management in the Western Balkans: preparing for European integration or safeguarding EU external borders?. Southeast European and Black Sea Studies, 12(2), pp. 201-220. doi: 10.1080/14683857.2012.686250

24 Integrated Border Management is defined by the EU as follows: "National and international coordination and cooperation among all relevant authorities and agencies involved in border security and trade facilitation to establish effective, efficient and coordinated border management at the external EU borders, in order to reach the objective of open, but well controlled and secure borders."

25 Collantes-Celador, G. & Juncos, A. E. (2012). p.28

26 European Council (2008) COUNCIL DECISION of 12 February 2008 on the principles, priorities and conditions contained in the Accession Partnership with Croatia and repealing Decision 2006/145/EC
(2008/119/EC)

27 Chonkova et al 2011; Gregurović and Mlinarić; European Commission (2010). Croatia 2010 Progress Report, Available at: https://neighbourhood-enlargement.ec.europa.eu/croatia-progress-report-2010_en

28 Ibid; Chonkova et al 2011

29 Chonkova et al 2011; European Commission 2006; IOM (2014) Assessment Report: Health Situation at EU's Southern Borders - Migrant, Occupational and Public Health Croatia, https://publications.iom.int/books/assessment-report-health-situation-eus-southern-borders-migrant-occupational-and-public-4
https://publications.iom.int/books/assessment-report-health-situation-eus-southern-borders-migrant-occupational-and-public-4

30 IOM 2014

31 Chonkova et al 2011; European Commission 2006, 2007, 2009

32 European Commission 2006; 2007

33 Community Assistance for Reconstruction, Development and Stabilisation (CARDS) for the Western Balkan countries. European Commission 2002

34 Chonkova et al 2011

In terms of border control, the legal framework regulating entry, the State Border Act introduced in 1995, was amended in 2003 and 2007.[35] In parallel, the Croatian government adopted an Integrated Border Management Action Plan, establishing a strategy for border management and control in 2005 while a Migration Policy Strategy was adopted the following year.[36] Visa policies were gradually aligned with EU legal frameworks.[37] Police structures were reformed to enhance border policing and the number of border guards - identified as a shortcoming by the Commission - increased, with emphasis placed also on the training police personnel.[38] In line with the Accession Partnership agreement, Croatia established and gradually rolled out a National Border Management Information System.[39] Other core border infrastructures, such as an encrypted police communication system, new border crossing points and a National Maritime Centre were established and expanded in the same period.[40] Readmission agreements between Croatia and third countries provided the basis for deportations.[41] Croatia increased the number of readmission agreements with both neighbouring and non-neighbouring countries and aligned existing ones with the EU acquis.[42]

Cooperation with European agencies and neighbouring countries was also a core pattern in the pre-accession process. Croatian authorities signed a data exchange agreement with Frontex and established a focal point for the exchange of information, and a cooperation agreement with Europol.[43] Further, Croatian police performed joint patrols with its Bosnian counterpart, and entered cooperation agreements with several countries including Hungary, Germany, Italy, Bulgaria, Montenegro, Bosnia and Herzegovina, Slovakia and Serbia.[44] Pre-accession actions for strengthening border control capacities were funded through the CARDS and IPA programmes.[45] Nevertheless, progress towards meeting border management goals was described as 'moderate' and 'partial' in 2012.[46]

Responses to the increased movements of 2015-16 generated a renewed emphasis on securing the border. Initially, Croatian authorities allowed crossings and organised the transport of refugees from the town of Šid in Serbia to Croatia on the basis of a bilateral protocol.[47] This 'formalised corridor closed in 2016, with only people from Syria, Afghanistan and Iraq allowed to move on to Croatia.[48] A temporary refugee camp in Slavonski Brod was set up to accommodate people crossing the border, but was closed in 2016.[49]

35 Chonkova et al 2011
36 Chonkova et al 2011
37 European Commission (2006) Croatia Progress Report 2006, https://neighbourhood-enlargement.ec.europa.eu/croatia-progress-report-2006_en; 2010, 2011
38 European Commission (2005) Croatia 2005 Progress Report, https://neighbourhood-enlargement.ec.europa.eu/croatia-progress-report-2005_en; European Commission 2006; European Commission 2009, 2010, 2011
39 European Commission 2007, 2010 progress report; Council of the European Union 2008; European Commission 2010
40 European Commission 2009; 2012
41 Chonkova; ibid
42 European Commission 2009, 2010; 2011
43 European Commission 2009, 2010
44 European commission 2009; 2011 European Commission 2012
45 European Commission 2020; European Commission (2009) Instrument for Pre-Accession Assistance (IPA) Multi-annual Indicative Planning Document (MIPD) 2009-2011 Republic of Croatia, https://www.europarl.europa.eu/meetdocs/2009_2014/documents/cont/dv/3_mipd_croatia_2009_2011_/3_mipd_croatia_2009_2011_en.pdf
46 European Commission 2012
47 Beznec, B, Speer, M and Stojić Mitrović, M. (2016) Governing the Balkan Route: Macedonia, Serbia and the European Border Regime, https://www.rosalux.de/en/publication/id/14554/governing-the-balkan-route; European Economic and Social Committee (2016). EESC fact-finding missions on the situation of refugees, as seen by civil society organisations. Available at: https://www.eesc.europa.eu/sites/default/files/resources/docs/malta_updated_migration-mission-report_en.pdf
48 Beznec, Speer and Stojić Mitrović 2016
49 Economic and Social Committee 2016; Milekic. S. (2016) Croatia Closes Last Refugee Camp.Available at: https://balkaninsight.com/2016/04/13/croatia-breaches-refugees-rights-with-detention-04-12-2016/#:~:text=As%20Croatia%20dismantles%20its%20last,the%20asylum%20centre%20in%20Zagreb.

Despite the high number of arrivals, few refugees were granted protection and Croatia remained predominantly a country for transit.[50] Soon after, a more securitised approach was adopted reflecting the closure of the Balkan route and the introduction of the EU-Turkey agreement. Croatia sent police forces to North Macedonia to support border control operations.[51]

Significant emergency financial assistance was made available to Croatia in response by the European Commission to the increased crossings since 2015.[52] In 2015, 2018 and 2019 a total of over 22 million euro were granted through ISF actions to strengthen border management through recruiting more border guards and supporting operational costs.[53]

These grants were also used to establish and maintain an Independent Monitoring Mechanism for fundamental rights violations at Croatian borders.[54] 12.43 million euro of AMIF funds were used to finance reception capacity.[55] Between 2014 and 2022 , regular ISF funds as well as Schengen Facility funding were used to further reinforce and upgrade Croatia's border surveillance control infrastructures and equipment such as vehicles and IT hardware (see also section 1.5)[56]. In parallel, Croatia became part of the Schengen Information System in 2017.[57] Detention capacity was increased in the same period, with two transit reception centres being opened in Tovarnik and Trijl in 2017.[58]

A further key response to increased arrival in 2015/2016 was systematic pushbacks, which intensified under Croatia's efforts to join the Schengen area.[59] One of the shifts in policy terms was an enhanced role in preventing secondary movement towards Central and western European countries.[60] During this period, activists and civil society documented the proliferation of violent pushbacks as a strategy to prevent onward movement and the intensification of multiple forms of border violence (see section 1.4).[61] Yet, violence against illegalised migrants was both denied by the Croatian authorities and tolerated by EU institutions in the context of Croatia's role of protecting the external border of the European Union in preparation for its Schengen membership.[62]

Schengen accession evaluations by and large did not take into account systematic and widespread practices of border violence. They focused instead on measures to address remaining deficiencies of border management. Recommendations included further strengthening green border surveillance with technical equipment, including by further

50 Milekic 2016
51 mEUterei 2020
52 Hameršak et al 2020; Augustová et al 2023
53 European Commission (2021) EU Financial Support to Croatia, https://home-affairs.ec.europa.eu/system/files/2021-01/202101_managing-migration-eu-financial-support-to-croatia_en.pdf; EU Commission (2021) HEADING 3: Security and citizenship Internal Security Fund. https://commission.europa.eu/system/files/2020-06/db_2021_programme_statement_internal_security_fund.pdf
54 EU Commission 2021 HEADING 3
55 European Commission (2021) EU Financial Support to Croatia
56 ISF programme; EU tenders (2014) 425748-2014 - Competition https://ted.europa.eu/en/notice/-/detail/425748-2014 ; EU tenders (2015) 14653-2015 - Result, https://ted.europa.eu/en/notice/-/detail/14653-2015; EU tenders (2015) 208458-2015 - Result https://ted.europa.eu/en/notice/-/detail/208458-2015 EU tenders (2014) 438483-2014 - Result, https://ted.europa.eu/en/notice/-/detail/438483-2014; EU tenders (2021) 194281-2021 - Result, https://ted.europa.eu/en/notice/-/detail/194281-2021; EU tenders (2021) 30871-2021 - Competition, https://ted.europa.eu/en/notice/-/detail/30871-2021; EU tenders (2021) 31638-2021 - Result, https://ted.europa.eu/en/notice/-/detail/31638-2021; EU tenders (2020) 548138-2020 - Competition, https://ted.europa.eu/en/notice/-/detail/548138-2020
57 EU-Lisa (2017) Croatia becomes part of the Schengen Information System (SIS), https://www.eulisa.europa.eu/Newsroom/News/Pages/Croatia-becomes-part-of-SIS.aspx
58 AIDA (2019) Country Report: Croatia, https://asylumineurope.org/reports/country/croatia/
59 Beznec, Speer and Stojić Mitrović 2016
60 mEUterei 2020
61 mEUterei 2020
62 Augustova and Sapoch 2020; Augustova et al 2023; Stojic Mitrovic, M., Ahmetasevic, N., Beznec, B. and Kurnic A. (2020) The Dark Sides of Europeanisation: Serbia, Bosnia and the European Border Regime https://rosalux.rs/wp-content/uploads/2022/04/169_the-dark-side-of-europeanisation-_vladan_jeremic_and_wenke_christoph_rls_and_ickz_2020.pdf

training police personnel in surveillance tactics and the use of dogs, reinforcing checks at land and maritime Border Crossing Points and checking people against databases such as EURODAC, acquiring fingerprint scanners and improving risk analysis capabilities.[63] The evaluation process was completed in 2021, recommending the acceptance of Croatia to the Schengen zone.[64]

In contrast, there is little reference to fundamental rights in recommendations to Croatia during the Schengen evaluation process. A 2019 Commission communication declaring Croatia's readiness to accede to Schengen stated that 'all parts of the relevant acquis have been met… 'including the effective application of all Schengen rules in accordance with the agreed common standards and with fundamental principles'.[65] Another communication, issued shortly before accession in 2022, praised Croatia's efforts 'to ensure that controls of the external borders comply with fundamental rights obligations' and the establishment of an Independent Monitoring Mechanism to monitor violations of fundamental rights at borders in 2021.[66]

Given the Commission tacit toleration of pushbacks and consolidation of Croatia's role as a key country for controlling secondary movements towards Europe, recent years have seen the persistence of border violence and securitised border policing, adapted to the new context of Schengen membership. Throughout 2022 and 2023, there was a surge in returns through readmission agreements including with Bosnia and Herzegovina, as well as the issuing of the 7-day paper[67] by Croatia to illegalized migrants, which facilitated the crossing of the country towards the EU within a week.[68] Croatia reintroduced temporary internal border checks in November 2023 after months of free movement after their Schengen entry (ETIAS, 2023).

The Croatian police now possess a vast arsenal of technology to prevent unauthorised migration, reflected in the increased number of violent pushbacks starting in October 2023, demonstrating their capability and political will to carry out these measures.

This apparent contradiction on freedom of movement and border control leads to ongoing questions and debates. Schengen accession led to the shift from a securitized and technologized border regime, where border crossings were subject to police surveillance and harsh repression, to an increased possibility of free movement towards the rest of the EU once people entered Croatian territory.

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63 European Commission (2017) COUNCIL IMPLEMENTING DECISION setting out a recommendation addressing the deficiencies identified in the evaluation of Croatia in view of fulfilling the conditions necessary for the application of the Schengen acquis in the field of management of the external border,https://www.parlament.gv.at/gegenstand/XXV/EU/139726; European Commission (2020) Council Implementing Decision setting out a RECOMMENDATION
on addressing the deficiencies identified in the 2019 evaluation of Croatia on fulfilling the conditions necessary for the application of the Schengen acquis in the field of management of the external borders (revisit land border) https://eur-lex.europa.eu/legal-content/GA/ALL/?uri=CONSIL:ST_11022_2020_INIT

64 mEUterei 2020

65 European Commission (2019) COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL on the verification of the full application of the Schengen acquis by Croatia. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52019DC0497

66 European Commission (2022) COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL Making Schengen stronger with the full participation of Bulgaria, Romania and Croatia in the area without internal border controls https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52022DC0636

67 The '7-day paper' is a colloquial term that has been used by activists in 2022 and 2023 to refer to the registration certificate given to prospective applicants for international protection to prove their registration to the information system of the Ministry of the Interior. The paper allowed transit within Croatia, for example to the accommodation centre in Porin. As Hameršak explains, the 7 day paper previously referred to return decisions which gave illegalized migrants seven days to leave the country. However, when Schengen reforms made return decisions visible to all member states, Croatian authorities started issuing fewer, and registering people instead. Hameršak, M. (2023) Seven Days Paper, https://e-erim.ief.hr/pojam/p-seven-days-paper-p.pdf?locale=en

68 Hameršak 2023; AIDA 2023, Reiner, Lena & Golitschek, Niklas (n.d.). Report aus Rijeka – Mit absurdem Papier gibt Kroatien Flüchtlingen Freifahrtschein. Focus Online. https://www.focus.de/politik/transitzone-in-rijeka-mit-absurdem-papier-gibt-kroatien-fluechtlingen-freifahrtschein_id_181426809.html

We suppose that while technology contains the potential for border securitization, its actual implementation may not necessarily align with this potential. The following section will explore the border technologies present in Croatia. We then analyse and contextualise the impact of technology within the broader fields of politics, law, geography, and the logic of bordering regarding the Croatian borders.

1.3 Key Actors in Border Surveillance and Control

The Croatian Ministry of the Interior is responsible for migration policy, including all matters related to entry, admission, stay, residence and employment of non-citizens.[69]

The Croatian border police is officially responsible for monitoring and controlling the State's border. The Croatian border police carry out their role by monitoring border crossings, setting up checkpoints, conducting border patrols with police dogs or conducting surveillance. However it is known to receive assistance from other police directorates including the Intervention Police, Special Police, Regular Police, and the Criminal Police.[70]

The Border Directorate (Uprava za granicu) is the division within the Croatian police force formally responsible for the surveillance and security of national borders and the control of movement across them.[71] The State Border Protection Department of the Border Directorate is responsible for border control and surveillance. It became an autonomous body within Croatian police structures in the 2000, in the context of reforms in border management prior to the country's accession to the EU.[72] 'Illegal Migration Department of the Border Directorate deals with irregular migration, oversees the Reception Centre for Aliens and the Mobile Unit for implementation of state border surveillance.

Croatian Intervention Police (Interventna Jedinica Policije, often abbreviated to IJP) is the division of police trained and equipped to carry out counter-terrorist interventions, perform high-risk arrests, respond to hostage situations and kidnappings, as well as other crisis situations or carry out large scale public order interventions.[73] Across Croatia, all 20 police departments in Croatia, including the City of Zagreb, have their own intervention unit, which is managed by a commander subordinate to the National Police Directorate. The Croatian Intervention Police was established in 2001 in the context of a reorganisation and implementation of reforms within the Croatian Police. Members of Intervention Units play an integral role in the border security apparatus of Croatia.[74] Units from around the country are deployed to border areas on a rotating basis, similar to Special Police units.

The Croatian Intervention Police also has a subunit called the Ekipa za Posebne Zadace, otherwise known as the EPZ, or the "Team for Special Tasks". The EPZ appear to have an exaggerated presence along the borders, in apprehension and in pushback operations.[75]

69 The Government of the Republic of Croatia (2013). Migration Policy for the Republic of Croatia. Available at: /https://mup.gov.hr/UserDocsImages/minstarstvo/2013/Migration%20policy%20RoC_en_2013%2002%2005.pdf

70 Border Violence Monitoring Network (2022). Annual Torture Report 2022. https://borderviolence.eu/reports/annual-torture-report-2022/

71 Ibid.

72 European Commission (2006) Croatia Progress Report 2006, https://neighbourhood-enlargement.ec.europa.eu/croatia-progress-report-2006_en

73 Border Violence Monitoring Network (2022). Annual Torture Report 2022.

74 Border Violence Monitoring Network (2022). GERMAN FUNDING TO CROATIAN BORDER ENFORCEMENThttps://borderviolence.eu/app/uploads/REPORT-GERMAN-FUNDING-TO-CROATIAN-BORDER-ENFORCEMENT-.docx-1.pdf

75 Border Violence Monitoring Network (2022). Annual Torture Report 2022.

The Special Police has seven organizational units: Command, Helicopter Service, Training Center in Mali Lošinj, Anti Terrorist units, Lučko and Special Police units in Osijek, Rijeka and Split. They are present in each of the 20 police departments, and their command is within the Police Directorate. Croatian Special Police units are notable for their easily identifiable green, olive-drab uniforms. These officers play an important role in the apprehension of transit groups in rural or forested areas but are less often described as being active in the process of pushing people back.

The Ombudswoman of the Republic of Croatia is a Commissioner of the Croatian Parliament, responsible for the promotion and protection of human rights and freedoms in Croatia. The Ombudswoman acts as the Croatian National Human Rights Institution (NHRI) and also acts as the Parliamentary Ombudsman, the National Preventive Mechanism (NPM) and as the Central Equality Body in Croatia. In 2021, the Ombudswoman published a report on the situation of human rights of migrants at the borders and raised serious concerns regarding pushbacks and detention of illegalized migrants.[76]

The International Organisation for Migration (IOM) has been operational in Croatia since 1992 and Croatia became a member state of the organisation in 1993. IOM has provided a comprehensive series of training to government officials in counter-trafficking and counter-smuggling, equipping and training mobile border units and promoting cross-border cooperation, and since 2015 has been involved in protection work for asylum seekers.[77] IOM has also facilitated cross-border cooperation between Western Balkan Countries through the Western Balkans Integrated Border Management Capacity Building Facility (WBIBM), and exchange of operational and technological capacities between Border Police.[78]

Frontex signed their first operational cooperation agreement in 2008, prior to Croatia joining the EU.[79] Frontex started undertaking aerial surveillance missions in Croatia in 2018 under its Frontex Aerial Surveillance Services (FASS) operations[80], at the request of Croatia to "monitor migration flows" and help Croatia "address the challenges on the ground"[81]. Since 2022, Croatia is part of Frontex Joint Operation Terra in which 450 standing corps officers were stationed in 12 countries across the EU. According to Frontex correspondence, the agency supports local authorities in conducting border checks at land borders.[82] Frontex came under criticism for its role in violent border practices and human rights violations in Croatia.[83]

1.4. Key Human Rights issues

The Croatian border regime and the role of technology therein cannot be analyzed independently of violence upon which it has relied. Since 2017, BVMN has documented

76 ENNHRI. Ombudswoman of Croatia. https://ennhri.org/our-members/croatia/

77 IOM Croatia. https://croatia.iom.int/iom-croatia

78 IOM Albania ((2013) Strengthening Cross-Border Collaboration: Insights from Albanian-Croatian Border Police Work Visit. Available at: https://albania.iom.int/stories/strengthening-cross-border-collaboration-insights-albanian-croatian-border-police-work-visit

79 Working Arrangement between Frontex and the Ministry of the Interior of the Republic of Croatia. Available at: https://www.statewatch.org/media/documents/news/2012/mar/frontex-wa-croatia.pdf

80 mEUterei 2020

81 Frontex (2018) Frontex strengthens surveillance in Croatia. Available at: https://www.frontex.europa.eu/media-centre/news/news-release/frontex-strengthens-surveillance-in-croatia-k3u6uv

82 Frontex (2023) External border management activities in the first half of 2023 https://www.statewatch.org/media/4307/eu-wp-frontiers-2023-09-12-3-frontex-external-border-management-first-half-2023-12561-23.pdf

83 M. Savković (2019). Frontex and the Western Balkans: A new actor on the external border of the EU. https://europeanwesternbalkans.com/author/marko-savkovic/

1046 pushback incidents affecting 27,250 people[84]. Yet this is not a new phenomena. Pushback practices at Croatian borders were already recorded during the Bosnian war between 1991-1995.[85]

This extensively documented violence perpetrated by Croatian authorities against illegalized migrants has undergone various phases, including changes in frequency, intensity, practices, methods, and strategies. The dynamics of migration in Croatia influenced by the anticipation of Schengen entry initially led to an increase in border violence between 2020 and 2022. In 2021 an investigation by Lighthouse reports exposed footage of masked men, members of the croatian riot police branch, beating illegalized migrants with batons prior to pushing them into the river on the border to Bosnia.[86] An analysis of BVMN testimonies confirms systematic nature of violence during pushbacks. In 2022 alone, 52% of testimonies recalled evidence of excessive and disproportionate use of force, 39% were subjected to forced undressing and 15 % exposed to threat or violence by firearms.[87] The use of informal detention in police stations and arbitrary sites during pushbacks has also been a major issue.. 84% of pushback incidents recorded by BVMN involved detention including such as police stations and in informal sites such as a garage near Korenica police station.[88] This was confirmed in a Report to the Croatian Government on the visit to Croatia carried out by the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment, in 2020.[89]

Croatia's readiness to resort to strong and violent deterrence methods can be linked to its desire for Schengen Accession. Indeed, as Croata approached its Schengen entry in 2022, there was a strategic shift in policy. Since then, larger numbers of illegalized migrants were permitted to transit through Croatia, assumably to prevent a potential surge of numbers in irregular border crossings after Schengen accession in 2023, and to prevent a backlog at the Bosnian-Croatian border (Interview0413); However, pushbacks began to increase again in the second half of 2023.[90]

1.5 Overview of Surveillance Technologies

At Croatia's eastern-borders various surveillance and border control technologies are utilised on both land and maritime fronts, predominantly by the Croatian border police, with funding from the EU. The deployment of surveillance technologies at Croatia's external borders is not a new endeavour. At least since the adoption of an Integrated Border Management Strategy as part of its Schengen Accession plans, Croatia and the EU have invested in technologies to support the control of border crossings. In the late 2000s (2008/2009), the TETRA (Trans-EuropeanTrunked Radio) System, was installed across all of Croatia, allowing for direct exchange of information between patrol vehicles/vessels

84 mEUterei 2020

85 Augustová et al 2023

86 Lighthouse Report (2021) Unmasking Europe's Shadow Armies. Available at: https://www.lighthousereports.com/investigation/unmasking-europes-shadow-armies/

87 Border Violence Monitoring Network (2022) Annual Torture Report 2022. Available at: https://borderviolence.eu/reports/annual-torture-report-2022/

88 Border Violence Monitoring Network (2022). Available at: https://borderviolence.eu/reports/annual-torture-report-2022/

89 Council of Europe (2021). Report to the Croatian Government on the visit to Croatia carried out by the European Committee for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment (CPT) Available at: https://rm.coe.int/1680a4c199 see also Border Violence Monitoring Network (2019). Monthly Report April 2019. Available at https://borderviolence.eu/app/uploads/April-2019-Monthly-Report-on-Border-Violence.pdf

90 Border Violence Monitoring Network (2023) Monthly Reports October and November 2023. Available at: https://borderviolence.eu/reports/balkan-regional-report-november-2023/ and https://borderviolence.eu/reports/balkan-regional-report-october-2023/

and border crossing points on land.[91] Thermal and night-vision cameras have been part of standard equipment of the border police since at least 2013, when Croatia consciously upgraded its border control systems prior to joining the EU.[92]

However, a Commission evaluation at the time found that Croatias was not ready for Schengen Acquis as its border control and surveillance capacities were

> "insufficient/outdated operating equipment, inadequate border crossing infra structure and related buildings, non-interoperable IT and insufficient qualification of border police and consular staff."[93]

Specifically, the evaluation criticised the insufficient surveillance equipment required to prevent or reduce the illegal crossing of EU external borders, insufficient vehicles to respond to dynamic situations at the border, lack of special surveillance equipment to perform border protection, border control and surveillance functions from the air and insufficient video surveillance at border crossing points.[94] While these issues did not impede Croatia's EU membership, the identified shortcomings had to be addressed before the country joined the Schengen Area. To this end, further measures were financed through a temporary Schengen Facility Instrument.[95] The Commission made concrete recommendations on how the funding should be used to improve surveillance capacities at individual Border Crossing Points (BCPs). In matters of biometric data collection, the Commission recommended collecting data that could contribute to a risk analysis according to the Frontex blueprint CIRAM. This would include "statistics on passengers' nationalities crossing the border" as well as the registration of "all persons who crossed the border illegally" and equipping "high risk" border crossing points with EURODAC devices directly linking to the EURODAC system.[96]

The first payment was made in 2013, and the funding was initially restricted until the end of 2014. After several extensions the funding period officially ended in 2017, with EUR 120 million granted to Croatia by the EU.[97] 60 % of the Schengen Facility Fund was allocated to infrastructure and equipment. Border control capabilities in this period were enhanced with new patrol vehicles and vessels, surveillance equipment such as thermovision cameras, IT systems and the upgrading of existing border infrastructures such as BCPs. [98]

The Schengen Facility also supported the establishment of Croatia's IT infrastructure to integrate into the Schengen Information System (SIS) as well as its Maritime Surveillance System, including the Vessel Traffic Monitoring and Information System as well as coast-

91 EU Commission 2009.Available at: CROATIA 2009 PROGRESS REPORT https://neighbourhood-enlargement.ec.europa.eu/document/download/f46272d8-9ace-46c2-bc43-9433a3d45038_en?filename=hr_rapport_2009_en.pdf

92 Channels TV (2013) Croatia Upgrades Border Control Systems Against Non-EU Neighbours. https://www.channelstv.com/2013/06/24/croatia-upgrades-border-control-systems-against-non-eu-neighbours/; Tesija, V. (2023) Caught on Camera: Croatia's 'Schengen' Border with Serbia BIRN, https://balkaninsight.com/2023/02/02/caught-on-camera-croatias-schengen-border-with-serbia/

93 European Commission 2020

94 ibid

95 European Commission 2020

96 Ibid.

97 European Commission 2020

98 European Commission 2020; EU Tenders (2014) 425748-2014 - Competition, https://ted.europa.eu/en/notice/-/detail/425748-2014; EU Tenders (2014) 438483-2014 - Result, https://ted.europa.eu/en/notice/-/detail/438483-2014; EU Tenders (2015) 245251-2015 - Competition, https://ted.europa.eu/en/notice/-/detail/245251-2015; EU Tenders (2015) 424814-2015 - Competition, https://ted.europa.eu/en/notice/-/detail/424814-2015; EU Tenders (2016) 311333-2016 - Competition, https://ted.europa.eu/en/notice/-/detail/311333-2016; EU Tenders (2014) 397266-2014 - Competition https://ted.europa.eu/en/notice/-/detail/397266-2014; Government of the Republic of Croatia (2017) Gov't satisfied with rate of absorption of Schengen Facility funds https://vlada.gov.hr/news/gov-t-satisfied-with-rate-of-absorption-of-schengen-facility-funds/20143

al vessels for participation in Frontex joint operations.[99] Croatia declared its readiness to start the Schengen evaluation procedure in 2015, shortly before the dramatic increase of crossing in the region.[100]

Concerns over Croatia's full control over what would become an EU external border remained such that a further 12,800,000.00 euros were made available for Integrated Border Management through the EU Internal Security Fund (ISF) between 2014 and 2020. This funding provided additional equipment for land border surveillance in remote areas as well as equipment to advance Croatia's Integration into EUROSUR - a pan-European surveillance system to enhance information exchange and cooperation between EU member states and Frontex. National Coordination Centres in each member state compile and analyse relevant data, that is then shared with EUROSUR members and Frontex.[101] Under the ISF program for Croatia, nearly 6,000,000 euros were made available for EUROSUR integration, including the development of regional coordination centres, training on risk analysis as well as procurement of necessary equipment for the development of EUROSUR.[102] Integrated into EUROSUR satellite remote sensing provides additional data shared with Croatian authorities.[103] In addition to satellite data, Frontex planes started monitoring the Croatian-Bosnian border in 2018, as part of its Multipurpose Aerial Surveillance (MAS) Initiative, with data directly transmitted to Frontex headquarters in Warsaw.[104] Funding from the 2014-2020 ISF programme was also used to reinforce various border control and surveillance capacities such as upgrading security at BCPs, IT systems, acquiring TETRA radio communication devices and mobile phones.[105] AMIF funds supported building capacity for returns.[106]

After the large investments into border surveillance technologies, EU funding to Croatia from 2022 largely focused on expanding Croatia's capacity to conduct counter-smuggling operations with a focus on advanced investigative tools and technical tools for biometric identification and tracking. 499,250 euros were made available to support Croatia's participation in a joint effort with "unified criminal investigations" alongside EUROPOL and Frontex to "fight migrant smuggling"(under EMPACT). "Operational activities in Croatia were to focus not only on identifying traffic routes but also to deploy operational teams in order to detect, intercept and subsequently break up organised criminal groups involved in migrant smuggling."[107] To enable the Croatian police in this endeavour, further ISF funding was allocated to biometric identification and tracking tools including IMSI catchers and facial recognition software.[108] Additionally investigative tools including GIS, SOCMINT and OSINT tools, are to be acquired to step up Croatia's ability to prevent illegallized migration. All funding related to migration is listed under the

99 Croatia National Program 2014-2020. Accessed via: https://eufondovi.mup.hr/financijski-instrumenti-eu-82/financijski-okvir-2021-2027/489

100 Zeko, M. and Vrbanec, M. (2022) Implementation of the Schengen acquis and the role of the Republic of Croatia in the protection of EU external borders, https://hrcak.srce.hr/en/285047

101 European Commission. Eurosur. Available at: https://home-affairs.ec.europa.eu/policies/schengen-borders-and-visa/border-crossing/eurosur_en

102 Ibid

103 N1 Zagreb (2024)

104 Frontex (2018) Frontex strengthens surveillance in Croatia. Available at: https://www.frontex.europa.eu/media-centre/news/news-release/frontex-strengthens-surveillance-in-croatia-k3u6uv

105 EU Tenders (2020) 492960-2020 - Competition, https://ted.europa.eu/en/notice/-/detail/492960-2020; EU Tenders (2021) 31635-2021 - Result, https://ted.europa.eu/en/notice/-/detail/31635-2021; EU Tenders (2021) 249366-2021 - Result, https://ted.europa.eu/en/notice/-/detail/249366-2021; EU Tenders (2019) 573396-2019 - Result, https://ted.europa.eu/en/notice/-/detail/573396-2019; EU Tenders (2020) 61218-2020 - Result, https://ted.europa.eu/en/notice/-/detail/61218-2020; EU Tenders (2019) 534789-2019 - Result, https://ted.europa.eu/en/notice/-/detail/534789-2019; EU Tenders (2019) 442503-2019 - Competition, https://ted.europa.eu/en/notice/-/detail/442503-2019; EU Tenders (2020) 548138-2020 - Competition, https://ted.europa.eu/en/notice/-/detail/548138-2020;

106 EU Tenders (2020) 425354-2020 - Competition, https://ted.europa.eu/en/notice/-/detail/425354-2020

107 Croatia National Program 2022-2027. Accessed via: https://eufondovi.mup.hr/financijski-instrumenti-eu-82/financijski-okvir-2021-2027/489

108 Ibid.

prevention of cross-border crime, signalling a shift to increasingly treat migration as a criminal threat. As of 2024, according to the Croatian Minister of the Interior, the technical capacity of the Croatian border police includes "28 stationary radars, 27 mobile radars, over 2000 night-vision cameras" many of them stationed at and around the border with Bosnia and Herzegovina.[109]

2. Methodology

2.1 Research and Data Gathering Methods

The field of illegalized migration and technology in bordering practices has been the subject of extensive research in academia and civil society.[110] BVMN has already conducted research on the Croatian-Bosnian border throughout the past years.[111] The members of the network at that time collected testimonies of people that experienced push back producing a large set of data for the network's push-back reports and identified major technologies used at the border (see chapter 1.2). We aim to extend the existing information within research regarding the impact of technology on bordering practices and migration control at the Croatian-Bosnian and Croatian-Serbian borders.

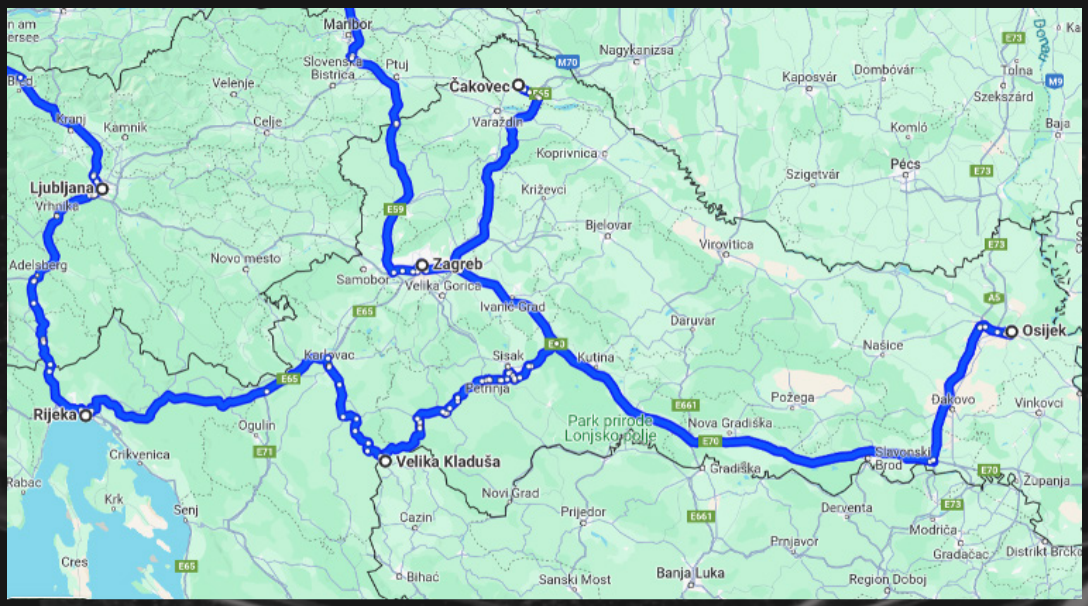
To do so, we conducted a secondary literature research and two field assessments in September and December 2023 which included interviews and ground visits along the Serbian-Croatian and Bosnian-Croatian borders. One field assessment took place in the form of a 10-day research trip while the other was fulfilled within ongoing work of BVMN member organisations. The subsequent analysis also drew from discussions during and after the field assessment as well as additional online expert interviews.

109 Government of Croatia (2024) Božinović: Hrvatska granična policija najuvježbanija na razini Europske Unije Available at: https://vlada.gov.hr/vijesti/bozinovic-hrvatska-granicna-policija-najuvjezbanija-na-razini-europske-unije/42288

110 Molnar, Petra (2021). Technological Violence at Borders - are Algorithms the New Jailers? Edited transcript of conference speech: Disruption Network Lab: SMART PRISON. Arts of the Working Class Online, 26. https://artsoftheworkingclass.org/text/technological-violence-at-borders; Milivojević, Sanja (2018). 'Stealing the fire', 2.0 style? Technology, the pursuit of mobility, social memory and de-securitization of migration. Theoretical Criminology, 23(4). 1-17. doi: 10.1177/1362480618806921; Milivojević, 2019

111 Border Violence Monitoring Network (2023b). Decoding Balkandac: Navigating the EU's Biometric Blueprint. Special Report. September 25, 2023. Retrieved from: https://borderviolence.eu/reports/balkandac/; BVMN 2023, EU member states; Baker and Sapoch 2021;

Figure 3: Route of the field research in September 2023 in Croatia and Slovenia;



Source: image created and retrieved from google maps.

The interview questions were developed based on existing academic literature and reports by journalists and NGOs, civil society practitioners that we consulted, and the experiences from longer stays in Bosnia and Croatia by two members of the research team. The interview partners were identified through literature, desk research, and recommendations from a journalist who was familiar with the topic and region. We developed three different question samples in a semi-structured interview format. The sample included 1) intellectuals (academics, researchers, think tank members), 2) practitioners (activists, NGO workers, police officers), and 3) local residents (border area residents, members of forestry and hunting organisations). A total of thirteen interviews (eight on-site, five online) and six informal conversations (three one-on-one, three focus group-style) were conducted. Interviews were recorded and transcribed using MAXQDA software (supported by MAXQDA AI assist and AI tools for transcription and text summaries), while informal conversations with local residents and forest workers were documented through note-taking. All data was analysed using a qualitative content analysis approach.

2.2 Limitations of the Study

There are a few limitations to this report. The fast changes in the political landscape and the situation on the ground is one of them. Within a few weeks, the situation in the country or at the borders can change entirely which can have a huge impact on practices of illegalized migration and bordering. Therefore, this report is not an up-to-date report presenting the latest information but rather reflects the certain political and social environments of September 2023. We also have to note the limited access to and lack of perspectives from illegalized people which distinguishes this report from other BVMN reports. We decided not to interview push-backed people about their experiences and observations of deployment of technology by border police forces. This decision was made for several reasons. On the individual level, the short time of the field assessment did not allow to build a trusting relationship with push-backed people. Questioning illegalized migrants about their experiences at the border also comes with the risk of re-

traumatizing. On a larger scale, illegalized migrants as a subject of research can "speak" but are not heard due to marginalisation,[112] which we as researchers would be part of. We wanted to circumvent gaining knowledge based on the suffering of the "other", in this case the experiences of illegalized migrants.[113]

While there is vast research on the topic of technology as well as on the topic of migratory movements, there seems to be a lack of interrelated research and practice-oriented knowledge connecting both topics. As mentioned by McGregor & Molnar (2023, p. 5), work on this topic comes with specific difficulties and it is generally constrained by limited transparency on usage, reasons for deployment, and details of certain technologies. In particular, data sharing agreements and safeguards in place make it difficult to investigate without access to certain networks. Our research was conducted with a person fluent in Croatian and who lived several years in the country. This was essential for the research in order to be able to understand the dynamics on the ground, talk to local residents, and understand contextual aspects.

3. Border Technology in Croatia

3.1 Identified Border Surveillance Technology

At the Bosnian-Croatian border, various surveillance and border control technologies are utilised on both land and maritime fronts, predominantly by the Croatian border police, with funding from the EU. In previous research by the BVMN[114] based on a standardised interview framework at the Bosnian-Croatian border, testimonials of illegalized migrants present evidence of surveillance drones and helicopters, and thermal cameras as well as vehicle scanners, spotted or detected many times minutes before arrests and encounters with the police. The following table presents an overview of technological devices purchased or requested by the Croatian Ministry of Interior in recent years. Many of these are awarded and financed by the European Commission via the Schengen Facility instrument.[115]

112 Spivak, Gayatri Chakravorty (1987): In Other Worlds: Essays in Cultural Politics. London: Methuen.
113 Georgiou M (2018) Does the subaltern speak? Migrant voices in digital Europe. Popular Communication 16(1): 45–57; Said, Edward (1985): Orientalism Reconsidered. Cultural Critique 1.
114 Sapoch and Baker 2021
115 ibid

Table 5: List of technological devices purchased or requested by the Croatian Authorities

Year	Contractor	Description of the device	Price (incl. VAT)
2016	Leonardo Finmeccanica	two AgustaWest-land 139 helicopters (AW139); the package included the licensing of at least six pilots and 13 technicians	15,699,895.00 EUR each
2016	Tehnomobil Securitas	State border surveillance system in the area of the town of Metković	663,016 EUR Schengen Facility
2016	Tehnomobil Securitas Ericsson Nikola Tesla, Dat Con	Equipping 13 locations for monitoring the state border at the locations of PU Vukovar-Srijem and PU Split-Dalmatia	5,863,92 3 EUR Schengen Facility
2016	GDi Gisdata	State border surveillance system - upgrade of the central GIS system	515,503.25 EURO Schengen Facility
2016	Ericsson Nikola Tesla	System for monitoring the state border - upgrade of the system for man-agement and coordination of forces	643,541.87 EUR Schengen Facility
2016	King ICT, Mrežne tehnologije Verso	State border surveillance sys-tem - Upgrade of the infrastructure management system	186,428 EUR Schengen Facility
2016	Tehnomobil Securitas	State border surveillance system in the area of the town of Metković	677,694 EUR Schengen Facility

2014 - 2017		8 S4H / MDS-II heart rate detectors	194,240 EUR
2014 - 2017		41 Dräger X-am 5600 detectors vapor detectors	44,772 EUR
2014 - 2017		13 Flir BHM-6XR brand thermal imaging devic-es	117,338 EUR
2014 - 2017		22 OIP Sensor Systems: Felis model night vision devices	130,240 EUR
NA	FLIR	adapted FLIR Ranger HRC-MS infrared cameras	unknown
NA	Infrared Security Solutions	iSS Thermal Cameras, T-iV	unknown
2017		7 locations of Vukovar-Srijem and Split-Dalma-tia Implemented: video surveillance system with thermal imaging, day and night cameras, and ground-based radars	5,885,561.22 EUR
NA	Trakkasystem	Trakkabeam A800 searchlight to port and a FLIR Star Safire3 380 HDc EO/IR	unknown
2017	King ICT	unmanned aerial vehicle	6,346.12 EUR
2017	King ICT	thermal imaging camera for unmanned aerial vehicle	11,237.92, EUR.

2017	Ericsson Nikola Tesla, Securitas Hrvatska Dat Con	State border protection system in the area of the Vukovar-Srijem PU	4,736,982 EUR ISF
2018	King ICT	unmanned surveillance drones (eRIS-III model)	35,300.29 EUR
2018	Ericsson Nikola Tesla, Securitas Hrvatska	Stationary system for monitoring the state border with Bosnia and Herzegovina and Montenegro	3,818,866 EUR ISF
2019	Alfatec Group	three medium -range aircrafts	470,000 EUR
2019	King ICT/ Ericsson Nikola Tesla	two long-range unmanned aerial vehicles	2,300,400 EUR
2020	Call for proposal	two sets of short-range drones for day and night surveillance, equipped with one day and a thermal imaging camera	31,300 EUR
2021	Ericsson Nikola Tesla, Securitas Hrvatska Hidraulika promet	Mobile thermal imaging cameas with all-terrain vehicles without police markings for towing a trailer (8)	2,602,900 EUR ISF
2021	Ericsson Nikola Tesla, Securitas Hrvatska	Stationary systems for monitoring the state border with the Republic of Serbia and Bosnia and Herzegovina	5,737,291 EUR ISF
2023	Ericsson Nikola Tesla, Securitas Hrvatska Hidraulika promet	Trailer with themal imaging cameras and off-road vehicles (2)	1,064,016 EUR ISF

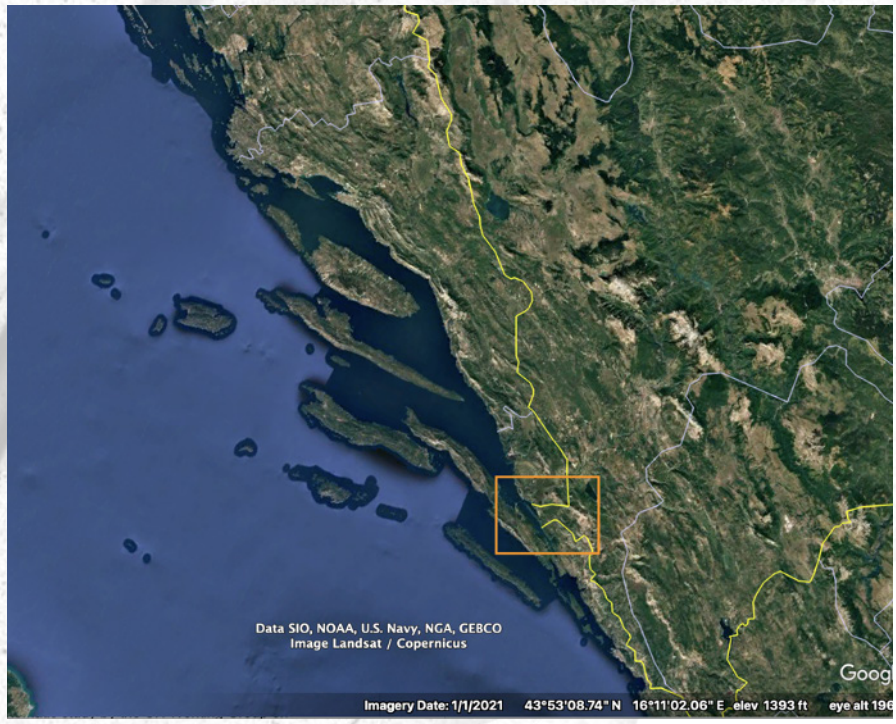
2024	Ericsson Nikola Tesla, Securitas Hrvatska Hidraulika promet	Trailer with thermal imaging camera and off-road vehicle (10)	75,970,160 EUR BMVI
2024	Ericsson Nikola Tesla, Securitas Hrvatska, KING ICT	Stationary systems for monitoring the external border of the European Union	5 520 000,00 EUR ISF

Source; Sapoch & Baker, 2021 and EU TED Portal Maritime Surveillance

Maritime Surveillance

Since at least 2013, a series of radar scanners and cameras have been located in the bay area between Neum and Mawli Stone. This is a special maritime border between Bosnia-Herzegovina and Croatia as BiH has access to the Mediterranean Sea, thereby cutting the Croatian corridor (see below). The Croatian VTIMS system was upgraded with Schengen Facility funding worth 12 618 402 EUR awarded to the company Končar – Montažni inženjering in 2016.[116] The equipment was provided by the company in-innovative navigation GmbH, assigned by a joint venture of the arms company THALES and Pomorski Centar Elektroniku. It includes radar surveillance, infrared cameras, sensor signal processing and the traffic display module inDTS.[117] In addition, the Croatian authorities purchased 11 patrol vessels with thermovision equipment in 2015.[118]

Figure 4: Maritime Border between Croatia and Bosnia Herzegovina



Source: Google Earth (PF)

At the northern maritime border in close proximity to Slovenia, a drone by the EU Maritime Safety Agency (EMSA) to support maritime surveillance and monitoring operations has been stationed since 2019. Under the control of the Maritime Rescue Coordination Centre of Rijeka, the drone, a Camcopter S-100 model, has an integrated infrared camera, nightvision, as well as an automated surface sensor table to detect "targets" at sea. It is also able to link to the Automatic Identification System and therefore able to detect

116 EU Tenders (2016) 43567-2016 - Result, https://ted.europa.eu/en/notice/-/detail/43567-2016

117 in-innovative navigation GmbH (2013). Border control system of the Adriatic coast of Croatia. Innovative Navigation.Available at: https://www.innovative-navigation.de/en/news-en/border-control-system-of-the-adriatic-coast-of-croatia/
See also:
in-innovative navigation GmbH (2013). Display for Traffic Surveillance. Available at: https://www.innovative-navigation.de/wp-content/uploads/2014/12/inDTS_1512_Pages_web.pdf

118 EU Tenders (2015) 397721-2015 - Result, https://ted.europa.eu/en/notice/-/detail/397721-2015; MoI (2015) Technical specifications, https://eojn.nn.hr/SPIN/application/ipn/Documhttps://ted.europa.eu/en/notice/-/detail/45151-2015entManagement/DokumentPodaciFrm.aspx-?OznakaDokumenta=2015%2fS+003-0004786;

vessels identity, position, speed and course.[119] AIS transponders are installed on most commercial vessels and some larger recreational boats. These transponders continuously transmit AIS data on designated VHF radio frequencies allowing other vessels and shore-based stations to receive and process the information. If a vessel shows up in the drones camera or sensor technology but does not detect AIS data this might cause suspicion.

Figure 4: Remotely Piloted Aircraft Systems (RPAS) deployed at Croatia's Northern Maritime Border

Source: Schiebel GMBH via EMSA

Land-border Surveillance

Stationary surveillance camera systems, a core part of the stationary land surveillance, have been gradually installed and upgraded at various locations of the Croatian border before the country's accession to the Schengen and were largely financed by the EU Schengen Facility and ISF.[120] These systems include video surveillance through day and thermal imaging cameras and radars, as well as communication systems through which live footage and data is shared between border crossing points, the national coordination centre, local coordination centres and Frontex, feeding into the EUROSUR situational image.[121]

119 European Maritime Safety Agency (2019) EMSA RPAS drone service to boost maritime surveillance in Croatia. Available at: https://www.emsa.europa.eu/newsroom/press-releases/item/3646-emsa-rpas-drone-service-to-boost-maritime-surveillance-in-croatia.html

120 Tesija 2023 Caught, see also Channels Tv (2013). Croatia Upgrades Border Control Systems Against Non-EU Neighbours. Available at: https://www.channelstv.com/2013/06/24/croatia-upgrades-border-control-systems-against-non-eu-neighbours/; EU Tenders (2015) 412955-2015 - Competition, https://ted.europa.eu/en/notice/-/detail/412955-2015; EU Tenders (2016) 311333-2016 - Competition, https://ted.europa.eu/en/notice/-/detail/311333-2016; EU Tenders (2017) 321930-2017 - Direct award preannouncement; EU Tenders (2017) https://ted.europa.eu/en/notice/-/detail/321930-2017; EU Tenders (2018) 374107-2018 - Competition, https://ted.europa.eu/en/notice/-/detail/374107-2018

121 N1 Zagreb(202); MoI (2016) Technical Specifications, https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2016%2fS+002-0019635;

The cameras of such systems can detect objects such as vehicles within a range of 20km and persons within ranges of 15km.[122] The majority of the camera and surveillance systems have been provided by the Ericsson Tesla Group as well as other Croatian firms such as King ICT and Securitas Hrvatska[123]. These stationary surveillance systems are installed along the Croatian land borders to Serbia and Bosnia, which in the town of Metkovic includes cameras installed along a residential street that separates the two countries.[124]

Mobile Surveillance Systems, often used by Frontex, are normally vehicles or trailers equipped with cameras and sometimes radar and sensor technologies.[125] They have been used in Croatia for a number of years since they can be transported to different areas depending on patterns of crossings.[126] Croatia procured 20 such systems between 2021 and 2024-[127]They were funded by ISF and BMVI both developed by a consortium of the following companies: Ericsson Nikola Tesla, Securitas Hrvatska and Hidraulika promet.[128] The vehicles were delivered in August 2024[129]. Footage from the cameras can be directly transmitted to the tablets of border guards in the field as well as to local and national coordination centres which make them available to Frontex.[130]

Portable equipment

Portable thermovision devices were used by the Croatian authorities for detection before accession. Night vision devices worth 167,850.64 EUR were acquired in 2014 with Schengen Facility funding.[131] Significant numbers of portable surveillance devices were also obtained with ISF funding. 65 hand-held thermovision cameras worth 41,710,738 EUR, were acquired from company MI-STAR in 2018.[132] 100 monoculars, thermal cameras, as well as night vision devices that can be attached onto weapons, were purchased in 2019 for a collective value of over 1 million EUR.[133] In 2019 and 2021, the Croatian authorities procured 400 and a 1000 portable day and thermal cameras.[134]

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122 MoI (2020) Technical specifications https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2020/S+0F2-0036687

123 EU Tenders (2021) 22142-2021 - Result, https://ted.europa.eu/en/notice/-/detail/22142-2021; EU Tenders (2016) 418235-2016 - Result, https://ted.europa.eu/en/notice/-/detail/418235-2016; EU Tenders (2017) 321930-2017 - Direct award preannouncement, https://ted.europa.eu/en/notice/-/detail/321930-2017;
Total Croatia (2016). Interior Ministry Invests 48 Million Kuna in Border Surveillance. Available at: https://total-croatia-news.com/news/politics/interior-ministry-invests-48-million-kuna-in-border-surveillance/ See also: Poslovni (2016). Ericsson NT s Ministarstvom unutarnjih poslova ugovorio posao vrijedan 48 milijuna kuna. Available at: https://www.poslovni.hr/domace-kompanije/ericsson-nt-s-ministarstvom-unutarnjih-poslova-ugovorio-posao-vrijedan-48-milijuna-kuna-320774

124 Ministry of the Interior. Implementiran sustav nadzora državne granice u Metkoviću. Available at. https://eufondovi.mup.hr/primjeri-projekata-folder/implementiran-sustav-nadzora-drzavne-granice-u-metkovicu/192
https://ted.europa.eu/en/notice/-/detail/103934-2016

125 MoI (2023) Technical specifications. https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2023/S+0F2-0032259

126 Karlobag.eu (2024) Croatia strengthens security with a new generation of thermal imaging cameras to protect the EU's external border. https://karlobag.eu/en/politics/croatia-strengthens-security-with-a-new-generation-of-thermal-imaging-cameras-to-protect-the-eus-external-borders-5cwsr

127 EU Tenders (2024) 464438-2023 - Competition, https://ted.europa.eu/en/notice/-/detail/464438-2023; EU Tenders (2022) 503950-2022 - Competition, https://ted.europa.eu/en/notice/-/detail/503950-2022;

128 EU Tenders (2024) 12685-2024 - Result, https://ted.europa.eu/en/notice/-/detail/12685-2024; EU Tenders (2023)7073-2023 - Result, https://ted.europa.eu/en/notice/-/detail/7073-2023

129 Karlobag.eu (2024) ; https://www.youtube.com/watch?v=OktZyXMG81s&ab_channel=AzPost

130 ibid

131 EU Tenders (2014) 433998-2014 - Result, https://ted.europa.eu/en/notice/-/detail/433998-2014

132 EU Tenders (2018) 282001-2018 - Result, https://ted.europa.eu/en/notice/-/detail/282001-2018; MoI (2018) Technical Specifications, https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2018/S+0F2-0003879

133 EU Tenders (2019) 408145-2019 - Competition, https://ted.europa.eu/en/notice/-/detail/408145-2019; MoI (2019) Technical Specifications, https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2019/S+0F2-0034262; EU Tenders (2020) 240364-2020 - Result, https://ted.europa.eu/en/notice/-/detail/240364-2020

134 EU Tenders (2021) 10871-2021 - Competition, https://ted.europa.eu/en/notice/-/detail/10871-2021; EU Tenders (2019) 318356-2019 - Competition https://ted.europa.eu/en/notice/-/detail/318356-2019

The contract, worth 8,465,246. EUR and 19,752,241 EUR, was awarded to the Croatian company Safir.[135] The technical specifications state that the cameras should have ' a strap or tie for fixing the camera to a stationary place (pole, trunk).'[136] The use of cameras placed - or hidden - in trees has been documented by civil society organisations.[137] The Croatian authorities acquired a further 84 portable night vision devices worth 402,091 EUR. also from Safir the same year.[138] The same number was acquired the following year, from company MA-RA, at the higher price of 476,332 EUR.[139]

Aerial-Surveillance

Surveillance aeroplanes under the Multipurpose Aerial Surveillance (MAS) initiative by Frontex have been monitoring the Croatian-Bosnian border since 2018, with data directly transmitted to Frontex headquarters in Warsaw.[140] The Croatian authorities also have access to Agusta helicopters for search and land-surveillance, at least since 2015, acquired through Schengen Facility funding.[141]

Drones are deployed for border surveillance, with additional short-distance drones tendered in 2020.[142] In 2024, the Croatian authorities issued two tender procedures for the procurement of drones, worth 1 056 000,00 EUR and 1 152 000,00 EUR, both financed by BMVI.[143] 19 testimonies in the BVMN Database mention drones along Croatian borders. In the interviews conducted, the use of drones was predominantly observed in the context of Serbian-Croatian border areas while helicopters are more often mentioned from interviewees located at the Bosnian-Croatian border.

> *"I have been aware of a lot of drones in the area. I think one of my informants, in his testimony, said that when he was on game he started hearing a sound in the air, that he thought was a duck. But then the sound started being still and he realised that it was a drone and then he heard something drop from the drone, which he believed was like a locator detector. Because about a minute later the police came and found them there." (Interview0501)*

135 EU Tenders (2021) 364687-2021 - Result, https://ted.europa.eu/en/notice/-/detail/364687-2021;
EU Tenders (2019) 475788-2019 - Result
https://ted.europa.eu/en/notice/-/detail/475788-2019

136 MoI (2021) Technical specifications. https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2021/S+0F2-0000573;
Moi 2019) Technical specifications https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2019/S+0F2-0026881

137 Vale, G. (2022,) Croatia joins Schengen, Osservatorio Balcani e Caucaso Transeuropa https://www.balcanicaucaso.org/eng/Areas/Croatia/Croatia-joins-Schengen-222495; Hameršak, M. and Pleše, I. (2021) FOREST, FOREST, FOREST. SOMETIMES WE SLEEP. WALKING, SLEEP, WALKING, SLEEP. IT'S DANGEROUS ON THIS WAY: Weaponized Migration Landscapes at the Outskirts of the European Union, etnološka tribina 44, vol. 51, 2021., str. 204-221, https://hrcak.srce.hr/file/388429

138 EU Tenders (2021) 31418-2021 - Result, https://ted.europa.eu/en/notice/-/detail/31418-2021;
MoI (2020) Technical Specifications, https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2020/S+0F2-0032479

139 EU Tenders (2022) 464811-2022 - Result.https://ted.europa.eu/en/notice/-/detail/464811-2022; MoI (2020) Technical Specifications, https://eojn.nn.hr/SPIN/application/ipn/DocumentManagement/DokumentPodaciFrm.aspx?OznakaDokumenta=2022/S+0F2-0013800

140 Frontex, 2018

141 Poslovni (2016)." FOTO: Policija dobila helikopter s najmodernijom tehnologijom za nadzor granice" Available at:
https://www.poslovni.hr/hrvatska/foto-policija-dobila-helikopter-s-najmodernijom-tehnologijom-za-nadzor-granice-314776;
See also.
EU Tenders (2015) 57958-2015 - Result. https://ted.europa.eu/en/notice/-/detail/57958-2015
EU Tenders (2016) 36610-2016 - Result https://ted.europa.eu/en/notice/-/detail/36610-2016;
EU Tenders (2015) 304754-2015 - Result https://ted.europa.eu/en/notice/-/detail/304754-2015;
European Commission 2020

142 Sapoch & Barker 2021; See also:
Posušje.info (2019, October 17). BiH PUCA PO ŠAVOVIMA: Prijeti nam žestok udar, MUP kupuje bespilotne letjelice. Posušje.info. Retrieved February 6, 2023, from https://www.posusje.info/bih-puca-po-savovima-prijeti-nam-zestok-udar-mup-kupuje-bespilotne-letjelice/

143 EU Tenders (2024) 240729-2024 - Competition https://ted.europa.eu/en/notice/-/detail/240729-2024;
https://ted.europa.eu/en/notice/-/detail/436651-2024

The Croatian police employ helicopters equipped with searchlights for border enforcement. Various sensors and x-ray devices are used for vehicle inspection. Radar scanners, infrared cameras, and sensor signal processing modules are stationed for maritime border surveillance. Night and thermal vision devices are deployed, along with infrared cameras capable of identifying individuals over 10 km away.

> *"I think drones have thermal detectors, so I think they are being used to detect where body heat is coming from, so they know where illegalized migrants are. Especially at night because people only really heard it at night. So I think it's been used to detect exactly the location. And like that one story: a person heard the drone and then a minute later the police were there." (Interview0501)*

IMSI Catchers are devices that capture international Mobile Subscriber Identity (IMSI) and are thereby able to detect and monitor mobile devices in real-time. These devices can identify and track unauthorised mobile phones attempting to cross the border.[144] The use of this technology for tackling cross-border crime in Croatia has been in discussion as early as 2010. As part of a so-called twinning project, Croatian Police conducted study visits to the German Police to acquire knowledge and tactics regarding IMSI Catchers.[145] A number of Tenders listed under "Police Equipment" list the procurement of so called mobile phone "jammers", with the purpose of intercepting phone signals.[146]

Facial Recognition

Our research found little evidence of Artificial Intelligence used in border surveillance in Croatia. While the integration of automated tracking software or risk analysis is integrated in more advanced drone models, we were unable to identify whether such models are used by the Croatian government. What we do know is that in 2020 Croatia acquired facial recognition software to analyse and cross-check facial images in its biometric databases.[147] The €376,000 software should not only cross-check images taken in official identification processes at the border but also cross-check images from CCTV cameras with sufficient zoom to be able to identify individuals based on so-called short-time facial features.[148] Tenders in the EU Tender Portal suggest that Croatia may have already acquired facial recognition software as early as 2016.[149] The use of facial recognition software has been highly criticised for its integral racial bias and high risk of misidentification.[150] Funding documents suggest that part of the funding made available for this software came from the EUs Pre-Accession Instrument.[151]

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144 Privacy International (IMSI Catchers). https://privacyinternational.org/explainer/2222/imsi-catchers

145 (2011) Standard Twinning Light Project Fiche. Accessed via: https://www.mzv.sk/documents/10182/13375/HR2011IBJH02-TWL+CRO+IMSI.pdf/d689a076-c6b0-45f9-9dcc-6500d14a5a96

146 See for example: EU Tenders (2022) 409192-2022 Competition. https://ted.europa.eu/en/notice/-/detail/409192-2022

147 Purchase of Facial Recognition Technology by MUP (Croatia). Via https://www.securityvision.io/wiki/index.php/Purchase_of_Facial_Recognition_Technology_by_MUP_(Croatia)
Simmonds L. (2020) Croatian Interior Ministry Obtains Face Recognition Cameras and More. Available at: https://total-croatia-news.com/lifestyle/croatian-interior-ministry-2/
See also: EU Tenders (2020) 157078 - 2020 Result https://ted.europa.eu/en/notice/-/detail/157078-2020

148 N1 Zagreb Facial Recogniton System: "Croatia's police to get a €376,000 facial recognition system"https://n1info.ba/english/news/a403673-croatias-police-to-get-a-euro376000-facial-recognition-system/

149 EU Tenders(2016) 349888 - 2016. https://ted.europa.eu/en/notice/-/detail/349888-2016

150 Najibi A. "Racial Discrimination in Face Recognition Technology" "https://sitn.hms.harvard.edu/flash/2020/racial-discrimination-in-face-recognition-technology/
See also: Amnesty International (2023) Racial Bias in Facial Recognition Algorithms. Available at: https://amnesty.ca/features/racial-bias-in-facial-recognition-algorithms/

151 (2013) Standard Twinning Light Project Fiche. https://twinning.msz.gov.pl/media/1756/hr-14-ipa-jh-02-16-twl-cro-bfi.pdf

3.2 Biometric data collection and the role of databases

The collection of biometric data, including fingerprints and facial recognition, is a crucial part of the immigration and asylum processes in Croatia. Between 2005 and 2008, Croatia started developing its National Information System for State Border Management (NBMIS), which registers entries and exits and stores the data of people and vehicles crossing Croatia's borders.[152] NBMIS was initially developed with the support of the European pre-accession fund called CARDS (Community assistance for reconstruction, development and stabilisation),[153] at the time.[154] The funding programme also included an assessment of whether Croatia's National Databases would be compatible with the European Schengen Information System (SIS) should Croatia join the Schengen Area.[155]

The Schengen Information System is the EU database, containing alerts on third-country nationals refused entry into or stay in the Schengen area, individuals subject to deportation, and persons or objects sought for police or judicial purposes. The EUs Schengen Facility Fund ultimately provided funding to establish links between the second generation SIS (SIS II) and Croatia's national information systems.[156] The EU-wide upgrade to SIS - SIS II - attaches photographs and finger and palm prints to alerts, enhancing the specificity of identity checks. As of 2023, EUROPOL as well as Frontex also have access to the SIS II database, contributing to the overall effort to link migration and security-related information. This is particularly concerning as the EUROPOL mandate has recently been expanded to allow for additional data sharing with third countries.[157]

The EU Internal Security Fund has further supported the establishment of a criminal Automated Biometric Identification system for Croatia in 2020 as a prerequisite for establishing interoperability with EU criminal databases.[158] According to the funding document this should allow for the cross-checking of national and international databases and for the identification of "fugitives, missing persons, illegal migrants, visa applicants, convicts, prisoners, asylum seekers, second-line biometrics border controls, citizens from personal document records, as well as biometric checks at the EU level".[159]

The general effort to establish interoperability between Croatian and EU biometric databases, prior to Croatian Schengen Accession, also involved the integration of Prüm II.[160] The Prüm Convention is a law enforcement agreement that was signed in 2005 between seven EU Member States with the goal of 'stepping up cross border collaboration, particularly in combating terrorism, cross border crime, and illegal migration."[161] The second Prüm Agreement (PRÜM II), introduces automated data exchange on facial images and police records, allowing for automated biometric matching of facial images, biometric data and police records.

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152 Council of the European Union (2017) Council Implementing Decision setting out recommendations addressing the deficiencies identified in the evaluation of Croatia in view of fulfilling the conditions necessary for the application of the Schengen acquis in the field of management of the external border. Available at: https://data.consilium.europa.eu/doc/document/ST-7739-2017-INIT/en/pdf

153 Council Resolution (EC) NO 2666/200 The CARDS Programme (2000-2006) https://eur-lex.europa.eu/EN/legal-content/summary/the-cards-programme-2000-2006.html

154 (2010) TWINNING PROJECT FICHE. Available at: https://twinning.msz.gov.pl/media/1570/fiszka_chorwacja8.doc

155 ibid.

156 Croatia National Program 2014-2020. Accessed via: https://eufondovi.mup.hr/financijski-instrumenti-eu-82/financijski-okvir-2021-2027/489' https://ted.europa.eu/en/notice/-/detail/423694-2016

157 BorderViolence Monitoring Network (2023). Decoding Balkandac. Available at : https://borderviolence.eu/reports/balkandac/

158 NATO (2020) Countering terrorism: NATO Agency aids in the development of biometrics capabilities. Available at: https://www.ncia.nato.int/about-us/newsroom/countering-terrorism-nato-agency-aids-in-the-development-of-biometrics-capabilities

159 Croatia National Program 2014-2020. Accessed via: https://eufondovi.mup.hr/financijski-instrumenti-eu-82/financijski-okvir-2021-2027/489

160 ibid.

161 EUR-Lex. 2023. Stepping up cross-border cooperation – the Prüm decision. Available at: https://eurlex.europa.eu/EN/legal-content/summary/stepping-up-cross-border-cooperation-the-pr-mdecision.html

The ISF National Program for 2022-2027 specifically mentions plans to improve the automated exchange of information between Croatian and EU member states police databases, including dactyloscopic, DNA and vehicle registration data as well as facial images.[162] This mention of the automated matching, implies the necessary use of AI-based facial recognition technology, heavily criticised for its racial bias.

Biometric Data Collection Practices

The routine collection of biometric data, considered sensitive data under GDPR, in the context of border controls and migration management posts, poses significant concerns with regards to the right to privacy and digital rights in general. Illegalized migrants are often not informed or unaware of what data is being collected, for what purpose and where and for how long it is being stored. This is especially important as an entry in a particular database may have consequences long after that data was collected.[163]

As an EU Member state, Croatia links to the EURODAC system, to store biometric data of asylum applicants. On paper, asylum applicants are identified and fingerprinted immediately upon applying, yet in practice biometric data collection is a lot more arbitrary. [164] To advance biometric data collection practices and the use of EURODAC in Croatia, the EU has invested in optical scanners to scan identity documents[165] and in mobile fingerprinting devices that immediately link to EURODAC to upload and cross-check biometric data.[166] Croatia is also the first EU member state to implement FIELD,[167] Frontex-INTERPOL Electronic Library Document System (FIELDS) which provides information on specific travel documents.[168]

Interviewees from Croatian authorities emphasised the legal prudence behind data collection and clarified that biometric data is only collected with the consent of individuals, including asylum applicants. However, it is questionable how much consent is possible if assistance services for illegalized migrants or the application for asylum depend on providing the biometric data.[169] Despite concerns related to the Dublin Regulation, the authorities prioritise security considerations, and similar practices are adopted by other EU countries to identify and screen asylum seekers. However, the police are often not interested in taking fingerprints from people who do not intend to apply for asylum in Croatia (Interview0405; informal conversation 05). This is confirmed by the Minister of the Interior in a statement made in 2016, that "photos and fingerprints are taken, but not in accordance with EURODAC requirements, as it would be too time-consuming and there is reluctance from Croatia to become a hotspot".[170] Many illegalized migrants still apply for asylum, not to stay in Croatia but to avoid illegality until they reach their destination countries.

162 Croatia National Program 2022-2027. Accessed via: https://eufondovi.mup.hr/financijski-instrumenti-eu-82/financijski-okvir-2021-2027/489

163 Saverrino R. "Biometric Data, Data Protection Authorities, and Migrants: A Complex Nexus" Available at: https://opiniojuris.org/2024/02/07/biometric-data-data-protection-authorities-and-migrants-a-complex-nexus/

164 European Migration Network (2017) "Annual Report on Migration and Asylum in Croatia 2017" https://emn.gov.hr/emn-publications/emn-reports/annual-report-on-migration-and-asylum-in-croatia-2017/296

165 https://ted.europa.eu/en/notice/-/detail/1658-2015 https://ted.europa.eu/en/notice/-/detail/584123-2022

166 https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vkc1ezukucwb; https://ted.europa.eu/en/notice/-/detail/431956-2015; https://ted.europa.eu/en/notice/-/detail/124024-2016' https://ted.europa.eu/en/notice/-/detail/236222-2016

167 Ministry of the Interior (2024) "Uspješno završen Projekt integracije FIELDS-a (Frontex-Interpol Electronic Library Document System) u Nacionalni informacijski sustav za upravljanje državnom granicom" Available at: https://mup.gov.hr/vijesti/uspjesno-zavrsen-projekt-integracije-fields-a-frontex-interpol-electronic-library-document-system-u-nacionalni-informacijski-sustav-za-upravljanje-drzavnom-granicom/294372

168 Frontex (2022) "Frontex and INTERPOL launch a platform for document checks". Available at: https://www.frontex.europa.eu/media-centre/news/news-release/frontex-and-interpol-launch-a-platform-for-document-checks-taiNa8

169 Molnar, 2024

170 European Economic and Social Committee (2016).'https://www.eesc.europa.eu/sites/default/files/resources/docs/malta_updated_migration-mission-report_en.pdf

4. Analysis: Impacts and Risks of Border Technologies

4.1 Technologies in bordering practices at the Croatian borders

Just as borders themselves have to be viewed in multiperspective terms[171] technology as a bordering practice always has to be contextualised. This argument was supported by conflicting statements in the conducted interviews. From perspective of a high-tech environment (for example a tech think tank such as one of the interviewed experts on technology and AI works in), Croatian borders are poorly equipped, while from a practice-oriented perspective (like Croatian journalists and activists have), a variety of applicable tools are available and strengthen the police work on the ground putting human rights of illegalized migrants at risk. While some tech researchers see little potential in investing in the Croatian market, a Croatian journalist, on the other side, reported that Croatia actually could demand any existing technology they wanted and the EU would enable its deployment (Interview0410).

> *"I've spoken with a police officer, he told me 'now we have everything. And we have the people who know how to operate it. we have more or less 99% control of the border'. And the European Union is interested, of course. The migrant problem is something that is in focus now. And basically whatever they ask, they will get. (...) He was not very serious. But on the other hand, well, he said: 'we are thinking about how to fund a new helicopter, to have a new toy". He was joking a little bit, on one side, but on the other side, who knows.' (Interview0410, Pos. 20)*

We will lead out the complex tech deployment situation at the Croatian borders in this chapter by also focusing on the use and practicability of technology in bordering processes at the Croatian borders.

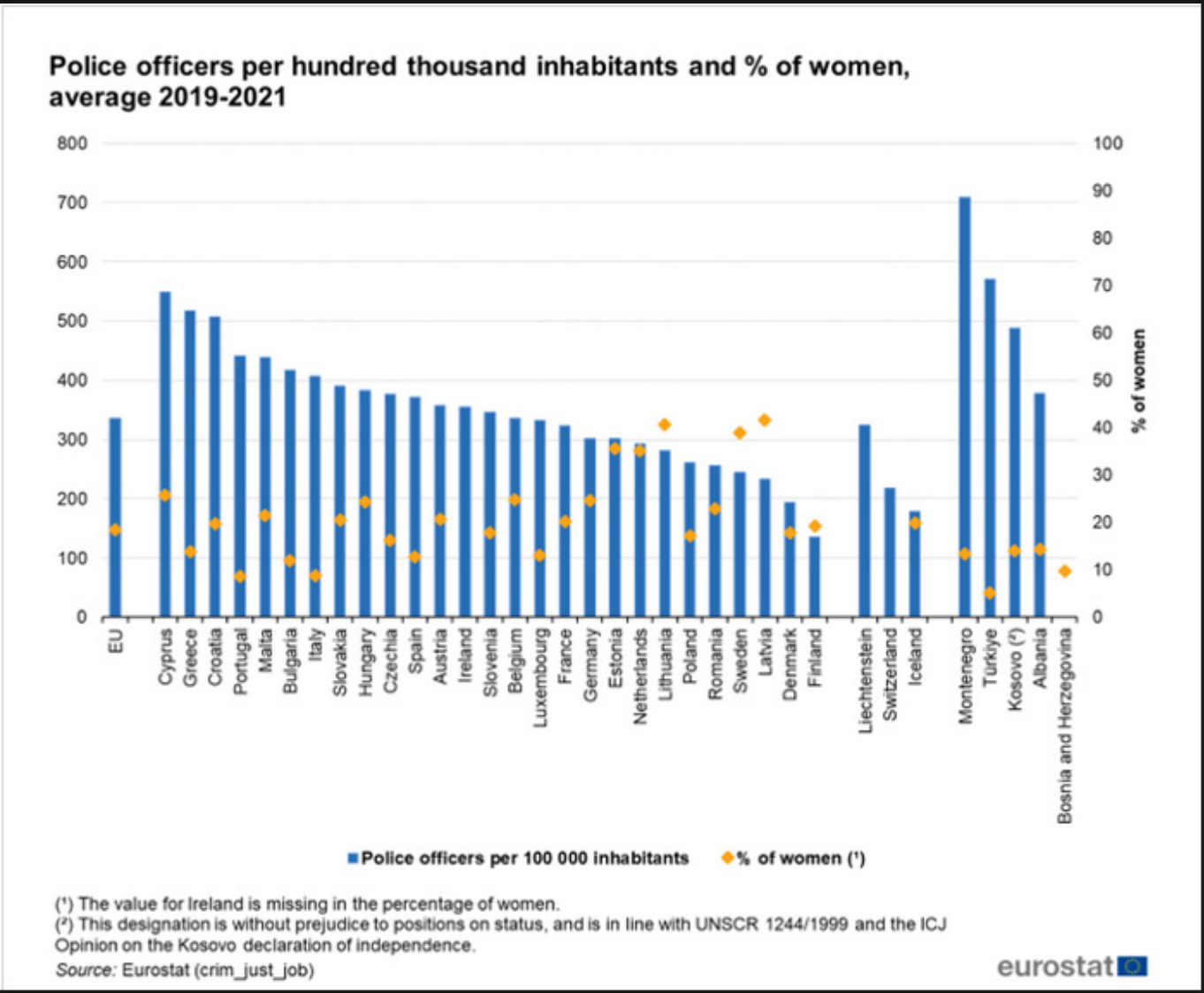
4.1.1 Technology as an extension of policing capabilities

Technology plays a crucial role in enhancing the capabilities of the police. In that sense, the ability to control the border with limited staff is higher due to the deployment of technology. As for the shape of the territory of Croatia, the country has a very long border, which is controlled by the police. The ratio of the length of the border and the population is crucial, because states with fewer inhabitants usually have a smaller absolute number of police forces. The land border of Croatia comprises 2197 km, whereby the border to Bosnia and Herzegovina is 932 km and to Serbia is 421 km long. With a population of less than 4 million inhabitants, this border is very long compared to the country's size and population. For comparison, Germany's borders are 3876 km long,[172] with a

171 Rumford, Chris (2014): Towards a Multiperspectival Study of Borders. In: Critical Border Studies. London: Routledge.
172 Statistisches Bundesamt (2007) Gemeinsame Grenzen Deutschlands mit den Anliegerstaate. Available online at: https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Tabellen/gemeinsame-grenzen-deutschlands.html.

population of more than 84 million inhabitants.[173] Even though the ratio of police officers per 100.000 inhabitants is higher in Croatia, the absolute number of police officers is only around 20.000. In Germany, for comparison, the number of police officers deployed full time is more than 300.000.[174]

Figure 5: Police officers (per hundred thousand inhabitants) and % of women in European countries, average 2019-2021



Source: Eurostat.

Along the Serbia-Croatian border, there are surveillance towers with cameras that can detect even small animals throughout many kilometres. That way, the border police can surveil and protect the border with much less people than it would need through a physical presence. Technology in that sense needs to be viewed as an extension of limited police capabilities (Interview 0410;)[175]

173 Statistisches Bundesamt (2024) Bevölkerung wächst im Jahr 2023 um gut 0,3 Millionen Personen. Available online at: https://www.destatis.de/DE/Presse/Pressemitteilungen/2024/01/PD24_035_124.html

174 Statistisches Bundesamt (2020). Zahl der Polizeianwärterinnen und -anwärter seit 2010 mehr als verdoppelt. Available online at: https://www.destatis.de/DE/Presse/Pressemitteilungen/2020/09/PD20_N057_742.html#:~:text=Deren%20Zahl%20stieg%20seit%202010,%3A%20%2B1%2C6%20%25 (Last access: 20th November 2023)

175 Tesija, 2023

However, the success of advanced technology relies on the practical ability of police officers to use it effectively. No matter how impressive or innovative a technology may be, its value diminishes if law enforcement on the ground encounters difficulties in operating or utilising it (Interview0410; Interview 0412). An interviewed police officer mentioned that there is an issue with police officers not knowing how to use new technologies (interview0409, translated).

4.1.2 Capabilities of technology depending on geographies

The ability of the Croatian police to secure the border through technology is dependent on the geography and landscape of the respective border area. Through the lens of a local journalist (Interview0410), we were able to draw a picture of the development and advancements in border surveillance technology at the Bosnian-Croatian and Serbian-Croatia border. These regions are characterised by distinctive topographies. This results in varying difficulties in crossing and that, in turn, necessitates an accordingly tailored intensity of surveillance systems and technology. The flat-terrain of the Serbian-Croatian border shows different conditions than the Bosnian-Croatian border with its hilly and rugged terrain made of dense forests and fast-running rivers.

The Serbian-Croatian border was reported to be a highly effective border in terms of preventing illegalized entry with the help of security technology. Higher possibilities of surveillance measures on flat terrain make it more challenging for illegalized crossings. Our interviewee recounted a visit to a central police station at this specific border where a comprehensive supply of surveillance tools was observed (Interview0410).

> *And they control this part of the border, which is as I said, flatland and they have everything covered. I mean everything. They have motion detectors, they have thermal visions, they have radars, they have drones. I mean, they're completely equipped. They have these scanners for the vehicles, stationary and moving scanners. You can recognize even small rabbits and in that moment, you see a group of the people coming on the border, an immediate patrol vehicle car [is sent out] and they meet them over there on the border. (Interview0410, Pos. 2)*

The mainly flat area without many trees makes the deployment of large-scale camera and sensor surveillance possible, which can track the movement over a large area. This also matches with the small number of news reports about illegalized border crossings along this border area.

> *"It's easy [to survey] on the Serbian border, which is completely flat. And I think they have (...) 13 cameras that cover all the border which is 100 kilometres. This is all this green and flatland. So it is very hard to cross the border. And this part of the border is completely technological surveillance, high tech things and everything." (Interview0410, Pos. 10-16)*

Figure 6: Topographic map of croatia.

Source: topographic-map.com / Open Street Map

In contrast, the hilly forest landscape in southern parts of the Croatian-Bosnian border has posed challenges for surveillance methods for years due to its topographic features. During our field assessment in Bosnia, the local support structures and IOM confirmed that most illegalized crossings occur from Bojna, Velika Kladuša, and Bihać. The area around Bihać as well as the area around Bojna and Velika Kladuša is hillier than the Serbian-Croatian border. There are more parts with more vegetation found than in the plain field land at the eastern border. The Bosnian-Croatian border offers more possibilities for concealment, and is therefore commonly used and more difficult to surveil with technology.

> *"It's very hard terrain. I'm not speaking about politics, but geographically, it's very hard to control this part of the border. (...) It's impossible to do that [the same way it is done at the Serbian border]. Because forests are very dense, vegetation is very dense and lots of hills, mountains, river creeks, canyons, everything. So basically, technology doesn't work there. No, you have to have men - policemen - on the ground if you want to control this part." (Interview0410)*

Shifts in migrations routes also imply that topographic aspects such as hilly forest areas play an important role in circumventing the impact of surveillance and chances of detection. This is one of the factors for movement and mobility alongside geographic aspects such as distances to EU borders, which makes border-crossings in the South and very North of Croatia less attractive, (Interview0409), political decision making, and legal frameworks e.g. Visa regulations as could be observed in Serbia in 2022.[176]

4.2 Putting technology in its place: Politics, policing and the role of technology

4.2.1 Borders as a testing ground for technology

Borders and illegalized migrants who are stripped of their rights and possibilities, are used as testing grounds for newly invented technology and methods (Molnar, 2020; Molnar, 2024). Even though the US is considered as the leading border regime in terms of technology tested and deployed (Interview0412), the EU-borders still remain an important testing ground, especially for EU-funded projects. In addition, any technology and methods tested and been found to be effective at, for example, the US-Mexican border will make its way to the EU-borders at some point (Interview0412). However, the EU has historically developed legislations and regulations that make its borders less valuable for testing means:

> *"Especially in Europe, I think this is not getting as much traction as it is in the US. I think the US is just off the charts. It is absolutely scary what's going on there in terms of that kind of testing ground. (…) There is still enough sensitive sensibility in Europe to actually say, this is just outrageous, just please don't do it" (Interview0412, Pos. 144-150)*

In general, when comparing the borders along the South Eastern route to other border areas such as the US, for example, these are considered to be "low-tech borders" (Interview 0412).

> *"Most of the stuff is analog, most of the violence is physical. (…) We still talk about walls and barbed fences and wires and stuff. AI is not anywhere near on the horizon there. Which, of course, doesn't mean that it won't be in five years time. But, I remember when I was doing this research, and I was asking: 'do you have all kinds of tech stuff?' And people were telling me 'well, you know, we're lucky when we get a car that has a kind of radar that we can hold and point and try to see something on a map.' So we're not talking about high tech stuff. This region is low tech." (Interview0412, Pos. 56-60)*

Nevertheless, as seen at the Evros borders, EU borders also become highly securitised which are of great importance and necessities to the implementation of legal frameworks protecting human rights and privacy rights of illegalized migrants regarding AI and technologies in bordering contexts.[177] According to a specialist on technology and AI (Interview 0412), the impact of human rights approaches and human rights cases brings

176 Lynch, Suzanne & Barigazzi, Jacopo (2022). EU fumes that Serbia is fanning new migrant route. Politico Online. https://www.politico.eu/article/eu-fumes-that-serbia-is-fanning-new-migrant-route/

177 Border Violence Monitoring Network (2023c). Fires, Pushbacks and the Far Right: Misplaced Blame and the Mobilisation of Violence Against illegalized migrants in Evros. JOINT CIVIL SOCIETY STATEMENT. August 23, 2023. Retrieved from: https://borderviolence.eu/app/uploads/Evros-Fires-2023-BVMN-Statement-5.pdf

greater possibilities for legal regulation regarding the usage of tech and data collection systems in the EU compared to the US. Counter voices and social control by civil society and NGOs as well as the media alongside cases in front of the European court of justice provides a basis for negotiation processes on legal framework conditions and lawsuits concerning human rights and technology use, many times also focusing on privacy issues.[178] This understanding of the subject makes the work on technology and human rights even more important in order to raise and strengthen the counter voices and pay close attention to any occurrences and new developments.[179]

4.2.2 Technology as means for "complete border and migration control"

The deployment of technology of course can not be understood without its relation to politics. Within politics, the purchase of technology is decided upon, while the actual technology is deployed by police forces. Here the EU-level and the Croatian state act in close interrelation: While the EU had put a lot of pressure on Croatia, especially during its entry to the EU and to the Schengen Area in securing its borders, Croatia as a transit country also has power in governing the entry of illegalized migrants into the EU. In the debates around technology for bordering, there is a tendency to assign technology a large ability for the total control of the border.[180] Technological developments indeed enhance the ability of state authorities to repress illegalized movement, yet our findings from the field assessment suggest clear limits of technology.

One central strand of critical border studies, the autonomy of movement frameworks, already emphasises the limits of bordering practices. Based on the theoretical premises of (Post-)operaism and Italian worker struggles, they centre the agency of illegalized migrants on circumventing even highly fortified borders.[181] The point of departure in that strand of theory is not the border regime, but the resistance of people through the practice of free movement, which the border regime rather attempts to counter. The case of the Croatian-Bosnian border supports this argument, as even during the times of a highly secured and physically violent border regime, many illegalized migrants were successful in crossing the border, however increasingly through the services of smugglers.

> *"Technology is not going to stop migratory processes, but technology can be used to predict, observe, surveil, and this is what's been happening more and more in the context of prediction." (Interview0412, Pos. 244)*

The shift from a highly effective border regime to a less securitized one highlights the contingency of the border regime and demonstrates that less violent borders are possible once there is political will. Past shifts in Croatia's approach to opening rather than closing its borders contradict the argument that technology alone prevents illegalized movements. However, technology does play a great part in the ability to surveil and predict such movements.

178 as an example for such counter voices and concerns from civil society, see McGregor & Molnar, 2023

179 see Molnar, 2020

180 IEEE Public Safety Technology (n.d.): High-Tech Border Security: Current and Emerging Trends. Retrieved July 30, 2024, from https://publicsafety.ieee.org/topics/high-tech-border-security-current-and-emerging-trends

181 Mezzadra S and Neilson B (2013) Border as Method, or, the Multiplication of Labor. Durham: Duke University Press.; De Genova, Nicholas (2016). "The 'Crisis' of the European Border Regime: Towards a Marxist Theory of Borders" International Socialism: A Quarterly Review of Socialist Theory Number 150 (April 2016)

4.3 The contribution of technologies to (in)visibilize violent borders and illegalized migrants

In this section we elaborate the role of (in)visibility that technology produces within bordering practices.

First, a central task of technology within border control is the detection and visualisation of illegalized movement, allowing a classification of migration movement as "legal" or "illegal" and, subsequently, having state authorities intervene accordingly (e.g. push-backs, detention camps).

In addition, technologies like the Schengen Information System or EUROPOL provide police with extensive information to identify (including criminal records, asylum applications, etc.) and monitor individuals. Visibility of illegalized migration however does not automatically mean a restriction of this movement, as in some cases, like in Rijeka, illegalized migration was tolerated and police forces did not intervene. The primary function of making illegalized movement visible is to establish control and enable controlled intervention.

Second, technology enables states – in this case Croatia – to construct an invisible border, that is not as visible as a border wall but still is functional in governing mobilities. Cameras, sensors, and air surveillance remain largely unseen by both locals and migrants (Informal conversation 01 and 04). Some local residents reported to occasionally have witnessed technology such as helicopters or drones. However, none of the interviewees could provide further information on quantity, frequency of use or specific details of the equipment and their description stayed rather vague. Local forest associations mentioned wildlife cameras that were put up for animal observations and which, they made sure to underline, are not accessed by the police for migration purposes (information conversation 05). This invisibility of the border regime serves to prevent illegalized migrants from circumventing the border controls and also enhances the legitimacy of the border regime, portraying it as a non-violent, technocratic system. The invisibility therefore matters especially for the legitimacy of the border: The technologized but invisible border remains less controversial than a border wall or barbed wire and enables Croatia to portray the border as more human. For example, interior Minister Davor Bozinovic, spoke of unprecedented figures of apprehended migrants attempting to enter Croatian territory and emphasised the government's commitment to respecting illegalized migrants' rights under EU law while at the same time asserting Croatia's intention to establish its rules for organised migration.[182] This highlights the double movement, of on the one hand constructing illegalized migrants as a risk that needs to be governed by the border regime, while upholding the image of the border regime as non-violent and legally technocratic.

182 Beta, 2023

5. Conclusion

In summary, our analysis examined the impacts and risks of technology on border control, highlighting the complex and often contradictory nature of its application. Overall, our analysis emphasises the need to contextualise the application of technology in border control and to consider its complex interplay with politics, policing, and more. Our research analysed the impact of technology on migration and bordering practices. We departed from the observation that despite an ongoing high level of technology at the Croatian borders to Serbia and Bosnia, during the first ten months of 2023, there was an increasing possibility for illegalized migrants to cross the border and country, sometimes under the direct eyes of police forces. We could not find evidence for causal relationships between the deployment of technology and the restriction of illegalized migration within our period and field of research. Instead, push-backs seem to take place even without the use of any advanced technology and illegalized migration takes place despite the deployment of AI and advanced technology at the border.

We explored in chapter 5.1 how technology is used in bordering practices. While journalists and activists described Croatia to have increasing and advanced surveillance capabilities, the international tech expert described the region as "low-tech". This suggests a disconnect between rhetoric and reality. Technologies enhance the capabilities of police forces, particularly in the context of Croatia's long border and limited number of officers. The success of technology in border control relies on the topography of borders and the practical ability of police officers to use it effectively, which is often limited. We also delved into the varying effectiveness of technology depending on the geography and landscape of the border regions, with the flat terrain of the Serbian-Croatian border being more amenable to large-scale surveillance compared to the hilly, forested areas of the Bosnian-Croatian border. AI and technology do not inevitably lead to a full governance of migration. Reasons for this are various, such as local and regional conditions, political orders and strategies of the EU as well as a lack of competence of police officers, or shifting routes.

In chapter 5.2 we illustrated that there is a tendency to view technology as a means for "complete border and migration control", despite the autonomy of illegalized migrants movements[183] as well as borders being used as testing grounds for new technologies. . We argue that the emphasis is to be put more on the importance of deployment strategies, which is to be found in the political will of nation states as well as EU legislations, than the mere availability of technologies.[184] Here, it helps to include border study discourses in order to understand the ambivalent role of technology: scholars argue that bordering practices are a form of political spectacle, in which the demonstration of state power is more central than the actual control of all forms of illegalized mobilities.[185] Technology and AI are, while overestimated tools in their actual effect, used to effectively construct an image of state power and control of the border. Similarly, in the economic interest of the border-industrial complex, it does not fully matter whether the technology actually prevents illegalized mobilities as long as the policy makers allocate the funding to the right projects and support the argument of techno-solutionism in governable borders.

183 Mezzadra & Neilson, 2013
184 Molnar, 2020
185 De Genova, 2016

Ironically, the border-industrial complex is dependent on smugglers and illegalized migrants to legitimise and sell their technological products as much as smugglers are dependent on controlled, surveilled and technologized borders to legitimise their services and demand increasing amounts of money.

Parallel to the spectacle of bordering practices, technology also contributes to veil the border regime. By exploring the (in)visibilities produced by technology within bordering processes, as we did in chapter 5.3, we conclude that technology enables the detection and classification of illegalized movement, but visibility does not automatically lead to restriction of movement. Systems, such as databases and biometrics, play an increasingly important role within bordering which, however, occurs often with a great distance from the actual border line leading to "borders [being] everywhere".[186] As Balibar explains: "some borders are not situated at the borders at all, in the geographical-politico-administrative sense of the term. They are in fact elsewhere, wherever selective controls are to be found, such as, for example, health or security checks".[187] With increasing data bases, this a-spatial and a-territorial aspect of bordering increases widely. In that sense, technology allows for the construction of an "invisible border". A "invisible border" as such remains less controversial than physical barriers, like fences or walls, and enables the portrayal of the border regime as a non-violent, technocratic system. After all, we support the argument that bordering practices are a political act of governance. Technology enhances the governance of illegalized migrants through more effective surveillance and identification, while it also enables migrants to cross borders, for instance through navigation or information sharing. If there exists the necessary political will - as the long summer of migration 2015 showed - open borders for human mobilities are possible. In this light, the discourse around technologies and AI as threats to illegalized migrations has a depoliticizing effect, especially when talking about border violence, as it centres technology and not the exclusionary nature of borders. Borders are the obstacle for illegalized mobilities, not technology. A local activist from Ljubljana noted that „dogs are still the most dangerous" (informal conversation 06). Violence and exclusion at the border do not occur because of AI and technology, but they are rather a tool for bordering, just as batons and dogs are as well.

Finally, if one turns the question around, and asks not for the role of technology for borders but the role of borders for technology, the border areas emerge as an important testing ground of technologies for a vulnerable population without much access to their rights and data protection.[188] The tested technologies and AI systems, however, are increasingly deployed for domestic policing. Technology remains in an ambivalent role that restricts mobilities as much as it enables them.[189] It is one of many factors, which in their interrelation shape bordering and migration practices, such as economics, geography, legal changes or political shifts. However, state actors have much larger access to technology than illegalized migrants and solidarity structures. Also, cameras are not as visible as a border fence, and therefore produce less resistance from liberal civil society. Within the conflict of the militarised border regime and autonomous migration, the power imbalance is increasing through technologization.[190] Therefore, in the long run, scrutinising the role and impact of technology becomes not only relevant within the field of critical border studies and border activism, but much broader also for political movements facing state repression. Based on this shared effect, addressing the role of

186 Balibar, Étienne (2002). Politics and the Other Scene. London New York: Verso.
187 Balibar 2002: 84 cited in Salter, Mark B. (2009): Borders, passports, and the global mobility. In: The Routledge International Handbook of Globalization Studies. London: Routledge
188 Molnar 2024; see also chapter 5.2.1
189 Miliivojevic, 2019
190 Miliivojevic, 2019

technology becomes increasingly important for progressive politics, also beyond borders - not only at the geographical borders but, moreover, at all levels of bordering.

In the last decade, Croatia had a conflicting position to fulfil contradictory expectations on the part of the EU. On the one hand, official Schengen regulations and border control required migration control and border securitization. On the other, human rights had to be respected as one of the major declared values of the EU (Interview0413). As a consequence, Croatia had implemented covert violence, resulting in pushbacks and border violence.

> *"The Croatian border police partially masked up and then carried out these pushbacks while wearing masks during overtime, which was indirectly financed by EU taxpayers' money" (Interview0413, pos. 9; translated)*

6. Future Research

Due to the limited capacities of a single field assessment, we were not able to identify more technology that is actually used at the border and the mechanisms of decision making for the development and deployment of technology, however, we were able to capture an understanding of the impact of technology more broadly. A more continuous desk research on the funding of new technology would be beneficial. Here, a closer look into the private companies of the border-industrial complex, the mechanism of lobbying, the process of allocating funds to technology and the intersection of private and public sectors could help to understand not only what technology is deployed, but also which actors are crucial in that process. This also could help progressive civil society to position its own lobby efforts at the EU level in relation to oppositional lobbying by private firms for deploying technology. In addition, researching on inside-perspectives of the police and the Croatian domestic politics would be good for a better understanding of the process of technology deployment.

A political-economy lens could benefit the analysis of the research. Hereby, the inner EU-process of funds-allocation, of the interplay of Frontex, domestic police, military companies, research and development of technology and EU institutions could approach technology as a beneficial and central market for the border-industrial complex.[191] This could shed a critical light on the economic profit from bordering, which is not directly linked to economic considerations. For instance, Andersson (2012) argued that technology does not primarily serve the police's need for governing the border, but rather is a lucrative market that sells the illusion of control at the border. Such a political-economic understanding of the border as a market could provide a critical understanding of technology as a tool for capital reproduction.

191 Winkler, D. (2023). The political economy of bordering and the reproduction of borders in the case of Frontex. Human Geography, 16(2), 162-174. https://doi.org/10.1177/19427786221135577

ANNEX Conducted Interviews:

Interview0405: local NGO activists, Zagreb, Croatia (September 04, 2023). Personal Communication.

Interview0407: Migration researcher, Zagreb, Croatia (September 05, 2023). Personal Communication.

Interview0408: Migration researcher, Zagreb, Croatia (September 05, 2023). Personal Communication.

Interview0409: Police official & law expert, Northern Croatia (September 06, 2023). Personal Communication.

Interview0410: Journalist, Osijek, Croatia (September 08, 2023). Personal Communication.

Interview0411: Journalist, Berlin, Germany (September 21, 2023). Personal Communication.

Interview0412: Technology researcher, online (September 18, 2023). Personal Communication.

Interview0413: Migration researcher, online (September 10, 2023). Personal Communication.

Interview0414: Researcher on Biometrics, online (November 24, 2023). Personal Communication.

Interview0501: international NGO activist, Bihać, Bosnia and Herzegovina (December 5, 2023). Personal Communication.

Interview0502: local NGO activist for Northern Balkan area, Serbia (December 21, 2023). Personal Communication.

Interview0503: Programme director, born and living in Belgrad, Serbia (December 21, 2023). Personal Communication.

Informal conversation 01: local residents and members of a hunting association, Sunja area in the county Sisak-Moslavina, Croatia (September 06, 2023)

Informal conversation 02: local resident in Velika Kladuša. Bosnia-Herzegovina (September 07, 2023)

Informal conversation 03: local resident in Velika Kladuša, Bosnia-Herzegovina (September 08, 2023)

Informal conversation 04: representative of the Hrvatska Sumari administration,

Nova Gradiška in the county Brod-Posavina, Croatia (September 08, 2023)

Informal conversation 05: activists and support workers at train station, Rijeka, Croatia (September 09, 2023)

Informal conversation 06: activist in Ljubljana (September 10, 2023)

Informal conversation 07: mail communication with employee in reception centre in Bihać, Bosnia-Herzegovina

(September, 2023)

Informal conversation 08: conversation with a marketing representative of Teledyne FLIR at the World Border Security Congress in Istanbul (April 24, 2024)

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