

The co-constitution of EU border management and the growth of the aerospace, surveillance and defence industry

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Joerg Nowak, Quinn School of Business, University College Dublin
joerg.nowak@gmx.de

Private military and security companies are central actors for the erection of a physical and electronic border infrastructure in Europe. While the execution of most of the projects in this area is led by enterprises, many projects are run jointly with private or public research institutions, and are funded by public agencies. This does not speak against the central role of private enterprises, but one has to underline the manifold interdependencies between public and private actors in border monitoring and surveillance. This report has a special focus on border surveillance from the air, and on integrated EU border management, but also includes other aspects of border surveillance like the search for hidden persons at border crossings. The focus of this report is due to the special relevance that air surveillance has for integrated border management since the start of air surveillance by the European Maritime Safety Agency (EMSA), jointly with Frontex in 25 September 2018, and the subsequent abandonment of search and rescue activities by the EU in March 2019.

In this report, I will first introduce the relevance of air surveillance for a European integrated border management and the special role of EMSA for it. Second, I will outline EU funding for research into and production of border infrastructure, and highlight private companies which are key providers of technology and products for this infrastructure. In a third part, I will provide a historical context for the role of border surveillance and air control in racist and colonial domination, and its continuing relevance today. Fourth and last, I zoom in on the Portuguese aerospace industry and the role of the Portuguese state in border surveillance as an example for the intersection of national and European industrial strategies.

1. The European Maritime Safety Agency (EMSA) as a new key institution for border surveillance

EMSA is located in Lisbon, Portugal and was founded in 2002 with a narrow focus on maritime security, i.e. the monitoring of ship movements in order to avoid collisions and environmental havoc, and on trade with illegal goods. An expansion of the mandate of EMSA to include the monitoring of migration came with a bid that the agency launched already during 2016: 76 million Euro were available for two slots, one larger for smaller drones with a volume of 66 million Euro, and a smaller one for bigger drones covering the rest of the financial volume. The upcoming Portuguese space, tech and defence company Tekever, also based in Lisbon, won the larger bid, while the smaller bid was won by a consortium of Portuguese company UA Vision with the Portuguese Air Force, and by Italian defence company Leonardo. Tekever has subsequently built a new production facility in Ponte de Sor in the Alentejo region, where the drones are being produced.

The institutional framework for the use of drones is the following: EU member states can approach Frontex to use the drones which will then submit the request to EMSA, and EMSA subsequently starts an operation which can take a maximum of two months. EMSA itself hires the drones from the different suppliers and does not buy them. The data acquired during the drone flights runs through the data center of EMSA and is shared in real time with Frontex. The first of such operations has started on 25 September 2018 with ground control in Portugal and a focus on border surveillance. A second operation started in February 2019 with ground control in Spain, using the drones and data center of EMSA. In this second operation multiple purposes were integrated: pollution monitoring and border surveillance. At the same time, as a subproject of the EU Copernicus Satellite program, EMSA runs

Copernicus Maritime Surveillance since 2019 which also has a multi-focus on border security, maritime safety, fisheries control and environmental issues.

Thus, various surveillance issues run currently together at EMSA in Lisbon. While some member states of the EU have run their national drone programs for a while, the integration at the European level is a crucial step towards a more integrated security infrastructure with joint databases. At the same time, the current context of a complete halt of search and rescue operations within the EU military mission Sophia since the end of March 2019 leaves this mission with a predominant focus on air surveillance: While training of the so-called Lybian coast guard was a part of the Sophia mission since the beginning, it now entails the complete outsourcing of search and rescue operations to the Lybian coast guard. Due to the hap-hazard nature of the Lybian state at this point (and the civil war that started shortly after delegating search and rescue to it) this 'institution' more often than not does not respond and is highly dysfunctional. Whilst the installation of the European integrated datasystem EUROSUR in 2015 was legitimated with another shipwreck of hundreds of migrants at sea, surveillance of the border becomes now a predominant concern. While the information gathered by drones could be actually used for search and rescue operations, these are not undertaken for political reasons of a deterrence effect against migrants.

This report aims to challenge how European border management is often legitimated with the aim of combating smugglers who organise illegal immigration, to protect migrants from drowning in the Mediterranean and to protect the European Union from crime and terrorism. Various studies have documented that policies of a more rigid border management facilitate an increase in informal and unfree labour (Dines/Rigo 2016), lead to an increase of the need for people smugglers and the prices of smuggling (Lutterbeck 2006; LeBaron/Philips 2019), and come with regular human rights violations both by Frontex personnel and by regular police (Fink 2015; Reid-Henry 2013). After the refugee crisis in 2015 the number of sea crossings overall dropped, accompanied by a higher number of deadly drownings in the Mediterranean inspite of better surveillance and thereby heightened visbility of migrant vessels (see the numbers for 2018 in Pronczuk 2018 and in Villa et al. 2018). Thus there is considerable tension between the aims of border management as stated by the EU (European Commission 2014) - legitimating the funding of surveillance and defence technologies - and its effects that run counter to these objectives. It therefore can be asked if the funding for surveillance and defence industries is spent in a form that increases the benefit of EU citizens.

2. EU funding for border surveillance and private military and security companies

The build-up of a comprehensive intelligence and surveillance system for EU border management is a long-term project being set up since the early 2000s (Armstrong/Anderson 2007; Dijstelbloem/Meijer 2011; Oelgemöller 2017). Nonetheless, the so-called refugee crisis in 2015 and the recent rise of the number of immigrants that drown in the Mediterranean (Pronczuk 2018) have motivated the EU to step up finance and manpower for a more rigid high-technology border management. While the Mediterranean Sea has turned into the world's most dangerous border (Freire/Nascimento 2016, 135; Jones 2016, 12ff), the air surveillance of borders, and especially of sea borders, has turned into a central piece of the new border architecture (Csernaton 2016; Monroy 2018). This process of the build-up of a technologically and administratively integrated EU border management was accompanied by significant funding, including through R&D funding mechanisms, of the surveillance and defence industry in Europe by EU agencies. The technological upgrading of border surveillance, the integration of the databases of various national states and the successive extension of the technological equipment of FRONTEX become a highly profitable business (Lemberg-Pedersen 2013).

Between 2007 and 2020, funding by the EU invests 252 million Euro into research into border security. The recipients of this funding are mainly large defence and private security companies, with a dominance of defence companies. Several studies on EU border management, especially on the European External Border Surveillance System (EUROSUR) which is being built up since the 2000s and was launched in 2013, have demonstrated how EU funding for border management systematically colludes with the growth of the aerospace, surveillance and defence industry: industry experts participate in the design of border concepts, demonstrating the necessity to develop new products which brings significant conflicts of interest and lock-in effects (Hayes/Vermeulen 2012; Lemberg-Pedersen 2013; Bellanova/Duez 2016). EUROSUR aims at the integration of 24 different national surveillance systems and coordination centres, with an estimated cost for the period of 2014 to 2020 of 400 to 800 million Euro (Hayes/Vermeulen 2012, 8). This system provides the larger framework for a systematic border surveillance.

The financing for EUROSUR comes from different sources like the EU External Borders Fund (EBF), the Framework Research Programme and the Internal Security Fund (ISF). The newly created Integrated Border Management Fund (IBMF) is exclusively focused on border protection and will manage 9.3 billion Euro in the 2021-2027 period. In addition, the European Security Research Programme (ESRP) was launched in 2004, and was later integrated into the Framework Research Programme FP 7. FP 7 ran from 2007 to 2013, investing 228 million Euro in 30 border security projects of which four include the application of unmanned aerial vehicles (UAVs) (Talos, Oparus, I2C and Wimaas), and almost all of the 30 projects cover different aspects necessary for the creation of EUROSUR (European Commission 2016). The Horizon 2020 programme for the period between 2014-2020 invested about 26 million Euro into four projects (Bodega, C-bord, Flyse and Forensur) devoted to border management and border security, mostly to defence companies (European Commission 2015).

A second crucial step forward in installing EUROSUR has been made with the European Commission's proposed regulation in September 2018 that foresees a 10,000 strong European Border and Coast Guard (EBCG), organised by EU agency FRONTEX with executive powers, presented on 12 September 2018 by Jean-Claude Juncker (Gkliati 2018). The EUROSUR project is running on trial since 2013, and the proposal made in September 2018 is a crucial step in making it fully operational. From 2017 on, FRONTEX had 10 million Euro per year to acquire equipment, and for 2021-2027 the Commission has earmarked 2.2 billion Euro for acquiring, operating and maintaining different surveillance assets (Gkliati 2018). The central function of EUROSUR will be the creation of a space of surveillance around borders in which space is divided into "both meaningful and manageable sections" (Bellanova/Duez 2016, 14). Objects, as ships, will be evaluated according to their type of movement and behaviour and anomalies will alert the surveillance authorities that migration might be involved.

Existing studies largely ignore the role of the EMSA in border management and do not feature the acquisition / renting of drones via the EMSA bid. Thus, this area represents a crucial gap in the research on industry growth and EU border management.

It is highlighted in the literature that the Integrated Maritime Policy for the EU, launched in October 2007, plans to integrate EUROSUR with other maritime surveillance networks, which suggests that there will be an integration with the parallel surveillance network developed by the EDA, and launched in 2006 (Hayes/Vermeulen 2012, 14, 25). It is in this context that the military has taken over policing roles and there might be further blurring of the boundaries between military and police work with the integration of both systems (Wolff 2008). In addition, the EMSA runs SAFESEANET, a vessel traffic monitoring and information system. In 2010, a pilot project with the participation of FRONTEX worked on the merging of data from different systems, and in 2013 the Commission stated the intention to incorporate SAFESEANET into EUROSUR (Hayes/Vermeulen 2012, 24). Despite these early indications of the role of EMSA, until now it has not attracted much attention in research on border management. In the explanatory memorandum to the EUROSUR proposal the support of

'relevant European space programs' is mentioned, including the Global Monitoring for Environment and Security (GMES) program. Also, Bellanova and Duez (2016, 16) highlight that the Support Group for feasibility studies for EUROSUR included experts from the EMSA, the ESA and the European Union Satellite Centre (EUSC) in the mid-2000s, without paying much attention to this collusion of agencies across the police-military divide.

Defence companies from all over Europe executed and co-financed research projects devoted to the setup of a European border system, often in cooperation with universities or other research units. In the FP7 funding period, out of a total of 30 projects, 25 had private companies as the main responsible unit, and five had public entities as the main responsible unit, of which two are universities. Out of the 25 projects led by a private company, seven were French companies, four Spanish, three Italian, three from the UK, and one project each was led by companies or research institutes from Switzerland, Finland, Austria, Sweden, Poland, Germany and the Netherlands. Five private companies led two projects each: Morpho from France, Indra Sistemas from Spain, Sistemi Integrati from Italy, BMT Group Limited from the UK and the Thales Consortium from France.

During the FP7 funding period, there were nine with a focus on the setup of an integrated European border management, and the aerial surveillance of borders (European Commission 2016):

1. The project Oparus, led by private company Sagem Defense Securite (France), explored the use of unmanned aerial systems for border surveillance in the areas of Poland, the South Mediterranean and the Canary Islands, with a budget of 1.4 million Euro.
2. The project EWISA, led by the Romanian border police, focuses on illegal migration situation awareness with a total budget of 14 million Euro.
3. The project GLOBE, led by the private company Telvent Interactiva S.A. (Italy), focuses on integrated border management in the EU, on the activities of Frontex and its bilateral arrangements with external partners of the EU. This project had a total budget of about 1 million Euro.
4. The project Closeye is led by the Spanish Guardia Civil, and focuses on maritime border surveillance with a total budget of 12 million Euro.
5. The project I2C with a focus on abnormal vessel behaviour is led by the private company DCNS SA (France), with a total budget of 15 million Euro.
6. The project Operamar is led by the private company Thales Underwater Systems (France), and focuses with a budget of 669.134 Euro on EU maritime security management.
7. The project Perseus focuses on border protection and surveillance, and is led by private company Indra Sistemas S.A., Spain, with a total budget of 43 million Euro.
8. The project Seabilla focuses on sea border surveillance, and is led by private company Selex Sistemi Integrati (Italy) with a focus on the English Channel, the Mediterranean and the Atlantic Sea, with a total budget of more than 15 million Euro.
9. The project WIMAAS focuses on unmanned aerial vehicles (drones) and maritime surveillance, and is led by private company Thales Systemes Aeroportes S.A. (France) with a total budget of 4 million Euro.

The high number of projects in the period from 2007 to 2013 demonstrates a systematic preparation of a European border management system, supported by and based on aerial surveillance. The next step in this process was the constitution of a European Coast Guard, consisting of the EU agencies Frontex (located in Warsaw, Poland), the European Fisheries Control Agency (EFCA, located in Vigo, Spain) and the European Maritime Safety Agency (EMSA) in Lisbon. In December 2015 the European Commission proposed to widen the mandate of EMSA so as to include border surveillance into its ambit of operations (Nowak 2019). This was approved by the European parliament in September 2016, outlining the cooperation between the three agencies, and the use of drones for the surveillance of

maritime borders (Regulation 2016/1625). Since September 2018, the data centre of EMSA is operational and the first drone operations have been run.

Before I expand on the operations that EMSA is running since 2018, I want to look into three of the research projects under FP7 that were crucial for the preparation: I2C, Perseus and Seabilla, number 5, 7 and 8 in the list above. They had large financial volumes and prepared key elements for the current aerial surveillance regime (European Commission 2016).

- I2C, with a financial volume of 15,962,707 million Euro (of which 9,869,621 million Euro are funded by the EU)

The project did research on a system of detection of abnormal vessel behaviour – this is at the core of the current drone air surveillance program run by EMSA. While the project I2C lists primarily smuggling of goods as the target activity to be detected, the EMSA program explicitly relates to (supposedly) illegal migration as one of the target activities to be monitored. Automatic detection of abnormal vessel movements is done by the Tekever drones, and will use parameters like the time of boarding and low wave areas, and also other algorithmic information. I2C can be seen as the key research project enabling these surveillance procedures. Illegal pushbacks carried out by Frontex and national police forces might be increasingly based on information gathered by drones. These drones sent an alert in case they identify abnormal vessel behaviour.

The lead company in this project is DCNS SA (France), and further participating companies are Rockwell Collins France (France), Furuno Finland OY (Finland), SES Astra TechCom SA (Luxembourg), Kongsberg Nortcontrol IT A/S (Norway), Kongsberg SpaceTec A/S (Norway), Clearpriority SA (Belgium), ZLT Zeppelin Luftschifftechnik GmbH et co KG (Germany), Meteosim SL (Spain), Ajecco OY (Finland), Airshipvision International SA (France), Ecomer (France), Intuilab (France), Sofresud (France), Eric van Hooydonk Advocaten (Belgium), Association pour la recherche et le developpement des methodes et processus industriels – Armines (France), Universite Paul Sabatier Toulouse III (France), Office National d Etudes et de Recherches Aeronautiques – ONERA European Commission – Joint Research Centre (Belgium), Deutsche Zeppelin Reederei GmbH (Germany)

- The project Perseus is with a financial volume of 43,644,979,60 Euro and an EU contribution of 27,847,579 the most expensive project in border surveillance during this funding period. Its aim is to integrate various national systems of information and surveillance into a larger system “while preserving national prerogatives” (p. 302) which has been done with the setup of the EMSA data center whose operations can be requested by member states. The focus of Perseus was on “irregular migration and trafficking” (p. 302) and included “six surveillance exercises in the Western and Eastern Mediterranean regions”. Among its aims is to connect Frontex with national information centers, to detect “suspicious” small boats, and “enhance automated detection of abnormal vessel behaviours”. Rather than focusing on abnormal vessel behaviour as such, Perseus focuses on the setup of an integrated surveillance and information system that connects different institutions across Europe.

Perseus tested surveillance airplanes, drones and autonomous underwater vehicles, and established the cooperation of military and police in those surveillance operations. Perseus thus is the core prototype operation for the European Coast Guard aerial surveillance that started in October 2018.

The lead company for this project was Indra Sistemas S.A. (Spain), and other participants were EADS Defence and Security Systems (France), DCNS SA (France), Engineering Ingegneria Informatica SPA (Italy), Ingeniera de Sistemas Para la Defensa de Espana SA (Spain), EADS – Construcciones Aeronauticas S.A. (Spain), National Center for Scientific Research “Demokritos” (Greece), Guardia Civil Espanola (Spain), Institutt for Fredsforskning Stiftelse (Norway), Saab Aktiebolag

(Sweden), SES Astra Techcom SA (Luxembourg), Ajeco OY (Finland), Intuilab (France), Meteosim SL (Spain), Luxspace SARL (Luxembourg), Sofresud (France), Inov, Inesc Inovação, Instituto de Novas Tecnologias (Portugal), Skytek Ltd. (Ireland), Laurea-Ammattikorkeakoulu OY (Finland), DFRC AG (Switzerland), Boeing Research & Technology Europe S.L. (Spain), Ecorys Nederland B.V. (Netherlands), Cork Institute of Technology (Ireland), Ministère de l'Intérieur, de l'Outremer et des Collectivités Territoriales Direction de la Défense et de la Sécurité Civiles (France), Força Aérea Portuguesa (Portugal), Satways (Greece), Ministry of National Defence (Greece), NATO Undersea Research Centre (Italy), Ministry of Citizens Protection (Greece)

Four of those companies also participated in the I2C project: DCNS SA, Intuilab, Meteosim SL, and Sofresud. The Perseus project claims to have identified a need for 80 million Euro future EU investment – thus, the conflict of interest of defence and security companies identifying a further need of investment in more border surveillance technology is obvious.

- The project Seabilla has a total budget of 15,558,125,80 Euro, of which the EU covered 9,841,603,55 Euro. It is focused on maritime surveillance with an explicit focus to impede illegal migration and to enhance search and rescue operations at sea. This project operationalizes and implements the surveillance systems – as they have been developed in the projects I2C and Perseus -- on the ground. The English Channel, the Mediterranean Sea and the Atlantic were three areas of operation for the project.

Together with I2C and Persues, the project Seabilla forms a complex of projects that can be seen as the key building blocs preparing the European system of surveillance which has become operational since October 2018.

The lead company for this project is Italian private company Selex Sistemi Integrati SPA. Further organisations included in the project are Alenia Aeronautica (Italy), Consozio Nazionale Interuniversario per le Telecomunicazioni (Italy), BAE Systems Ltd (UK), Correlation Systems (Israel), Cassidian S.A.S. (France), Edisoft (Portugal), Eurocopter Espana (Spain), Totalförsvartets Forskningsinstitut (Sweden), Holland Institute of Traffic Technology BV (Netherlands), Indra Espacio S.A. (Spain), Indra Sistemas S.A. (Spain), European Commission Joint Research Centre (Belgium), Mondeca S.A. (France), Sagem Defense Securite (France), Space Applications Services N.V./S.A. (Belgium), Thales Alenia Space Italia Spa (Italy), Thales Defence Deutschland GmbH (Germany), Nederlandse Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek (Netherlands), Telespazio Spa (Italy), Thales Systemes Aeroportes S.A. (France), TTI Norte (Spain), University College London (UK), Universidad de Murcia (Spain), University of Portsmouth Higher Education Corporation (UK), Thales Alenia Space France (France), Thales Communications & Security S.A. (France).

In the project Seabilla, there is also some overlap with the aforementioned two other border surveillance projects regarding the participants: Indra Sistemas is the lead company of the project Perseus, Sagem Defense Securite is the lead company for the project Oparus and the Thales group of companies is leading the projects Operamar and WIMAAS.

Border security features as one of the five core mission areas of the European Security Research Programme and the European Commission has used this program consistently in order to support the development of a competitive European security industry. "The FRONTEX Research and Development Unit was soon participating in evaluation of FP7

research project proposals” (Hayes/Vermeulen 2012, 56). Via those research projects, military technology is systematically transferred to border management, and defence companies are the central executers of those projects. The use of drones is one of the central pieces of EUROSUR and the fact that the operation of those drones has started in September 2018 is a crucial step in the progress of installing EUROSUR as an effective surveillance system.

One can conclude that the massive increase of funding for a European border infrastructure in terms of air surveillance (drones, satellites) and in terms of communication and data infrastructure is of enormous benefit for the European defence and security industry. European border policy can also be seen as an industrial policy whose funding contributes to the development of high-tech surveillance and data-processing capacity with the purpose of repression and control.

The producers of aerial surveillance vehicles like drones and airplanes are another group of companies that contribute to border surveillance. One of them is Portuguese company Tekever that provides drones especially produced for the first round of border surveillance operations of EMSA since October 2018 with ground control in Portugal. These drones are hired from the consortium REACT, consisting of Tekever and French company Collecte Localisation Service (EMSA 2018a). A second round of operations, using the same drones, was started in February 2019 in the framework of Spanish border surveillance program SASEMAR, with ground control in Spain (EMSA 2019). For a next phase of operations and due to high demand for aerial surveillance, EMSA started to hire other drones: In September 2019, EMSA closed a contract with Portuguese company Centro de Engenharia e Desenvolvimento (CEIIA) operating Hermes 900 drones from Israeli company Elbit Systems (EMSA 2018b). These were used in an EMSA surveillance operation in Iceland in July 2019. In November 2018, EMSA also contracted aerial surveillance vehicles from Austrian company Schiebel Aircraft GmbH that can be operate from ships, and used them in a subsequent surveillance operation in Croatia in July 2019 (EMSA 2018b, 2019b). In addition, EMSA contracted in late 2018 Norwegian company Nordic Unmanned AS for the use of aerial surveillance quadcopters produced by US company Lockheed Martin (EMSA 2018b).

It is supranational law of the EU that legitimates its surveillance operation under the pretext of saving lives in the Mediterranean, while funding for rescue operations is among the lowest of all aspects of EU border management and is not properly conceptualised in the respective documents. Researchers have investigated how centuries-old traditions of rescuing people on the sea have been abandoned in the past few years in the Mediterranean (Basaran 2015) despite an abundance of technological means of monitoring and rescue facilities. At the same time, research has established that more rigid border regimes lead to an increase in people smuggling activities and come with an increase of informal and unfree labour relations that immigrants enter into (Lutterbeck 2006; Gomberg-Munoz et al. 2011; LeBaron/Philips 2019) More recent research makes plausible that technologies used for EU border management will inevitably be applied to the general population successively which creates questions about rights to privacy and data security (Singler 2018).

3. Exploring the co-constitution of race and surveillance

The second aspect of this report centers on the co-constitution of race and surveillance technologies. It has been widely documented that the first surveillance systems in the Americas go back to the written ‘slave pass’ and to patrols to prevent the escape or to catch escaped enslaved persons, including the technology of ‘slave branding’ (Parenti 2003; Spillers 2003; Hartman 2007). “Enslaved persons were marked with numbers and letters that identified them as being part of a particular ship’s cargo.” (Browne 2009, 139). With this technology, the body itself was marked in order to control its movement. Its late successor are biometric technologies that are claimed to be technologically neutral, but come with a considerable bias in terms of race and class: Older people, construction workers and artisans and certain populations in the Asian-Pacific rim have problems to get registered with

biometrics and the technology produces higher failure rates for very dark-skinned users (Nanavai et al. 2006, 36f). Thus, the technology is optimized for lighter-skinned users and comes with problems in terms of accuracy (ibid.: Lyon 2007, 129). In the light of these tensions between a claim towards neutrality of biometric technology and its biases which are built into its technological basis, biometric technology has been theorised as a medium for the cultural production of race (Gilroy 1997; Browne 2009). Earlier research has underlined that both 'race' and 'Europe' are brought into being via border management, creating 'phenotypic others' in these processes (M'charek et al. 2014, 477). In the course of drone surveillance, bodies are made to exist as images and information (Bigo 2014; Wilcox 2015), population masses turn into 'data masses' (Franz 2016).

Another colonial technology of surveillance is air power, which was extensively used by the British in a number of colonies in the 1920s, but also by other colonial powers like France and Portugal (Omissi 1990; Neocleous 2013, 579; Hippler 2013; Satia 2014). While air bombing became one of the main means of counterinsurgency and colonial administration in British colonies during the 1920s, and later during the 1960s in Mozambique and Angola in the context of Portuguese colonialism (Anderson 1966; Cardina/Martins 2018), Mark Neocleous (2013) hints at the fact that surveillance through air power was as important as air bombing in the colonial use of air power. He underlines the use of air power as police power, aimed at instituting a capitalist social order, an early example of the military taking over original areas of policing. Neocleous operates with a broad concept of police as the fundamental concept of bourgeois society (Neocleous 2000, 2008), as "apparatuses and technologies constituting 'the economy' and the order of labour" (2013, 580).

In the case of postwar immigration to countries like France, the UK and Germany, surveillance strategies were used extensively to control racialised workers (Garner 2007; Jackson/Parkes 2008). The link between the control of workers and the racialisation of bodies is one of the invisible rationales of EU border management since enhanced border control increases the pressure on wages of illegalised immigrants in the EU, and thereby on other workers (Calavita 2005; Gomber-Muñoz et al. 2011; Castles et al. 2013).

We thus encounter that forms of surveillance, pass documents and air surveillance, and the control of bodies, were linked with the slave economy, colonial administration and guestworker immigration. In all these instances, policing reproduces and creates conditions for the creation of capitalist value by controlling racialised bodies.

In the area of air surveillance we notice an overlap of military and police power. There has been a proliferation of literature on killer drones, given the considerable expansion of drone attacks under the Obama administration (Chamayou 2013; Asaro 2013; Holmqvist 2013; Gregory 2014; Walters 2014; Kindervater 2016). Since drones are subsequently used by police forces on the territory of its own state for surveillance purposes, Ian Shaw and Majed Akhter speak of the 'dronification of state violence' (2014). Intelligence, policing and warfare become indistinguishable, and more and more police work is done from the air (Mbembe 2003, 29; Scheer 2013). Drone technology in general has been described as an "algorithm of racial distinction" (Allinson 2015, 120), radicalizing the abyss between a relatively safe Global North and an unsafe and 'uninsurable' Global South (Barrinha/da Mota 2017).

Both cultural theorists as well as Portuguese institutions have drawn parallels between navigation technologies in colonial seafaring and air surveillance (Steyerl 2011; Portuguese Chamber 2018).¹ Nonetheless, with the growing relevance of aerial views, a vertical perspective seems to replace the linear perspective associated with the horizon line (Steyerl 2011). The view from the sky via Google Maps, Google Earth, drones and in the entertainment industry establishes a new visual normality and a new subjectivity that is attached to surveillance technology and the view through a screen (Bridle 2015). It also establishes a relation towards the objects seen on the screen, while the perspective, the

¹ The Portuguese Chamber of Commerce in the UK writes on its website: "Back in the XVI century, Portugal played an important role in the navigation technologies field giving the world the astrolabe. Five centuries later, the country delivers another extraordinary and useful navigating tool. A Portuguese company created the world's first GPS navigation system with aerial photographs." <http://www.portuguese-chamber.org.uk/index.php/business-opportunities/key-sectors-in-portugal>, accessed December 14, 2018

gaze becomes a disembodied one, of a subject that is floating on the sky without having firm ground. While the gaze is outsourced to a machine, it resembles the gaze of superiors onto inferiors, from high to low (Steyerl 2011). Hito Steyerl interprets this new visual normality as a metonymy for a general verticalization of class relations (ibid.). Seen from this vertical gaze, societies become abysses and the seeing subject is in free fall without any firm ground. The open question here is what type of relation is established between the gaze from above and the subjects on the ground with drone vision? The scopic regime of drones has been theorized as a dialectic of invisibility and hypervisibility (Maurer 2016), and drone vision has been theorised as a technique of control that sees human life “through a calculus of targetability” (Greene 2015). At this point which are then the precise “objects and practices that enact race” (M’charek 2014, 48)? Harun Farocki has termed the concept of ‘operative images’ that “do not represent an object, but are rather part of an operation” (Farocki 2004, 17), images that act by producing information (Hoelzl 2014). How are those operative images that are produced in drone surveillance interpreted by surveillance operators (Feldman 2012; Bigo 2014; Pantenburg 2016; Vagnes 2017)?

The drones used by Frontex and EMSA use an automatic identification system in order to monitor ship movements, relying on a similar model of an initial automated analysis as do the killer drones used by US security agencies. Drone killings are based on the analysis of a ‘pattern of life’ (Pugliese 2013; Franz 2016), which is planned to be applied to movements of ships, boats or groups of people. What has been analysed as the ‘paramilitarization’ of the CIA due to its involvement in drone strikes (Kindervater 2016) sees parallel developments in the case of FRONTEX and the EMSA. In the example of drones being used to monitor migration movements across the Mediterranean Sea, military technology (unmanned aerial vehicles, or drones) is used for border management, and cooperation of police forces with the military becomes routine.

4. The role of Portugal’s aerospace industry and state in border surveillance

In this section, I will demonstrate how European programs complement and coincide with national industrial strategies and national industrial clusters. The ascent of the Portuguese aerospace industry is a more recent phenomenon and therefore a good example to demonstrate to what extent industrial growth is based on state-led industrial policies but also on integration with supply chains of established multinational companies.

The surge of the Portuguese aerospace industry with the help of EU agencies and the establishment of the national industrial policy *Estratégia Portugal Espaço 2030* can be analysed as an example of the relevance of the entrepreneurial state (Mazzucato 2016; 2018). State-funded R&D, often via the military, contributed to almost all major technological breakthroughs from railways to radio communication and the internet (Mazzucato 2016). Building public institutions is therefore understood as a crucial precondition for the functioning of markets (Vogel 2018).

While Mazzucato and Vogel advance an unmistakably positive understanding of the entrepreneurial state and mostly demand a fair sharing of risks between the state and private corporations and a more effective politics of state institutions, there were earlier and more critical approaches to the same concept. Amin/Malmberg (1994) see the entrepreneurial state as the successor to the welfare state, and as symptom of a shift towards a more immediate subordination of state agencies under the interests of large corporations.

Three recent developments place Portugal in a crucial position for the development of European border management: 1. The new role of the EMSA, located in Lisbon for border management, initiated with the large bid for air surveillance of the Mediterranean in 2016; 2. The fact that Portuguese company Tekever won the largest part of the bid and produced the drones in a new factory in Portugal. 3. The launching of the industrial policy *Estratégia Portugal Espaço 2030* in May 2018 as a systematic state program to coordinate the growth of the aerospace, surveillance and defense industry.

Literature on the aerospace and defence industry in Portugal is relatively scarce (Varandas Ribeiro 2001; Costa Reis 2011; Da Cunha Oliveira 2015). Early on, ESA funding played a

key role in the survival of this industry which extended from software to hardware applications with the setting up of a space station in the Islands of Azores in 2008. The space study lab ESTHER in Lisbon is another key facility dating from this earlier phase. Aerospace sector public owned companies TAP and OGMA were the most important companies in this period, and the acquisition of OGMA by Brazilian aerospace company Embraer in 2005 was one of the key turning points for the consolidation of the Portuguese aerospace industry since it was the first original equipment manufacturer (OEM) entering Portugal (Da Cunha Oliveira 2015, 23). This was located in the cluster around Évora. Later developments saw partnerships of Portuguese small and medium companies with Airbus and Lockheed Martin. Edisoft and Tekever – both companies that contribute along with CEIIA to EU border surveillance - were two of the companies of the second generation, with a much stronger focus on software and information technology. Tekever stands out through its quick expansion with offices in Asia, North and South America and being one of the few companies that integrates software and hardware solutions, and being active both in the aerospace and defence sector. The process of the consolidation of the industry was accompanied by a multiplication of industry associations like INTELI (Intelligence in Innovation) and ProEspaço (Portuguese Association of Space Industries). The investment of 148 million Euro by Embraer in 2012 for two manufacturing plants in the Évora Cluster was another significant indicator for the expansion of the Portuguese aerospace industry (ibid, 29).

Since both the increase of the budget of EMSA and the successful bid for drones occurred in 2016, the process has not yet attracted much attention from researchers. The industrial policy *Estratégia Portugal Espaço 2030* aims to streamline numerous existing networks between universities and aerospace and defence companies, and institutional support by ESA to a systematic industrial policy. Two speakers in the opening event of *Estratégia Portugal Espaço 2030* in May 2018, the NewSpace Atlantic Summit 2018, came from Tekever.

Some overlap between the military and drone surveillance in border management was already evident in publications of Tekever about the test run of the UAVs: The drone – which was first the AR3 Net Ray model – has been tested with the navy and had also been used in NATO exercises (Chen 2015). The contract of Tekever with EMSA was formally announced during the Paris Air Show in June 2017, with a volume of 77 million Euro. Tekever cooperates with the French maritime surveillance company Collecte Localisation Satellites (CLS) for this project. Tekever finally provides the AR5 drone for the operations of EMSA. The official announcement outlines the area of operations: “The UAS operations can be performed in any sea area surrounding the EU or an EFTA country, or even be extended outside EU adjacent seas upon common agreement and on request by the European Commission” (cited after McNabb 2017).

Conclusion

This report demonstrates how the European border regime – currently the border regime with the highest number of human deaths worldwide – is based to a considerable extent on the participation and know-how of private companies who make profit from the erection of a repressive control system that includes comprehensive air surveillance and the outsourcing of search and rescue operations to security forces from third countries. The report also demonstrated collusion of public funding and private defence industries in the establishment of a European border system. In the absence of immediate military threats, the erection of a European border system serves as a rationale for public funding that benefits defence and security companies. The latter have an interest to stress the necessity of further and more advanced border infrastructure so as to get new contracts in the future. The wider context for this European industrial policy is international competition with the US and China about the technological edge in computer, military and surveillance technology, all of which increasingly overlap. The history of the intersection of race and surveillance technology, and more specific air surveillance demonstrates the colonial and imperial continuities behind this development, and the country study on Portugal points out how national policies intersect with European programs in the creation of new industrial clusters in defence and security.

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