Hidden security: EU public research funds and the development of European drones

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Abstract

In recent years, dozens of drone development projects have attracted hundreds of millions of euros from EU public research funds with little accountability and scarce political oversight. This article relates the ongoing exponential growth of the drone industry in Europe with the vast amounts of EU public research funding canalised to drone research. These projects typically configure partnerships that are neither strictly public, nor strictly private, and it is precisely a combination of their hybrid nature with the centrality of technologial expertise that makes them less visible. This partial invisibility is particularly relevant in the context of a dual-use technology that enables new forms of surveillance, pose societal challenges, and can be used as a lethal weapon. Beyond providing short-term responses to specific problems, we argue that these tactics largely aimed at fostering a common EU security and defence research & development culture in a time of international security uncertainty.

Introduction

In recent years, Remotely-Piloted Aircraft Systems (RPAS, or drones) have become a widely discussed topic by media, security academics, military personnel, and NGOs. These discussions have mostly developed around the usage of drones to conduct missile attacks, and their use in surveillance of both conflict zones and non-militarised locations such as borders. Importantly, though, these debates, especially in academia, have largely neglected the European dimension of the new drone world[1].

Yet, today there are more than 200 drone-development projects in Europe either under development or already in operation. While some of the projects are strictly national, many of them constitute multi-national initiatives that involve funding from different entities. A relevant percentage of these projects are treated as Research & Development (R&D) endeavours and have attracted public research funding provided by the European Union (EU), in numbers that have grown exponentially under Horizon 2020 (H2020), the EU's framework programme for Research and Innovation currently in place for the period 2014-2020. Over the last years, as will be detailed below, hundreds of millions of EU research funds were spent on drone projects, some of which develop dual-use technology, i.e. technology that can be used both for civilian and military purposes.

Additionally, as has been widely highlighted by both EU institutions and the academic literature, the drone technology enables practices that challenge societally held norms and values. Recent technology employed by drones allow new practices of surveillance, massive data collection, and, if enhanced with weapons, open up for a new use of missiles both in and outside battlefields. While virtually all EU member states are either involved in the use of drones or in projects to develop or

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[1] Among the exceptions are Dworkin, 2013; Dorsey and Paulussen, 2015; Hayes et al. 2014; Jumbert, 2016; Martins, 2015; Martins and Backhaus, 2015; Zappalà 2015.

acquire the devices, the role of EU research funds as a decisive trigger to the above dynamics has not been examined in a systematic way.

This article aims at understanding how, and with which consequences, the EU has contributed to the current drone race taking place in Europe. Our main claim is that the EU has played a decisive role in fostering drone development in Europe through a hidden practice of funding drone-development projects through its research funding programmes. This has been – and still is – being made through the creation of hybrid public-private consortia that involve the governments of the member states, third countries, research institutions, and the private sector; and the hybrid nature of these partnerships makes them less visible and thus less accountable. In this process, the EU has funded the European defence industry, contributed to keeping it competitive, and created the social and cultural conditions that allowed new, more ambitious defence goals. This includes the European Commission's European Defence Fund, an integral part to the European Defence Action Plan that was approved in November 2016.

Our theoretical contribution is a widening of the literature on hybridization in the field of security governance[2]. As we justify below, we operate this expansion by revisiting the literature on public-private collaboration in management and organizational studies. We then systematize its main components and further application to the realm of EU security governance. Following Weiss and others, we concur that the hybrid partnerships under analysis offer political actors a "way of circumventing ideological-political blockages (…) that might otherwise have retarded or stymied innovation activism" (Weiss, 2014, p. 151). This theoretical claim is empirically observed in our analysis of the use of EU research funds, which show how these hybrid consortia developed dual-use

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[2] Throughout the article, we use the expressions 'hybridity', 'hybridization' and 'hybrid rule' interchangeably.

technology and therefore overrode the official EU rule preventing the framework programmes to fund defence research.

Importantly, this way of governing security is a choice that has political consequences, of which the lack of accountability is the most relevant one. Hybrid governance rose throughout the West, and in particular in the United States from the 1980s and contributed to the expansion of the 'National Security State' in the context of external pressures calling for increased innovation. The developments explored in this article in the EU context are the product of a similar narrative that combines economic constraints and global security pressures with the wish for strategic and technological autonomy.

We build our analysis on data covering three dimensions of the process under scrutiny: drone projects taking place in Europe; EU research funds used in drone-related projects; and initiatives of the European Parliament (EP) that relate to the use of EU research funds on drone projects. The data on European drone projects was generated from several sources, in particular from the UVS International databases, as well as reports from the European Commission, the European Defence Agency (EDA), the EP, the EU Institute for Security Studies, and different media sources. The data on EU research funds used in drone-related projects derived from the EU's CORDIS database, which lists all projects supported with EU research funding under the framework programmes. The terms 'UAV' (unmanned aerial vehicle), 'UAS' (unmanned aerial system), 'drone', 'RPAS' and 'unmanned' were used to identify projects involving drone technology. In a second step, we filtered this sample in order to identify the projects that explicitly address and advance drone technology. We disregarded projects only using drones as a tool for research, e.g. drones as a medium for forest observation or for agricultural usage. Finally, the data on initiatives of the EP focusing on drone project funding is publicly available via the EP's Public Register of Documents.

The article proceeds as follows: section 1 presents the theoretical framework emerging from the literature on hybridity. Sections 2, 3, and 4 present the empirical material, focusing on the drone race in Europe, on the use of EU research funds for developing drones in the EU, and on the corresponding lack of political accountability, respectively. Preceding the conclusion, section 5 analyses the empirical material through the theoretical framework presented in section 1.

I.   Theoretical framework

The concept of hybridity has a long tradition in public administration and management studies, that have highlighted the importance of an intermediate realm between the public and private domains that greatly increased by the slimming-down of the public sector across Europe and the US (Kickert 2001, p. 136; Denis et al, 2015, p. 282). New forms of governance have "either replaced the archetypical, politically headed public bureaucracies as the primary arena for policy development and programme delivery, or sit alongside them connected through diverse formal and informal mechanisms" (Skelcher and Smith 2015: 433). According to Kivleniece and Quélin, the governance space between private hierarchy and public bureaucracy is occupied "not only by regulation, but also by a richer set of hybrid public-private forms possessing a set of attributes distinct from market, authority, or private alliance-based structures" (Kivleniece and Quélin 2012, p. 279). These partnerships are extremely common in the EU, in policy areas ranging from health[3] to renewable energies[4], from internet traffick safety[5] to critical infrastructure resilience[6], and are part of a broader

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[3] COPE, Project ID: 305934
[4] ELSA, Project ID: 646125
[5] TITANIUM, Project ID: 740558
[6] WEZARD, Project ID: 285050

market turn in EU governance (Mörth 2009). Precisely because of their hybrid nature, they raise new dilemmas between efficiency and democratic accountability (Mörth 2007).

The management studies literature has addressed the internal dynamics of these hybrid partnerships, their social value creation, and their nature as strategic alliances (Borys and Jemison 1989; Kivleniece and Quélin 2012; Quélin et al 2017). In their 1989 seminal work, Borys and Jemison have developed a "theory of hybrids" (1989), providing a framework of four key elements to understand the phenomenon of hybrid consortia: purpose, boundary definition, value creation, and stability. As shown below, this framework enables an analysis of the internal functioning of the consortia, a distinction between stated purpose and broader social value creation, and brings to the front issues of accountabilty as related to the output-input legitimacy distinction (Scharpf 1999). This distinction refers to how a political system or entity takes in political inputs from the societal environment and transforms then into political outputs. In other words, political legitimacy requires both responsiveness to the societal environment through democratic procedures and the corresponding production of effective political outcomes.

In recent years, hybrid partnerships have been used to understand some aspects of contemporary security governance in the US (Hurt and Lipschutz, 2015; Weiss, 2014), Europe (Krahmann 2003) and Africa (Bagayoko et al, 2016; Hönke, 2013; Kebede, 2014). For Hurt and Lipschutz, hybrid rule in the security domain is "a set of practices deployed by political elites that rely on the private sector to shield national security activities by expanding state power while constraining democratic accountability" (Hurt and Lipschutz, 2015, p. 2). When analysing the expansion of the US National Security State, Weiss observes that a common (although insufficient) explanation for the growth of hybrid forms lies on "the functions they perform or because of the consequences that they *allegedly* produce, such as superior efficiency over traditional bureaucracies, improved operational flexibility,

and insulation from democratic oversight" (Weiss, 2014, p. 149, emphasis added). The author applies the above-mentioned ideas specifically to the US where she finds a strong correlation between the long-standing tradition of anti-statism and animosity towards government, and the extent of hybridization.

In this article, though, we argue that these dynamics are also found in Europe. To some extent, their emergence is a consequence of the neoliberal paradigm that, in recent decades, has dominated political organization in the Western world. Yet, as we will demonstrate below, this explanation does not capture the complexity of the enmeshment between knowledge, technological development, and security governance within the EU. Additionally, whereas some authors argue that hybridity is different in nature from privatization or public-private cooperation[7], we understand it as being an advanced form of what Kivleniece and Quérin call *integrative* public-private governance forms, i.e. forms that predominantly create "value by relying on resource complementarities and relative governance efficiencies" and in which "both public and private partners jointly share the responsibilities for the development, management, and/or delivery of a certain public good or service" (2012, p. 280-281). They are distinct from *autonomous* public-private governance forms, where we find independent private management with public supervision.

Whereas the security governance literature highlights fundamental causes and consequences of hybridization, the management and organizational studies literature provide the tools to both go further in the logic surrounding the functioning of the hybrid consortia and to make more substantial claims about them. For our analysis, the merger of these two strands of literature enables us to generate new interpretations of the Commission's role in fostering defence cooperation in Europe.

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[7] Linda Weiss argues that, 'where privatization involves getting the private sector to do what the state once did (…), hybridization is about getting the state (…) involved in innovation-cum-developmental activities that, in the liberal economic system, are considered more typical the business of the private sector (Weiss, 2014, p. 149).

We therefore argue that both bodies of literature are necessary for understanding how, and with which consequences, the EU has contributed to the current drone race taking place in Europe.

Within this logic, we build our theoretical framework in two steps. We first engage with Borys and Jemison's "theory of hybrids" (1989) and its four key elements to understand the internal functioning of hybrids: purpose, value creation, internal boundaries, and stability. In a second step, we revisit the literature on hybridity in security governance and identify three overarching paradigms: market belief, political risk aversion, and (in)visibility and (un)accountability. Below we analyse the operative caracteristics of these elements which will, in turn, constitute the framework through which EU-funded drone development consortia will be analysed.

Theory of hybrids in management and organizational studies

Hybrid purpose

The *purpose* of each hybrid consortia is the glue that binds it together. It is central for providing institutionalized direction that acts as a legitimating mechanism in the functioning of the hybrid consortia. For Borys and Jemison, hybrids are "simultaneously a single organizational arrangement and a product of sovereign organizations" (Borys & Jemison, 1989, p. 235). In other words, hybrids are created anew by sovereign organizations in order to fulfil a defined purpose.

Boundary definition

Boundary definition deals with the point at which "the partner organizations end and the hybrid starts". This has implications for the resources allocated to the hybrid, and for "the extent to which

each partner's governance structure has legitimate power over the hybrid" (Borys & Jemison, 1989, p. 238). Issues of internal boundary definition also impact on who has influence over the consortium.

Value creation

Value creation is defined as "the process by which the capabilities of the partners are combined so that the competitive advantage of either the hybrid or one or more partners is improved" (Borys & Jemison, 1989, p. 241). The value created can assume different forms, with different levels of abstraction. As argued by Quélin et al, it is well established that "the purpose of such collective arrangements is to incease social or public value at ther intersection of political and economic markets" (2017, p. 766).

Hybrid stability

Hybrid stability deals with the mechanisms that allow the consortium to maintain stability over time. It can be achieved by "shared norms and expectactions of justice, by the asumption of common and general practices, or by relying on extrahybrid institutions". (Borys & Jemison, 1989, p. 243). This process leads to the creation of a common culture and a number of social practices that survive the end of the hybrid.

Hybridity and security governance

Market belief

The shift from state to market in the security domain was described as a "quiet revolution" already in the 1980s by observant criminologists (Stenning and Shearing, 1980). Even though the security domain was arguably more resistant to change than other previously state-governed sectors, it "caught

up" and appears today as significantly transformed (Aarstad, 2017, p. 265). The belief in the market refers to the neo-liberal narrative portraying the private sector as being best positioned to provide new security solutions, and to close the alleged gap between security demand and security supply (Leander 2015). The stimulus offered by the public sector may take different forms, including the creation of public-interest corporations, the partnering of federal labs with universities and industry to allow the transformation of the technology into commercializable commodities, government sponsored venture funds, and commercialization consortia made of universities, private companies, and governmental institutions (Weiss, 2014, pp. 155-165).

Political risk aversion

Companies operating in high-technological, extremely innovative fields such as drone-research "consistently portray themselves as promoting technical solutions for mitigating risk and dealing with pressing security challenges and problems" (Leander, 2015, p 147 and 153). Political risk aversion and the enmeshment of the state with the private market becomes potentially problematic in sensitive areas such as security and defence research. As argued by Hurt and Lipschutz (2015, p. 33), "the potential consequences of hybrid rule not only increase state power but also render representative institutions less important and the role of executive branch agencies more central"

(In)visibility and (un)accountability

By falling outside common political and legal categories, hybrid forms inhabit a space of uncertainty and non-definition that often escapes public scrutiny. The state's activities are hard to see "because they are often presented in – and thus obscured by – forms that merge public and private institutions

in novel ways" (Weiss, 2014, p. 146). It is important to underline that hybrid forms are not necessarily invisible. In fact, in the formulation of Leander, "security can remain seen *and* unseen precisely because of its hybridity and that hybridity is core to the normalization, expansion and grip of hybrid security on the politics of security" (Leander, 2015, p. 143, emphasis in original). But their market-orientation enmeshed with public actors and public funds raises questions of legitimacy (Mörth 2007) and renders them less visible and therefore less accountable. For some authors, the attractiveness of hybridity to political elites lies precisely in this capacity to hide from, and escape, democratic scrutiny (Hurst and Lipschutz, 2015).

This overview of the literature on hybridity provides our framework with three dominant ideas – market belief, political risk aversion, and invisibility – and four analytical elements – purpose, boundary definition, value creation, and stability. These ideas and elements provide a structure for our analysis of the way the EU has engaged with drone developments in Europe.

II.   Europe's drone race

In September 2017, the French minister of defence announced France's intention to arm its Reaper surveillance drones. Similar intention had been expressed by Italy (Defense Security Cooperation Agency, 2015), whereas Germany's attempt to lease Israeli Heron TP drones is fighting its way through the German Parliament at the time of writing. As for the UK, drones fired about 280 missiles in Iraq and Syria between July 2016 and June 2017. Armed drones are already a reality in Europe and their centrality in European military operations will certainly increase in the near future.

The reports of UVS International identify more than 200 drone development projects in Europe. More than half of these projects are dual-use, whereas 80 are deliberately designed as military R&D. More

than 60% of the projects focus on mini, small, short range RPAS (and cannot therefore bear arms) and only 15 qualify as MALE (Medium Altitude, Long Endurance), HALE (High Altitude, Long Endurance) or LALE (Low Altitude Long Endurance) drones. Five out of the 200 projects are explicitly designed as Unmanned Combat Aerial Vehicles (UCAV). France is involved in the development of two UCAV projects (nEUROn and the Future Combat Air System) and Poland and France are developing an armed version of the Watchkeeper-based GRYF (Unmanned Systems Technology, 2015), to name but a few examples. The UK is the only European country to have used armed drones to this date, but, as can be seen from the above examples, other member states are stepping up their efforts towards usage.

The ambition to develop a European MALE drone goes back to November 2013 when a European "drone-club" (France, Germany, Greece, Italy, the Netherlands, Poland and Spain) was formed at an EDA meeting. Additionally, the EDA is also involved in developing military RPAS certification, defining future RPAS payloads, streamlining airframes and datalinks, and promoting RPAS air traffic insertion. By providing frameworks for cooperation and initiating projects, the EDA has emerged as a pivotal actor in these processes.

These developments demonstrate that, despite persistent debates about Europe's incapacity to deliver on security and defence matters, its defence industry is active and willing to catch up with other aspiring military powers and with the technological state-of-the-art in the US and Israel. Additionally, as will be analysed in the following section, there are several ways through which EU actors can become heavily involved in security and defence matters. In the case under scrutiny in this article, R&D research funds provided by the European Commission have been decisive for the development of drones in Europe through the creation of hybrid consortia.

III. EU framework programmes and drone research funding

The most relevant form of EU involvement with drone development refers to the Commission and its multi-annual research funding programmes [8]. The drone-related research is funded by various Directorate-Generals (e.g. Research & Innovation) as well as some of its agencies (e.g. Research Executive Agency). As explicitly stated in the eligibility rules for H2020 and its predecessors, projects supported by the research FPs must not be defence-related, but may have a dual-use nature. The Commission has funded drone-related research since its fifth Framework Programme (FP 5, 1998-2002). Under this programme, it funded thirteen drone-related projects (among them ARC, CAPECON, COMETS, FASTWING, HELINET, and USICO). Since then, the Commission has spent more than EUR 415m via its research FPs on drone-related research[9].

Despite being engaged with drone-related research since 1998, extensive EU support for RPAS-research only took off with FP 7 (2007-13) when the number of projects supported by the EU increased from nine to 58. The H2020 numbers demonstrate that the Commission is interested in expanding its role in European drone-related research.

Insert table 1

Table 2 reveals the overall value of RPAS(-related) research projects as well as the overall EU contribution to these projects. Between FP 6 and FP 7 the value of the projects supported as well as of the EU's contribution increased eightfold. The 58 drone research-related projects funded by FP7

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[8] All EU-funded drone-related projects are listed in an original data set available as Appendix A.

[9] Unless otherwise stated, the data presented in this section derives from an extensive analysis of the European Commission's CORDIS database.

are worth around EUR 274m. To these projects, FP7 channelled EUR 191,3 m. These numbers are growing under H2020, increasing at a much higher rate than the whole EU research budget: at the time of writing around EUR 190m of EU research funds have already been earmarked for 103 drone-related research projects worth more than EUR300m, despite the fact that H2020, covering the period 2014-2020, is still only half-way through.

Insert table 2

Additionally, the projects grew increasingly more expensive and the EU total contribution is also increasingly higher. Whereas the largest project under FP 5 was worth about EUR 6m with an EU contribution of almost EUR 3m[10] , the largest project under FP 7 was PERSEUS – a surveillance system of systems to monitor migration and border crime worth EUR 43.4m. The EU's contribution to this project amounted to EUR27.8m. [11]

Out of the ten largest RPAS-projects under FP 7, nine fall under the 'Security' headline, all ten feature defence contractors as participants and six of the projects are coordinated by them. Under H2020, the largest sums are currently channelled into SESAR projects. SESAR is the technological pillar of the EU's Single European Sky initiative and its projects are clearly designed as hybrid partnerships involving government, industry, and research actors.

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[10] *Airborne Minefield Area Reduction*, Project ID: IST-2000-25300.

[11] *PERSEUS*, Project ID: 261748.

Insert Table 3

Table 3 - Largest 10 projects under FP7 and H2020

The move towards security

The steep surge of support for drone-research is strictly correlated with a shift in the focus of the consortia. Whereas RPAS-research consortia were originally scattered over varying categories, from 'Growth' and 'Information Society Technologies' (IST) under FP 5 and 'Transport', 'Aerospace', 'IST' and 'Mobility' under FP 6, the subsequent FP 7 introduced a dedicated 'Security' headline. Immediately, this became the largest category for drone-research (18 of 58 RPAS-related projects). Under H2020, this category has been renamed 'Secure societies' and already subsumes 17 out of the 103 drone-related research projects. Under FP 7, one third of the projects fell under the 'Security' category accounting for two thirds of the value of all the EU funding for drone-related projects. The absorption rate of 67.3% of all EU contribution to RPAS-research underlines the prominent position of the security context to drone research. In other words, 'security' became the main venue for, and the dominant logic behind, drone research funding.

Defence companies played a large role in the process by which drone research entered the security domain. While almost half of the drone projects under FP 7's 'Security' headline were either coordinated by a defence company or had at least one participating, these projects accounted for 81.2% of the overall value of drone projects, absorbing 78.7% of all EU support granted for such projects. Therefore, the projects with a heavy involvement of defence companies are on average more expensive than others and receive a disproportionate amount of EU funding. As of January 2018, defence contractors play an important part in 32 of those 103 H2020 drone-research projects, leading

12 of them. These projects account for 66,0% of the value of all RPAS-related projects and absorb 52,1% of all EU contributions to RPAS-related research under H2020. Although the figures are still lower than under FP 7, the direction is similar and therefore we can extrapolate that they are expected to rise over the remaining years of H2020.

Hybrid entities

The section above has showed how EU research funding entered the European drone race, especially after FP7, contributing to create hybrid consortia that agglomerate entities such as national government ministries, defence industries, R&D institutions, and / or universities that fulfil innovation and developmental functions, typical of the private sector, at the service of creating a common security and defence R&D community in Europe. The following two cases embed these characteristics.

AEROCEPTOR is a multidisciplinary consortium aimed at developing a new and innovative concept of operation to remotely and safely control, slow, and stop non-cooperative vehicles in both land and sea scenarios via a RPAS. The consortium received EUR 3,5 m from FP7 and gathers 15 partners such as the Israeli police (INP – Mishteret Yisrael) and the Spanish Ministry of Interior, universities and research institutions such as Bologna University's UNIBO and the Austrian Institute of Technology, and defence companies such as Spain's GMV and the Israel Aerospace Industries. The project is placed under the Security category, but it is also marked as Innovation and Technology Transfer, which means that the technology it develops is transferable for the market at large[12].

Of a bigger magnitude, the SeaBILLA project was a hybrid consortium gathering 27 public and private partners such as the European Commission's Joint Research Centre, companies such as BAE

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[12] *AEROCEPTOR*, Project ID: 285144..

Systems or Indra Sistemas, and research institutions such as the University of Murcia, Portsmouth Business School, or University College London. During its life span (2010-2014) it was partly supported by the EU Commission with EUR 15,5 M and it aimed at tackling security on the high seas by developing surveillance technology and adopting early warning systems and sharing information on the EU's sea borders. One of SeaBILLA's stated objectives was to reinforce the "world competitiveness of EU industries, by increasing knowledge and reducing risks for future product investments"[13].

These examples constitute mere illustrations of how innovation hybrids are put at the service of European security while having in mind a conversion of technology breakthroughs into commercializable goods and a general development of Europe-based technological innovation. They are often vested with a public-interest aura, and even in the cases in which the consortia are short-lived, they often create social practices and a culture of cooperation that have longer-term effects.

IV.   Political oversight: the role of the EP

In front of these developments, a number of civil society initiatives have tried to raise awareness about the use of EU research funds for drone research. Here, we include research from Statewatch, Drone Wars UK, a think tank report (Csernatoni, 2016), the activities of the civil-society group *European Forum on Armed Drones*, and the member-funded journalism platform *De Correspondent'* project "Security for Sale". The Statewatch report *EuroDrones, Inc.* (Hayes et al, 2014) remains the most influential representative of these activities, with its conclusions triggering debates at the EP, as we will show below. Despite these valuable efforts, mobilizing the society against drones is a task

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[13] *SeaBILLA*, Project ID: 241598.

facing strong social constrains, related to a general acceptance of, and often fascination with, technological developments and a gradual assimilation of new security practices.

Some of these activities have nevertheless resonated with some MEPs, the EU body tasked with exerting political accountability over both the activities of the Commission and the usage of the EU budget. Yet, the behaviour of the Parliament on this matter exhibits conflicting dynamics of support and suspicion. This is partially explained by the different forms of its engagement: it can be both collegial, in the form of resolutions, and emerging out of actions of individual or small groups of MEPs. Both forms of involvement are analysed below.

Resolutions and Opinions

In 2013 and 2015 two EP Resolutions expressed support for a stronger role of the Commission in defence research, particularly via H2020 (European Parliament, 2013 and 2015a), welcoming "the Commission's intention to launch a preparatory action for EU-funded research in support of CSDP missions" and calling on the Commission to expand the number of calls for this aim during the remaining years of the programme. Yet, in the same period, another EP Resolution (European Parliament, 2014) demanded that the Commission keep the Parliament "properly informed about the use of EU funds for all research and development projects associated with the construction of drones". Later on, in its Resolution from 29 October 2015 the EP "strongly recommends" to enhance participation opportunities for the European public, industry, citizens and other stakeholders in order to "address their concerns regarding the protection of fundamental rights" and the risks and challenges that go along with drones (European Parliament, 2015b).

This underlines that the Parliament is aware of the dangers that accompany drone research. This awareness is visible in a number of Opinions voiced by the EP's Committee on Civil Liberties, Justice and Home Affairs (LIBE). Commenting on the safe use of RPAS on 3 September 2015 (European

Parliament, 2015c), the committee highlighted data protection concerns and encouraged the Commission to support research on the safety, security and privacy issues in the operation of RPAS. Yet, at the same time, the EP's *Resolution on the European Defence Union* includes a clause calling "on the VP/HR to take an initiative to bring together major companies and stakeholders of the European defence industry with the aim of developing a European drone industry" (European Parliament 2016a).

These developments show that, despite being aware of the Commission's use of research funds to foster drone-development, the EP is generally interested in increasing defence R&D and willing to develop an industry-military complex in Europe (Hayes, 2009; Jones, 2017), in which drones play a central role. The Commission's *Preparatory Action (PA) on Defence Research*, presented in April 2017, makes it very explicit: one of its main priorities is to develop a complex project that can "show the added value of unmanned systems in enhancing situational awareness while operating alongside and communicating with other manned and unmanned system" (European Commission 2017).

Written Parliamentary questions

Out of the 30 written drone-related questions raised by the MEPs between early 2012 and March 2017, 15 were questions concerning the use of public funds for drone research. Two of them explicitly request clarification about the overall amount provided for RPAS research, based on information advanced in the above-mentioned *Statewatch* report. In a response to these requests, the Commission mentioned that it "cannot confirm" these figures and it establishes them to be rather in the "tens of millions" (according to the report, it amounted to EUR 315m as of 2014)[14]. In addition, it highlighted

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[14] Question for written answer P-002891/14 by Rina Ronja Kari (GUE/NGL), 12.03.2014). Mr Barnier's response on behalf of the Commission is available at http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=P-2014-002891&language=EN.

the "exclusively civilian" nature of the security research under FP 7, but that this does not exclude dual-use technologies. Indeed, in a written answer from 30 May 2016, the Commission mentioned that it had the intention to expand financing research on dual-use RPAS technology via H2020 (European Parliament 2016b).

The Commission's responses are often short and built around the ideas of the civilian nature of the research and the absence of projects on armed drones. They reveal a pattern that falls short of meeting the Parliament Resolution demand to be kept informed "about the use of EU funds for all research and development projects associated with the construction of drones". The Commission's answers rarely go beyond what is absolutely required and remained widely opaque about how and why it finances such projects.

V.   Discussion: The hybridity–invisibility–unaccountability triangle in the EU security governance

As mentioned above, the literature on hybridity in security governance presents three dominant ideas: the belief in the market as a source of solutions to contemporary security problems; the understanding of hybrid forms as efficient ways of managing political risks; and the fact that hybrid governance is generally less visible than strictly public or strictly private, therefore becoming less accountable. The following discussion on the EU's role in developing European drones is structured around these ideas but incorporates the four analytical elements from the literature on management and organizational studies: purpose, value creation, internal boundaries, and stability.

Belief in the market, or the purpose vs value *dichotomy*

In the drone technology, the Commission, the EDA and the EP see a potential for a revolution on security and military practices (e.g. European Commission, 2017 and European Parliament, 2016a). In a study commissioned by the Parliament, for example, the authors argue for the need to increase the EU R&D defence investment, especially in dual-use technologies, in which SMEs should play a vital role. In concrete, the study argues that '(…) while large corporations tend to be good at improving what they have been good at doing, newcomers are often more risk-oriented, quicker to react and better suited for exploiting radically new technologies or combining existing technologies' (Mauro and Thoma, 2016). This trust in the market partly explains the strategic choice of sharply increasing EU funding for these projects. Considering the EU's limited competence in security, and its correlated low capacity to engage with the processes of security-related technological developments, fomenting the creation of hybrid consortia involving public entities (member states, third countries, the EDA, the Commission, and other EU agencies), private companies, and research institutes offers an alternative way out of EU's long-standing difficulties in dealing with procurement, defence technology, and the high politics of security and defence.

This means that, in the language of the management literature, the social or political value of these hybrid consortia goes beyond their immediate purpose. In other words, these hybrid consortia are created not only because they aim at fulfilling one particular task but mostly because they pursue the creation of a politically-defined value. In the examples provided above, the *purposes* of AEROCEPTOR and SeaBILLA are, respectively, "developing a new and innovative concept of operation to remotely and safely control, slow, and stop non-cooperative vehicles in both land and sea scenarios via a RPAS" and "developing surveillance technology and adopting early warning systems and sharing information on the EU's sea borders". But their *value created* goes beyond this. In the case of AEROCEPTOR the idea was to create transferable technology that could then commercialized at the market at large, whereas SeaBILLA explicitly mentions that one of its

objectives was to reinforce the "world competitiveness of EU industries, by increasing knowledge and reducing risks for future product investments".

An additional manifestation of this belief in the market relates to the prominence of groups of "experts", many from the defence industry, in shaping EU's defence R&D. Mawdsley shows that fears about the transatlantic security-technology gap, stemming from the 1960s, became "deeply embedded in successive research programmes, most notably ESPRIT from the 1980s and the security research agenda" that followed from FP7 (Mawdsley 2017). In order to address this issue, the Commission established a *Group of Personalities* (GoP) in 2002 to "propose principles and priorities of a European Security Research Programme in line with the EU's foreign, security and defence policy objectives (…)" (GoP 2004: 4). In the words of Carmel, this report "established the key parameters for all future research strategy papers of the Union to date" (Carmel 2016: 785).

Indeed, this is precisely what was observed in the process leading to the above-mentioned 2017 PA on Defence Research, whose content and orientation vastly reflect the guidelines suggested by a GoP established in 2015. In the GoP's report (EUISS 2016), Commissioner for the Internal Market Bieńkowska writes that the Commission is determined to do all it can to reverse the Union's decreasing spending in defence R&D. The report makes the case for an EU-funded defence R&D programme and its subtitle reads "Catalysing Cooperation; Enabling Capabilities; Sustaining Competitiveness". The recommendations put forward in the report strongly influenced the content of the PA work programme for 2017 (Teffer 2017; Jones 2017), that has developing drone technology as a top priority.

Political risk aversion

In recent years, significant areas of the highly sensitive security domain were transferred to expert knowledge-based EU agencies such as the EDA or the Schengen Information System II (SIS II) and

to consortia that enmesh these agencies with the private sector. By allowing hybrid partnerships to assume the leadership of the processes, and by establishing boundaries within the consortia that adjudicate important tasks to different actors, the EU shields away potential criticism of the outcomes of those same processes. A defining characteristic of hybrid forms is precisely a genuine enmeshment of the different partners, in which the competences of each individual participant are difficult to disentangle from afar. In the case of drone development, even though the EU framework programmes contribute with (co-)funding to the research, and in spite of mid-term and concluding reports sent to the Commission, the projects may generate direct or indirect outputs beyond what is contractualized. This later aspect has been identified in management and organization studies as being inherent to hybrid forms, irrespective of their area of intervention. Borys and Jemison (1989, p. 239) refer that there may be a mismatch between the purpose and the activities carried out to pursue it, and this may impact social value creation. In the same vein, Mörth has showed that it is the officials, rather than the politicians, that have influence over the public-private partnership (Mörth 2007, p. 601). In her study of three EU public-private partnerships, she concludes that "indeed, the public-private collaborations seem to have lives of their own" (Mörth 2009, p. 116).

At the same time, and from the Brussels' perspective, these consortia are political risk aversion enterprises inasmuch as they largely remain unaccountable and exercise their tasks without political oversight. In the words of Weiss, hybrid partnerships are "organizational innovations that – effectively if not intentionally – blunt the (national security) state's impact and blur its visible presence in economic governance, avoid political blockage, and promote the business of innovation" (Weiss, 2014, p. 147). This is clearly observable in the EU drone-research context: the day-to-day management of each consortium happens largely without EU supervision and the time and financial resources allocated to each of the partners enable them to continue to work on other projects outside the borders of the consortium.

Legitimacy, value, accountability

The most problematic aspect of the way the EU engages with drone development in Europe is that its actions remain largely unaccountable. In the EU's political system, the Parliament's main functions include to exercise oversight over other institutions, to monitor the proper use of the EU budget and to ensure the correct implementation of EU law. Vested with direct democratic legitimacy, the EP functions as a representative of the EU people, and it is therefore problematic that it has been uncapable of exercising that oversight and demand democratic accountability. The questions to the Commission on its funding of drone-related research were not answered thoroughly and got lost amidst Parliamentary support for more defence research funding, while the Parliament's resolutions requesting greater transparency on the usage of funds for drones have not been followed up.

These dynamics are not exclusive of EU funding of drone research; rather, they confirm a defining characteristic of hybrid governance. As Hurt and Lipschutz have put it, hybrid governance "renders representative institutions less important and the role of executive branch agencies more central" (Hurt and Lipschutz, 2015, p. 33), because the private dimension of the hybrid consortia largely exempts them from efficient supervision, even when the civil society mobilizes against them. Structural power imbalances are at play between civil society movements and the industry lobby, as will be shown below.

This political logic shows that a trade-off between value creation and political accountability is in place. In other words, hybrid consortia face an *output* vs *input* legitimacy dilemma: their market-orientation makes them prioritise efficiency (usually associated with output legitimacy) but the presence of public entities and their usage of public funds should imply high levels of democratic accountability; when this is not observed, their (input) legitimacy is compromised. Considering that

the long term value creation of these consortia go beyond their case-specific stated purpose, the absence of political accountability becomes increasingly important.

A clear demonstration that the intended value creation goes beyond the projects' stated purpose is that the security research funds keep on increasing despite very poor performance in the consortia. According to the official final evaluation of Security Research under FP7, only 11% of the 61 surveyed projects had generated Intellectual Property Rights (European Commission 2015). The lack of results remain a defining characteristics of the drone-developed projects surveyed here and seems to indicate that the politically-defined value creation of these projects rests less in their stated purposes than on their capacity to create a common defence R&D culture and generate funds for the industry.

In the case of defence R&D, the unaccountability and lack of transparency are potentiated by the central role occupied by the industry-led GoP in the definition of EU's policies in this domain. Indeed, seven of the 16 members of the GoP whose report strongly influenced the PA, as mentioned above, are representatives from the biggest military industries in Europe. The group has also two representatives from applied research institutions, two think tank representatives, and current and former politicians, while no representative from human rights NGOs, civil society organizations, or MEPs that are critical of the EU's increasing militarization are to be found.

Carmel argues that practical knowledge in security research has "enabled major European corporations to assert a privileged discursive and political position in the 'linked ecologies' of formal scientific research, product development and EU policymaking" (Carmel 2016, p. 771; also Lemberg-Pedersen 2013). The case under analysis here confirms this idea. In July 2017, the EU's Ombudsman, in response to a complaint filed by the European Network Against the Arms Trade (ENAAT), opened up an investigation on the status attributed by the Commission to the GoP. The ENAAT argues that the GoP, heavily influenced by the arms industry lobby, should have been formally considered as an

expert group, something that would have required listing in the *Register of Expert Groups and Other Similar Entities* and subjection to the relevant rules on transparency and disclosure (Statewatch 2017).

A final and broader aspect looms above these developments and relates to the pathologies of academic funding and research oversight in EU marketized societies after the Cold War. Weiss (2014) shows how the emergence of US military-industrial complex was closely connected to major universities. Some structural differences notwithstanding (US anti-statism tradition, size of the defence markets), the EU security industry managed to insinuate itself into a seemingly fundamentally benign civilian sphere of research with the decisive support from the EU. This is a undissociatable part of the broader marketization of several EU policies occured since 1990s, which has made accountability increase to "one of the most important democratic values" (Wörth 2009, p. 101).

Conclusion: towards a European industrial military complex

From a Brussels perspective, Europe currently faces a growing uncertainty in security and defence, marked by Brexit, doubts about the US commitment to NATO, and an assertive Russia in its Eastern front. These factors constitute exogenous incentives to furthering EU's commitment to an increasingly autonomous security and defence. The processes analysed in this article, though, have created endogenous conditions for a growing EU commitment on security via an expanding common defence R&D culture. We argue that the Commission's hidden drone policy, conducted over the years via the framework programmes, has paved the way for the Commission's recent explicit engagement with direct defence research funding, made clear in the 2016 European Defence Action Plan and in the PA for defence research. Today, the EU's drone policy, part of an expanded defence R&D commitment, is not hidden any longer. While many member states welcome this commitment,

important questions remain on the impending emergence of a European industrial military complex fomented by the EU and on the increasing role that defence occupies in the EU budget.

The processes analysed in this article are part of a broader market turn in European governance; hybrid consortia exist in many areas of EU policy making, from space policy to renewable energies, raising important questions at the level of legitimacy and accountability. When these consortia operate in the security domain, though, and in particular the field of defence, the issue of political accountability becomes particularly relevant. Using inputs from hybridity literature from both security governance and management studies, our research has showed that the hybrid consortia formed for the *purpose* of developing drones *created value* beyond said purpose: they enmeshed the defence industries with public authorities (in Brussels and in the member states), they fostered a common defence R&D community, they kept the European defence industry competitive, and they facilitated the emergence of a shared defence culture. Given the crucial aspect of these issues, including in terms of the EU's raison d'être, the absence of political accountability remains highly problematic.

Due to its multi-level, multi-actor and de-centralised system of governance, and to the prominence of the internal market in the construction of the European integration project, the EU offers news possibilities for understanding risk aversion through hybridization in security governance. Indeed, some of the characteristics used in the literature to define hybridity are often attributed to the EU by some of its critics. These include the lack of accountability, its business-like, technocratic character, and the invisibility of many of its decisions that nevertheless have significant impact on people's lives. In order to ensure consistency between foundational principles and practice, the EU needs to improve the democratic standards of its security and defence policies. This is particularly important in the case of drones and other state-of-the-art technologies, where the policies and norms of today

will shape the way we deal with the next generation of defence technology, dominated by artificial intelligence and automation.

Table 1 - Number of RPAS(-related) projects

Table 2: Increase of EU spending on drone research

Table 3

Largest 10 projects under FP7 + H2020

		Headline	Project	Total value (€)	EU contribution (€)	Coordinated by
FP 7	1.	Security	PERSEUS	43.434.222	27.847.579	Indra Sistemas (ES)
	2.	Security	TALOS	19.497.388	12.898.332	Przemyslowy Instytut Automatyki I Pomiarow Piap (PL)
	3.	Security	ICARUS	17.306.993	12.584.933	Ecole Royale Militaire (BE)
	4.	Security	I2C	15.962.707	9.869.622	DCNS (FR)
	5.	Security	SeaBILLA	15.558.126	9.841.604	Selex ES (ES)
	6.	Security	AIRBEAM	15.532.973	9.894.308	Airbus Group SA (EU)
	7.	Security	SUNNY	13.808.843	9.569.978	BMT Group (UK)
	8.	Security	CLOSEYE	12.205.073	9.218.256	Spanish Interior Ministry (ES)
	9.	Security	DARIUS	10.645.581	7.457.830	BAE Systems (UK)
	10.	ICT – Information and Communication Technologies	PLANET	6.819.750	4.900.000	Universität Duisburg-Essen (DE)
	Total			**170.771.656**	**114.082.442**	
H2020 ongoing	1.	SESAR	PJ 10 PROSA	43.248.877	5.352.250	DFS Deutsche Flugsicherung (DE)
	2.	Secure Societies	Reaching out	21.101.721	18.811.558	Airbus D&S (EU)
	3.	SESAR	PJ03a SUMO	19.765.415	2.621.601	Enav (IT)
	4.	ECSEL	SWARMs	17.294.254	6.406.819	Universidad Politécnica de Madrid (ES)
	5.	SESAR	PJ11 CAPITO	15.942.738	1.111.244	Eurocontrol (BE)
	6.	SESAR	PJ08 AAM	15.431.292	555.406	Eurocontrol (BE)
	7.	Smart, Green and Integrated Transport	Lynceus2Market	10.155.003	7.260.975	RTD Talos (CY)
	8.	Future Internet	RAWFIE	8.319.384	6.995.729	Ethniko kai Kapodistriako Panepistimio Athion (GR)
	9.	Food Security	BRIDGES	7.791.810	7.791.810	Association Pour la Recherche et le Developpement des Methodes et Processus Industriels (FR)
	10.	Secure Societies	STORM	7.297.875	7.297.875	Engineering - Ingegneria informatica (IT)
	Total			**166.348.369**	**64.205.267**	

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