MALE-Drone Proliferation in Europe:

Assessing the Status Quo Regarding Acquisition, Research and Development, and Employment

Johanna Polle

Interdisciplinary Research Group on Disarmament, Arms Control and Risk Technologies

Institut für Friedensforschung und Sicherheitspolitik an der Universität Hamburg/
Institute for Peace Research and Security Policy at the University of Hamburg
Beim Schlump 83, 20144 Hamburg, Deutschland
Tel: +49 40 866 077-0 - Fax: +49 40 866 36 15

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Summary

- Medium Altitude Long Endurance (MALE) drones are steadily proliferating in Europe. Currently, four European states are operating MALE-drones: The United Kingdom (UK), France, Italy, and Germany. Three of these are expanding their existing fleets (UK, France, Italy), and two are arming their previously unarmed aircraft (Italy, France). Six additional states are in the process of initially acquiring different models of unarmed platforms (Netherlands, Spain, Belgium, Switzerland, Poland, and Greece).
- Seeking more strategic autonomy from extra-European suppliers, European states are building up an indigenous European MALE-drone capability. Currently there are two multinational R&D and production programs, the *nEUROn* (France, Italy, Sweden, Spain, Switzerland, and Greece) and the *European MALE Remotely Piloted Air System* (RPAS) (Germany, France, Italy, and Spain), and two bilateral ones, both called *Future Combat Air Systems* (UK-France and France-Germany). Furthermore, there are knowledge sharing initiatives, such as the *European MALE RPAS User Community* consisting of France, Germany, Italy, the Netherlands, Spain, Poland, and Greece.
- France's domestic use of its retired Harfang drones indicates that flying MALE-drones in the European civil airspace is no longer unthinkable.
- Four European countries have been employing MALE-drones abroad for surveillance purposes (UK, France, Italy, and Germany). Since the first employment about a decade ago, they have operated in over eight countries mainly located in conflict zones in the Middle East, South Asia, and Northern Africa. European MALE-drone employment predominantly takes place within counterterrorism operations, but Italy has demonstrated their use within the scope of peacekeeping, border control, anti-piracy, and evacuation missions.
- Only the UK currently carries out drone strikes, not only in Afghanistan but, since 2014, also in Iraq and Syria, countries, which have not been officially declared as warzones. The other three European MALE-drone states exclusively use unarmed platforms to carry out intelligence, surveillance, and reconnaissance (ISR) tasks.
- It can be expected that more European militaries will use armed MALE-drones to attack targets in the future. Soon, three main defense players – the UK, France, and Italy – will have armed drones. Moreover, out of the six states currently seeking to acquire unarmed MALE-drones only the Swiss government has strictly ruled out the possibility of arming them in the future.
- Europe is facing a crossroad in drone affairs. It must decide if it will "slide" into the American approach to drone strike policy or create a European arms control regime, including employment standards. Right now, there is a momentum for intensifying EU defense cooperation, presenting a window of opportunity for taking respective action and establishing an arms control regime for armed MALE-drones.

Abbreviations

CDA	Christian Democratic Appeal
CDU	Christian Democratic Union
EADS	European Aeronautic Defence and Space
EDA	European Defence Agency
EDF	European Defence Fund
EU	European Union
EUNAVOR	European Union Naval Force
FCAS	Future Combat Air System
GA	General Atomics
IAI	Israel Aerospace Industries
IEDs	Improvised Explosive Devices
IL	Israel
ISAF	International Security Assistance Force
ISIL	Islamic State in Iraq and the Levant
ISR	Intelligence, Surveillance, Reconnaissance
ISTAR	Intelligence, Surveillance, Reconnaissance, and Target Acquisition
KM/H	Kilometers per hour
KN	Knots
LB	Pounds
MALE	Medium Altitude Long Endurance
MINUSMA	Multidimensional Integrated Stabilization Mission of the UN in Mali
MOD	British Ministry of Defence
NATO	North Atlantic Treaty Organization
PESCO	Permanent Structured Cooperation
PVV	Party for Freedom
R&D	Research and Development
RPAS	Remotely Piloted Air System
SPD	Social Democrat Party
UAV	Unmanned Aerial Vehicle
UCAV	Unmanned Combat Aerial Vehicle
UK	United Kingdom
UN	United Nations
US	United States

I. Introduction

As unmanned aerial military vehicles (UAVs), commonly called drones, continue to proliferate throughout the world, they also increasingly diffuse into Europe, where investments in research and development (R&D) and the acquisition of UAVs, even armed ones, are steadily rising. Multiple international defense experts, including Sarah Kreps, Jean-Baptiste J. Vilmer, and Gen. Dino Tricarico, have claimed that Europe is very late in developing its own military drone capability.[1] Now, many European decision-makers seem determined to catch up as indicated by, among other things, recent defense collaboration efforts, such as the creation of the Permanent Structured Cooperation (PESCO) and the launch of a multi-billion European Defence Fund. A large proportion of these initiatives are concerned with models with medium altitude and long endurance (MALE), because they are technologically more sophisticated and widely regarded as more powerful than military UAVs with a low altitude and short to medium endurance. That is why this report will focus on the MALE-drone category.
Advocates often praise their remote operation, which protects the operators, the real-time intelligence picture, the long flight hours, and precision targeting. European countries have used MALE-drones in diverse scenarios, but most frequently in counterinsurgency or counterterrorism operations and predominantly for intelligence, surveillance, and reconnaissance (ISR) roles. The UK has also carried out drone strikes. At the moment, the UK is still the only European country with armed MALE-drones (unmanned combat aerial vehicles, UCAVs), but other European policy-makers have recently begun to explore this option as well.
So far, many European states have primarily been occupied with the question of how to get (armed) MALE-drones and in what scenarios to use them, neglecting the possible security implications of such a move. The ongoing proliferation of UAVs poses risks to international security, including destabilizing arms races and a potential for misuse, for example by violent non-state actors. Moreover, UAVs could be a gateway for adopting increasingly automated, or, someday, even autonomous, unmanned military systems of various kinds (water, ground, air). Given these possible implications, a 2014 resolution by the European Union (EU) called to "include armed drones in relevant European and international disarmament and arms control regimes",[2] but since then not much has happened.

This report contributes a comprehensive overview of the proliferation of armed and unarmed MALE-drones in Europe, intended for policy-makers, scholars, and the general public interested in this subject. Due to the swift diffusion of military drones and the rapid technological developments, staying up to date can prove difficult; an endeavor further complicated by military secrecy and the disarray of publicly available information one finds in the news

[1] Sarah Kreps, "What to Make of France's Move to Arm Its American-Made Reaper Drones," World Politics Review, 19 September 2017, https://www.worldpoliticsreview.com/articles/23173/what-to-make-of-france-s-move-to-arm-its-american-made-reaper-drones; Jean-Baptiste J. Vilmer, "A Perspective on France," in *Proliferated Drones* (Washington DC: Center for a New American Security, 2016); Gen. Dino Tricarico, head of the Italian think tank ICSA cited in Tom Kington, "Italy Wins US State Dept. OK To Arm Its Reapers," DefenseNews, 05 November 2015, https://www.defensenews.com/air/2015/11/05/italy-wins-us-state-dept-ok-to-arm-its-reapers/; Jean-Yves Le Drian, "Pourquoi l'Armée Française a un Besoin Urgent de Drones," *Les Echos*, 31 May 2013.
[2] European Parliament, "European Parliament Resolution of 27 February 2014 on the Use of Armed Drones (2014/2567(RSP))," P7_TA(2014)0172 (Strasbourg 2014).

and in policy-maker statements. Several reports by scholars, NGOs, and other initiatives have, therefore, sought to connect the dots. They have examined the global proliferation of drones,[3] the status quo in individual European states,[4] and respective EU-policy.[5] The objectives for this report are twofold. First, it seeks to ascertain the current state of affairs regarding the possession, R&D cooperation, and use of MALE-drones among European countries. Second, it aims to identify overarching trends for the next several years.

The report proceeds as follows: Chapter two outlines the status quo of the possession and acquisition of armed and unarmed MALE-drones among European states. Subsequently, chapter three presents the current European efforts to independently build a European MALE-drone capability. Chapter four depicts the missions and experiences of European states that have already used MALE-drones. The conclusion summarizes and analyzes the main findings of the previous chapters and points out likely trends for the future.

II. Possession and Procurement

MALE-drones are proliferating – also in Europe (Figure 1[6]). At the moment, four European countries are operating them: The United Kingdom (UK), France, Italy, and Germany. While the platforms were predominantly acquired from the same American (US) and Israeli (IL) providers, each of the drone programs is, nevertheless, unique in some way. Furthermore, six states are in the process of acquiring unarmed MALE-drones, including the Netherlands, Spain, Belgium, Switzerland, Poland, and Greece. Given the national particularities of each program and weapon system, and the rapid developments in this area, this chapter summarizes the status quo regarding the possession and procurement of armed and unarmed MALE-drones among European states.

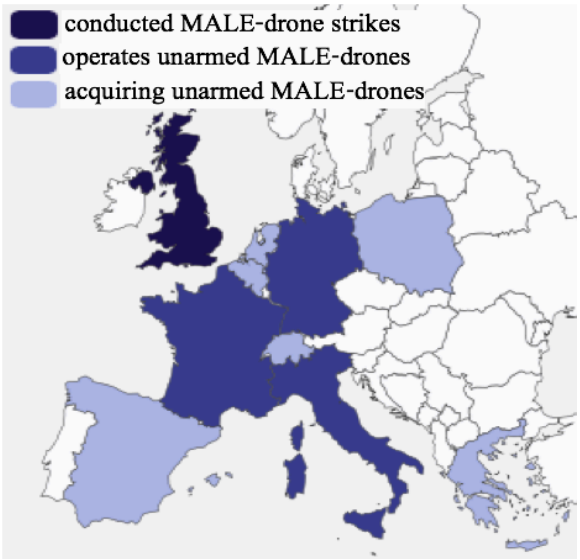

Figure 1) MALE-Drones in Europe

European States Already Possessing MALE-Drones

Four European states, the UK, France, Italy, and Germany, already have MALE-drones, which were primarily obtained from American or Israeli companies. Despite this commonality, each national program also has important particularities. The UK was the first and, so far, only European state to obtain armed drones, France built the Harfang platforms in collab-

[3] Joanna Frew, "Drone Wars: The Next Generation - An Overview of New Armed Drone Operators," (Oxford2018).
[4] Notably the work by the European Forum on Armed Drones (EFA), see www.efadrones.org.
[5] Jessica Dorsey and Christophe Paulussen, "Towards a European Position on Armed Drones and Targeted Killing: Surveying EU Counterterrorism Perspectives," in *ICCT Research Paper* (The Hague2015).
[6] Author's own figure, created on https://paintmaps.com/map-charts/71/Europe-map-chart.

oration with an Israeli company, Italy has the oldest MALE-drone program and, currently, the most platforms available, and Germany has the smallest and only leased fleet of MALE-drones (Table 1).

Table 1) European States Possessing MALE-Drones

Country	Platform			Procured as	
	N	Model	Armament	Import / Lease from	Involved Companies
UK	10	MQ-9 Reaper	Max. four Hellfire missiles & two 500 lb. Paveway II bombs	US	GA
France	6	MQ-9 Reaper	-*	US	GA
	4	Harfang	-	IL	IAI & EADS
Italy	6	MQ-1C Predator A+	-	US	GA & Galileo Avionica
	6	MQ-9 Reaper	-**	US	GA & Galileo Avionica
Germany	6	Heron 1	-	IL	IAI & Rheinmetall

* Decided six additional Reaper platforms should be armed by 2020
** In 2015, the US agreed to sell Italy weapons to arm Italian Reapers.

UK

In an urgent operational requirement, the British Ministry of Defence (MOD) procured the first three MQ-9 Reaper UAVs and two ground stations from General Atomics (GA) in 2006.[7] By 2011, five were in operation and the MOD acquired five additional Reapers in 2013.[8] For the ten Reapers, the UK paid about €577 million (£506 million) in total.[9] The Reapers can carry a comparatively heavy (internal and external) payload of 1,724 kg (3,800 lb.). They can be armed with up to four Hellfire missiles and two 227 kg (500 lb.) Paveway II bombs.[10]
In the Strategic Defence Review 2015, Prime Minister David Cameron had presented plans to double the British drone fleet from ten to twenty aircraft. In 2016, the MOD specified their plans. Within the scope of a €115 million (£100 million) deal with GA, the parties agreed to develop the SkyGuardian, a variant of the MQ-9 Reaper for the European market.[11] In British

[7] Craig Hoyle, "UK Cheers the Reaper UAV," Flight International, 16 June 2008, https://www.flightglobal.com/news/articles/uk-cheers-the-reaper-uav-224622/.
[8] Gareth Jennings, "UK Prepares for Protector UAV," IHS Jane's Defence Weekly, 13 March 2018, http://www.janes.com/article/78529/uk-prepares-for-protector-uav; Owen Bowcott and Paul Lewis, "Attack of the Drones," The Guardian, 16 January 2011, https://www.theguardian.com/uk/2011/jan/16/drones-unmanned-aircraft.
[9] Jack Serle, "UK Government Spends £2bn on Drones," The Bureau of Investigative Journalism, 26 September 2012, https://www.thebureauinvestigates.com/stories/2012-09-26/uk-government-spends-2bn-on-drones.
[10] UK Ministry of Defense, "Unmanned Aircraft Systems," Joint Doctrine Publication 0-30.2 (Shrivenham: Development, Concepts and Doctrine Centre, 2017), 60.
[11] General Atomics, "Certifiable Predator B Multi-Role – Single Solution," General Atomics Website, 2017, http://www.ga-asi.com/Websites/gaasi/images/products/aircraft_systems/pdf/MQ-9B-Capability-Profile-II.pdf; Spencer Ackerman, "UK to Double Armed Drone Fleet in Deal with US Predator Manufacturer," The Guardian, 03 December 2016, https://www.theguardian.com/world/2016/dec/03/drones-us-uk-deal-predator-reaper-protector.

service, it will be known as Protector. The Protector will partly deviate from Reaper models. For instance, it will not be armed with American Hellfire missiles, but with the British Brimstone 2 missiles. Furthermore, it will have a rather big payload of 2,177 kg and be able to take off and land automatically.[12] The force integration is planned for 2021.[13] As the British MOD stated, this expanded drone capability will "dramatically increase the UK's ability to identify, track, deter and ultimately counter potential threats."[14]

France

The French military currently has ten MALE-drones: six MQ-9 Reapers and four Harfangs (French for "arctic snowy owl").[15] The Harfang is based on an Israeli drone design from the 1990s, built by Israel Aerospace Industries (IAI) and equipped by the Airbus Group (before 2013, called the European Aeronautic Defence and Space Company, EADS).[16] It can operate for up to 24 hours but flies relatively slowly at 111 knots (kn) (207 km/h).[17] They were originally acquired as an "interim" capability in 2008, which led the former French Defense Minister Hervé Morin to complain in 2010 that France was technologically behind the United States (US) and Israel, missing out on the technical evolution.[18]

In 2013, France requested the purchase of initially 16 US-made Reapers from the US at a value of €1.27 billion ($1.5 billion).[19] The French government decided to order an immediate delivery of two Reapers. As Morin's successor, Jean-Yves Le Drian, explained, they could not "wait any longer", while the conflict in the Sahel zone was exacerbating and France was relying "on the solidarity of our allies for a capability that is a major element of our sovereignty."[20] Thus, Reapers substituted for the Harfangs in French ISR-operations abroad. In the end, the French government procured only twelve additional MQ-9 Reapers from the US, which should be delivered by 2019. In 2017 the government announced it would arm their Reaper platforms. Six of the new drones should come with American Hellfire missiles and six should carry European munitions by 2020.[21] In the same year, France allocated €84 million to the procurement in the MALE-drone sector according to the annex of the 2017 national defense budget.[22]

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[12] Jennings, "UK Prepares for Protector UAV".
[13] Ackerman, "UK to Double Armed Drone Fleet".
[14] Ministry of Defence cited in Beth Stevenson, "'Protector' UAV fleet to replace RAF Reapers," FlightGlobal, 05 October 2015, https://www.flightglobal.com/news/articles/protector-uav-fleet-to-replace-raf-reapers-417391/.
[15] Jean-Baptiste J. Vilmer, "The French Turn to Armed Drones," War on the Rocks, 22 September 2017, https://warontherocks.com/2017/09/the-french-turn-to-armed-drones/; "A Perspective on France."
[16] Tamir Eshel, "France to Deploy Local Versions of the Israeli Heron-TP By 2014," DefenseUpdate, 21 July 2011,http://defense-update.com/20110721_france-to-deploy-local-versions-of-the-israeli-heron-tp-by-2014.html.
[17] Air Force Technology, "Harfang MALE Unmanned Aerial Vehicle (UAV)," https://www.airforce-technology.com/projects/harfang-drone/.
[18] Hervé Morin, "Audition de M. Hervé Morin, Ministre de la Défense, Sur le Projet de Loi de Finances Pour 2011 (n° 2824)," ed. Commission de la Défense Nationale et des Forces Armées, Compte rendu n° 2 (2010).
[19] Defense Security Cooperation Agency, "France – MQ-9 Reapers", Defense Security Cooperation Agency, news release, 27 July 2013, http://www.dsca.mil/sites/default/files/mas/france_13-40_0.pdf, (accessed September 25, 2018).
[20] Le Drian, "Pourquoi l'Armée Française a un Besoin Urgent de Drones."
[21] John Irish and Catherine Evans, "France Turns to Armed Drones in Fight Against Sahel Militants," Reuters, 05 September 2017, https://www.reuters.com/article/us-israel-usa-protests-palestinians/israeli-forces-kill-dozens-in-gaza-as-u-s-embassy-opens-in-jerusalem-idUSKCN1IF0M8.
[22] Pierre Tran, "Additional Reaper Drones to Arrive in France in 2019," DefenseNews, 12 January 2017, https://www.defensenews.com/air/2017/01/12/additional-reaper-drones-to-arrive-in-france-in-2019/.

Italy

Italy possesses six MQ-1C Predator A+ and, at the moment, six still unarmed, MQ-9 Reaper aircraft.[23] The Italian Ministry of Defense acquired the Predators comparatively early in 2002, initially including five platforms. They were bought from GA, while the Italian company, Galileo Avionica, assembled them and was responsible for the staff training and the logistics support.[24] In 2011, after Italy initially requested to arm its unarmed Reaper drones, the US government granted permission four years later in 2015, suggesting a sale of 156 Hellfire II missiles, 20 laser-guided bombs, and 30 joint direct attack munitions.[25] The Italian forces are still waiting for the weapons. Since the US government had granted armaments to the UK immediately, their delay has caused perplexity in Italy.[26]

In February 2018, Italy's Ministry of Defense then requested the acquisition of twenty domestically-produced Aerospace P.2HH ISR drones (Hammerhead)[27] and ten piloting stations from Piaggio Aerospace. Piaggio Aerospace is a formerly Italian company that has been in the hands of the United Arab Emirates-based Mubadala Development Company since 2014. The order amounts to €766 million. Still, the recently elected Italian government has yet to place an actual order and announce a date for the expected delivery. Defense journalist Tom Kington reckons on Defense News: "If Italy's plan was to buy the Hammerhead as a gap filler ahead of the introduction of the EuroMALE, that gap is now getting smaller."[28] The P.2HH Hammerhead can fly at high speed, up to 330 kn (611 km/h), at day and at night, will be capable of operating in both segregated and non-segregated airspace, and is designed to land at civilian airports as well military airports.[29]

Germany

At the moment, the German Bundeswehr has six unarmed Heron 1 surveillance drones available.[30] In summer 2009, the German government decided to lease the Heron 1 from IAI with the German defense company, Rheinmetall, providing operational support. Just as with

[23] Kington, "Italy Wins US State Dept. OK to Arm its Reapers"; David Cenciotti, "This Is How Italian Tornado Jets and Predator Drones Will Contribute to the War on ISIS," The Aviationist, 17 November 2014, https://theaviationist.com/2014/11/17/italy-joins-fight-on-isis-tornado/.

[24] Luca Peruzzi, "Italian Predators Deploy to Iraq," FlightGlobal, 25 January 2005, https://www.flightglobal.com/news/articles/italian-predators-deploy-to-iraq-192988/.

[25] Kington, "Italy Wins US State Dept. OK To Arm Its Reapers".

[26] Ibid.; Andrea Shalal, "U.S. Government Approves Italy's Request to Arm its Drones," Reuters, 04 November 2015, https://www.reuters.com/article/us-italy-usa-drones/u-s-government-approves-italys-request-to-arm-its-drones-idUSKCN0ST1VI20151104.

[27] The smaller P.1HH Hammerhead drone had crashed during a test flight in 2016 (Tom Kington, "Back on Track: Testing of Piaggio Hammerhead Drones Resumes a Year after Crash," DefenseNews, July 8 2017, https://www.defensenews.com/air/2017/07/08/back-on-track-testing-of-piaggio-hammerhead-drones-resumes-a-year-after-crash/.)

[28] "Italy Plans to Spend $951M on 20 Surveillance Drones," Defense News, 27 March 2018, https://www.defensenews.com/unmanned/2018/03/27/italy-plans-to-spend-951m-on-20-surveillance-drones/.

[29] Ibid.

[30] Victoria Kietzmann, "Verlegung der Drohne Heron 1 nach Mali beginnt," Bundeswehr.de, 02 September 2016, http://www.bundeswehr.de/portal/poc/bwde?uri=ci:bw.bwde.aktuelles.aus_dem_einsatz&de.conet.contentintegrator.portlet.current.id=01DB170000000001|ADDBS5605DIBR; Bundeswehr, "Heron 1 in Afghanistan jetzt 30.000 Flugstunden im Einsatz," Bundeswehr Journal, 18 December 2016, http://www.bundeswehr-journal.de/2016/heron-1-in-afghanistan-jetzt-30-000-flugstunden-im-einsatz/.

the Harfang for France, Heron constitutes an interim solution for Germany until European companies offer similarly powerful drones.[31]

Facing an expiring contract for the Heron 1, the German Parliament decided in June 2018 to lease five Israeli Heron TP surveillance drones and four ground stations for nine years (until 2027).[32] While the new platforms will be capable of carrying arms, they should not be armed for now.[33] Nonetheless the contract does include the preparation for a possible future armament of the platforms. Furthermore, the procurement includes an €176,76 million deal with Israel, encompassing training for German pilots, maintenance on Israeli territory, and an operating agreement with Airbus Defence & Space Airborne Solutions for almost €718 million.[34] Should Germany employ the Heron TPs in up to two countries (likely Afghanistan and Mali) it will face additional costs - about €310 million. According to current plans, the Heron TP surveillance drones should be ready for service abroad in 2020.[35]

The Social Democrats (SPD), the Christian Democratic Union's (CDU) coalition partner, had blocked the Heron TP procurement decision in 2017, just before the national elections. Later they only agreed to procuring the platforms under the condition of postponing a decision on armament until the German society has debated the armament option as well as concomitant legal and ethical questions.[36] The Left party and the Green party oppose arming German drones. By contrast, the conservative Christian Social Union and the right-wing party, Alternative for Germany, are in favor of a near-term armament of German military drone systems.[37]

European States Which Will Soon Possess MALE Drones

Still, not only the states, which already possess MALE-drones, are interested in expanding their fleets. Six European countries are seeking to acquire unarmed MALE-drones, including the Netherlands, Spain, Belgium, Switzerland, Poland, and Greece. While the majority of platforms will be procured from the US, Germany and Greece will lease their reconnaissance MALE-UAVs from Israel. Most systems should be delivered or in service between 2019 and 2022 (Table 2).

[31] Andreas Rinke, "Warum „Heron 1" doch gewann," Handelsblatt, 21 June 2009, http://www.handelsblatt.com/politik/deutschland/drohne-fuer-afghanistan-warum-heron-1-doch-gewann/3203004.html.

[32] Disagreeing with the German decision to lease the Heron TP and not the Predator B, GA filed a lawsuit in 2016. Yet, the German higher court in Duesseldorf dismissed it (Matthias Inverardi and Maria Sheahan, "German Court Dismisses General Atomics Suit Over Heron Drone Order," Reuters, 31 May 2017, https://www.reuters.com/article/us-germany-drones/german-court-dismisses-general-atomics-suit-over-heron-drone-order-idUSKBN18R2D3.)

[33] Christian Thiels, "Grünes Licht vom Bundestag Bundeswehr bekommt waffenfähige Drohnen," Tagesschau.de, 13 June 2018, https://www.tagesschau.de/inland/bundeswehr-drohnen-heron-101.html.

[34] Christian Thiels, "Projekt der Bundeswehr Kampfdrohne ohne Waffen – vorerst," Tagesschau.de, 29 May 2018, https://www.tagesschau.de/inland/drohnen-143.html.

[35] Flugrevue, "Haushaltsausschuss des Bundestages: Grünes Licht für Heron TP," Flugrevue, 13 June 2018, https://www.flugrevue.de/militaerluftfahrt/uav/gruenes-licht-fuer-heron-tp/755996.

[36] Koalitionsvertrag zwischen CDU CSU und SPD, "Ein neuer Aufbruch für Europa: Eine neue Dynamik für Deutschland Ein neuer Zusammenhalt für unser Land," 19. Legislaturperiode (2018), 159, §7559-62.

[37] Thiels, "Bundeswehr bekommt waffenfähige Drohnen".

Table 2) Ongoing Acquisition Process of MALE Drones

Country	Import	Lease	Year	Armament Option
UK	10 Protectors aka SkyGuardians (US) are being procured	-	Force integration by 2021	Brimstone 2 missiles
France	12 Reapers (US) are being procured	-	Delivery by 2019	6 Hellfire missiles, 6 European munitions
Italy	20 Hammerhead (IT/ UAE) are asked for	-	No information yet	-
Germany	-	5 Heron TP (IL)	First flight by 2020	Armable, but not armed
Netherlands	4 Reapers (US) are being procured	-	Delivery from 2019	Two government parties support armament
Spain	4 Reapers (US) are being procured	-	Delivery by 2020	Armable, but not armed
Switzerland	6 Hermes 900 (IL) are being procured	-	Delivery by 2020	Unarmed
Belgium	2 SkyGuardians (US) are being procured	-	Delivery between 2022 and 2024	Armable, but not armed
Poland	6 MALE RPA planned for purchase	-	Purchase by 2022	No information yet
Greece	-	7 Heron (IL)	No information yet	-

Netherlands

In 2013, the Dutch defense ministry decided to acquire a Reaper system for the Royal Netherlands Air Force, including four MQ-9 Reaper platforms. The first platform should be delivered in late 2019.[38] According to sources at the Defense Security Cooperation Agency, they will "enhance the intelligence, surveillance, and reconnaissance (ISR) capability of the Dutch military in support of national, NATO, UN-mandated, and other coalition operations."[39] This "off the shelf" purchase costs about €300 million and the delivery was originally planned for 2016.[40] Yet, budgetary challenges caused a delay.[41] While the previous Dutch government had no official plans to arm the Reapers in the near future,[42] two of the

[38] Defense-Aerospace, "Defense Purchases Four MQ-9 Reapers Unmanned Aircraft," July 17 2018, http://www.defense-aerospace.com/articles-view/release/3/194848/dutch-mod-finally-signs-loa-for-4-reaper-uavs.html.
[39] Tamir Eshel, "Netherlands to Field Four MQ-9 Reaper Drones by 2017," Defense Update, 08 February 2015, http://defense-update.com/20150208_dutch_reapers.html.
[40] Ibid.
[41] Beth Stevenson, "RNLAF Commander Hopeful for Reaper Funding Challenge Resolution," FlightGlobal, 11 November 2015, https://www.flightglobal.com/news/articles/rnlaf-commander-hopeful-for-reaper-funding-challenge-418676/.
[42] Eshel, "Netherlands to Field Four MQ-9 Reaper Drones by 2017".

new coalition parties – the conservative Christian Democratic Appeal (CDA) and the extreme-right Party for Freedom (PVV) – openly support an armament.[43]

Spain

Spain bought four unarmed Reaper models for €158 million in November 2015, which should be delivered by 2020.[44] For now, the operational focus should be on ISR. However, the government did not rule out the possibility of arming the vehicles later.[45] On the Defense Security Cooperation Agency website it says "[t]he Spanish Air Force intends to use the MQ-9s for homeland security, peacekeeping, peace enforcement, counterinsurgency and counter-terrorism operations," and would provide "improved ISR coverage that promotes increased battlefield situational awareness, anticipates enemy intent, augments combat search and rescue, and provides ground troop support."[46] From 2019 on, the Spanish military will operate the Reapers from military bases in Badajoz and on the Canary Island Lanzarote. Defense journalist Esteban Villarejo argues that the decision for Lanzarote indicates that a major regional focus for their missions will be on the Sahel area.[47] Similarly, Felix Arteaga, Senior Analyst at the Real Instituto Elcano, sees great potential in MALE-drones for combatting insurgents and jihadists in North Africa and the Middle East, especially for Spain as an EU and NATO border country.[48]

Switzerland

Switzerland bought six unarmed Hermes 900 drones from the Israeli company, Elbit Systems, for €230 million (250 million Swiss Francs) in 2015, which should be called "ADS 15." They will be delivered to the Swiss military in 2019 and should be used for reconnaissance missions.[49] Ueli Maurer, the former head of the Swiss Defense Department, strictly ruled out arming the Swiss Hermes platforms in the future. Although it would be technologically possible to arm them, he said Switzerland would not need to have armed drones - neither now nor ever.[50]

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[43] Jaap Jansen, "D66 en GroenLinks Twijfelen Over Aanschaf Grote Drones Door Defensie," BNR, 26 April 2017, https://www.bnr.nl/nieuws/politiek/10321934/d66-en-groenlinks-twijfelen-over-aanschaf-grote-drones-door-defensie. Nederlandse Omroep Stichting, "CDA Wil Bewapende Drones Aanschaffen," NOS, 15 February 2017, https://nos.nl/artikel/2158302-cda-wil-bewapende-drones-aanschaffen.html.

[44] Esteban Villarejo, "Spain To Buy Four MQ-9 Reapers for $168.2 Million," DefenseNews, 22 November 2015, http://www.defensenews.com/story/defense/air-space/isr/2015/11/22/spain-to-buy-four-mq-9-reapers-for-1682-million/76213400/.

[45] Beth Stevenson, "Spain Reveals Plans for Armed MQ-9," FlightGlobal, 24 November 2015, https://www.flightglobal.com/news/articles/spain-reveals-plans-for-armed-mq-9-419317/?cmpid=NLC%7CFGFG%7CFGUAV-2015-1207-GLOBnews&sfid=70120000000taAj.

[46] Aaron Mehta, "State Department OKs Spain Buying MQ-9 Reaper Drones," DefenseNews, 06 October 2015, https://www.defensenews.com/pentagon/2015/10/06/state-department-oks-spain-buying-mq-9-reaper-drones/.

[47] Esteban Villarejo, "Badajoz y Lanzarote Serán las Bases Desde Donde Volarán los Reaper a Partir de 2019," Blogs ABC, 25 September 2017, http://abcblogs.abc.es/tierra-mar-aire/public/post/badajoz-lanzarote-reaper-22232.asp/.

[48] Felix Arteaga, "A European Drone by 2025? The View from Spain on EUROMALE," (Armament Industry European Research Group, 2016).

[49] Andreas Schmid, "Wirbel um Armee-Drohnen," Neue Züricher Zeitung, 04 September 2016, https://www.nzz.ch/nzzas/nzz-am-sonntag/zu-schwerer-motor-wirbel-um-armee-drohnen-ld.114743#kommentare.

[50] Simon Hehli, "Armee kauft für 542 Millionen Franken ein," Neue Züricher Zeitung, 11 February 2015, https://www.nzz.ch/schweiz/armee-kauft-fuer-542-millionen-franken-ein-1.18481007.

Belgium

According to the "Strategic Vision 2030" report, a modernization plan published in 2016 by the Belgian Defense Ministry, the Belgian government plans to invest €490 million in MALE-drones until 2030. Proceeding in two steps, it foresees spending €180 million on two MALE-drones between 2021 and 2025 and €310 million on four additional MALE-drones by 2030.[51] Belgium placed the order for two vehicles with GA, whose SkyGuardian drone succeeded in the competition over alternative Israeli models.[52] In October 2018, the Belgian government decided to begin negotiating the SkyGuardian contract with GA, which will amount to €226 million. The reconnaissance MALE-drones should be delivered between 2022 and 2024 and be fully operational by 2025.[53] For the second acquisition, Belgium states it would, however, prefer a European model.[54]

The reconnaissance MALE-drone investments are part of funds for strengthening Belgian ISR and target acquisition (ISTAR). They are considered a strategic support capability, supposed to improve situational understanding and to ensure safer and more effective actions in military operations. The paper identifies a major shortage of this increasingly important capability on the European level and highlights the fact that the Belgian systems would contribute to reducing this deficiency. Furthermore, it mentions that, in the future, MALE-drones could also be used nationally by the police force, the customs agency or for environmental services.[55] While Belgian officials give assurances that the SkyGuardian will be armable, but not armed,[56] a footnote in the Strategic Vision report does acknowledge that armed MALE-drones could potentially be effective for supporting ground troops by providing tactical fire support.[57]

Poland

The Polish Ministry of Defense anticipates buying two sets of drones by 2022 and, optionally, another two sets thereafter. Each set shall include a ground station and three aircraft.[58] Currently, the competition is down to two systems: the Israeli Hermes 900 and the American MQ-9 Reaper.[59] Secretary of State at the Polish Ministry of Defense, Bartosz Kownacki, explained, "UAVs are one of the key elements required to conduct imagery reconnaissance",

[51] Belgian Ministry of Defence, "De Strategische Visie Voor Defensie," (Brussels 2016), 52.
[52] Huw Williams, "Belgium Eyes Predator B Derivative for MALE UAS Requirement," IHS Jane's Defence Weekly, 31 January 2018, http://www.janes.com/article/77484/belgium-eyes-predator-b-derivative-for-male-uas-requirement; Wim Van de Velden, "Wordt België Klant bij de Israëlische Mossad?," De Tijd, 09 February 2018, https://www.tijd.be/politiek-economie/belgie/federaal/wordt-belgie-klant-bij-de-israelische-mossad/9980680.html.
[53] Benoit Gilson, "La Belgique Achète Deux Sky Guardian," Air & Cosmos, 26 October 2018, http://www.air-cosmos.com/la-belgique-achete-deux-sky-guardian-116547.
[54] Belgian Ministry of Defence, "De Strategische Visie Voor Defensie," 90.
[55] Ibid., 54-56.
[56] Tex Van berlaer, "Het Belgische leger krijgt drones zo breed als een Boeing: ze kunnen zelfs raketten afvuren," Nieuwsblad, 09 February 2018, https://www.nieuwsblad.be/cnt/dmf20180209_03347619.
[57] Belgian Ministry of Defence, "De Strategische Visie Voor Defensie," footnote 34, 32.
[58] Juliusz Sabak, "Polish Ministry Of Defence Four UAV Types To Be Delivered By 2022," Defense24, 07 February 2018, http://www.defence24.com/polish-ministry-of-defence-four-uav-types-to-be-delivered-before-2022.
[59] Rafał Lipka, "Unmanned Aerial Vehicles in the Polish Armed Forces – Current Status of the Technical Modernisation Programme," Casimir Pulaski Foundation, 30 January 2017.

but the "expansion of the subsystem of visual reconnaissance" of UAVs "would also make it possible to expand the subsequent operational abilities" to include "reconnaissance, command, attack, survival, protection and non-military support capabilities".[60] According to the security news website, Defence24.pl, the Polish Ministry of Defense will, however, not release any information on the potential armament at this stage of the process.[61] Furthermore, there have already been several delays, mainly due to the high expenses of the program. In 2016, Kownacki had stated Poland would plan on spending "several billion zloty" to obtain various types of UAVs.[62] Still, some observers are rather skeptical, for example Rafał Lipka, Defense and Security Analyst at the Polish Casimir Pulaski Foundation, questions the necessity of the MALE program altogether, since it "will be certainly very expensive and it will not improve significantly either operational capabilities of the Polish Armed Forces or competences of the Polish defense industry."[63]

Greece

In February 2018, the Greek Alternate Minister of National Defense, Dimitris Vitsas, announced that Greece would lease seven Heron drones from Israel. The lease contract, worth €35.5 million, will cover a period of three years and include training for Greek forces by Israel. Greek media reported that Greece seeks to improve their ISR capabilities in the Aegean Sea, a territory where tensions with Turkey have steadily increased over the past years.[64] There are no reports of the Herons carrying weapons.

However, the capability specifications of the different platform designs vary (see Table 3), which affects what kind of missions each model can be used for. For instance, the Protector has a long maximum endurance of forty hours and can carry a very heavy payload of up to 2,177 kg – more than eight times the amount the Heron 1 or the Harfang can accommodate – but it is more than a hundred knots slower than the P.2HH Hammerhead. Thus, the Protector might be potent (regarding the endurance and payload), but does not travel as quickly from, for example, the military base to a group of soldiers out on patrol who need immediate ISR-support. It is important to keep these characteristics in mind when making judgments about the drone capability of particular countries. Doing so is, however, beyond the scope of this paper.

[60] Defence24.com, "PLN 2.9 Billion To Cover the Acquisition of Drones and Satellites for the Polish Army," Defence24.com, 8 January 2017, https://www.defence24.com/pln-29-billion-to-cover-the-acquisition-of-drones-and-satellites-for-the-polish-army.
[61] Jaroslaw Adamowski, "Poland Mulls Drone Offers From General Atomics, Elbit," Defense News, 08 April 2016, https://www.defensenews.com/air/2016/04/08/poland-mulls-drone-offers-from-general-atomics-elbit/.
[62] Jaroslaw Adamowski, "Poland Plans To Spend $21B on Drones, Helos, Air Defense, Subs," DefenseNews, 20 July 2016, https://www.defensenews.com/home/2016/07/20/poland-plans-to-spend-21b-on-drones-helos-air-defense-subs/.
[63] Lipka, "Unmanned Aerial Vehicles in the Polish Armed Forces – Current Status of the Technical Modernisation Programme" 7.
[64] Igor Bozinovski, "Greece to Lease Heron UAVs from Israel," IHS Jane's Defence Weekly, 07 February 2018, http://www.janes.com/article/77680/greece-to-lease-heron-uavs-from-israel.

Table 3) Specifications of MALE-Drone Models

Status	Model	Endurance*	Payload*	Altitude*	Speed*	Company
In Operation	MQ-1C Predator[65]	24h	204 kg	7,620 m	117 kn	GA
	MQ-9 Reaper[66]	20h	1,724 kg	15,240 m	250 kn	GA
	Heron 1[67]	30h	250 kg	9,144 m	115 kn	IAI & Rheinmetall
	Harfang[68]	24h	250 kg	7,620 m	111 kn	IAI & EADS
To be in Operation	P.2HH Hammerhead[69]	24h	680 kg	13,716 m	330 kn	Piaggio Aerospace
	Protector[70]	40h	2,177 kg	13,716 m	210 kn	GA
	Hermes 900[71]	36h	350 kg	9,144 m	119 kn	Elbit Systems
	Heron TP[72]	36-40h	1,000 kg	13,716 m	200 kn	IAI & Airbus

*max values

Summary Possession and Procurement

As this chapter showed, throughout Europe a growing number of decision-makers consider MALE-drones to be an important capability that their forces need. Consequently, several European states are in the process of initially acquiring surveillance MALE-drones or expanding their existing fleets. While the UK is presently the only European country with armed drones, France and Italy are in the process of arming theirs as well. Judged by the current status quo, the UK, France, and Italy are likely to have the largest MALE-drone fleets by 2025, including armed platforms. Yet, it can be expected

European States with MALE-Drones

- The UK, France, Italy, and Germany are operating MALE-drones.
- Only the UK possesses armed drones.
- The Netherlands, Spain, Belgium, Switzerland, Poland, and Greece seek to acquire unarmed MALE-drones or have purchased them already.
- The UK, France, and Italy are likely to have the largest MALE-drone fleets by 2025, including armed platforms.
- Switzerland is the only country that explicitly rules out future armament.
- American and Israeli MALE-drone models dominate the European market.

Key Points 1) Possession and Procurement

[65] Ministero Della Difesa, "MQ-1C PREDATOR A+," Ministero Della Difesa, Aeronautica Militare Website, http://www.aeronautica.difesa.it/mezzi/mlinea/Pagine/MQ1CPREDATORAB.aspx.
[66] Royal Air Force, "About the MQ-9A Reaper," Royal Air Force Website, https://www.raf.mod.uk/aircraft/mq-9a-reaper/; UK Ministry of Defense, "Unmanned Aircraft Systems," 60; Air Force Technology, "Predator RQ-1 / MQ-1 / MQ-9 Reaper UAV," airforce-technology.com, https://www.airforce-technology.com/projects/predator-uav/.
[67] Luftwaffe, "Heron 1," Luftwaffe.de, 19 February 2018, http://www.luftwaffe.de/portal/poc/luftwaffe?uri=ci:bw.lw.waff.aufkl.heron.
[68] Air Force Technology, "Harfang MALE Unmanned Aerial Vehicle (UAV)".
[69] Kington, "Italy Plans to Spend $951M on 20 Surveillance Drones".
[70] Jennings, "UK Prepares for Protector UAV".
[71] Defense Industry Daily, "Starry Eyed: Elbit's Hermes 900 MALE UAV," Defense Industry Daily, 28 June 2018, https://www.defenseindustrydaily.com/israel-is-hermes-900-uav-launch-customer-as-iaf-expands-its-fleets-06363/.
[72] Air Force Technology, "Heron TP (Eitan) MALE UAV," airforce-technology.com, https://www.airforce-technology.com/projects/heron-tp-eitan-male-uav/.

that armed drones will proliferate beyond these three states in the future, since most governments, which do not openly support arming their platforms right now, tend to keep their options open to do so later ("armable but not armed"). Switzerland is the only country that is procuring MALE-drones to have specifically rejected arming them at any time.
Where do all these MALE-drones come from? Most European states obtained their platforms as urgent operational requirements either directly off the shelf from the US and Israel or, in the medium term, through a distinct collaborative project with another state, as was, for example, the case with the French Harfang. Buying off the shelf means purchasing platforms that have been successfully tested. Thus, there is a lower risk of unforeseen cost explosions.[73] At the same time, it means Europe depends technologically on the US and Israel or, more precisely, on their governments and their defense industries, not only for acquiring drone systems, but also for receiving training and using the necessary infrastructure (e.g. the US military communications network) for operating MALE-drones.[74] Italy for example, the EU-state with the oldest unarmed MALE-drone program (since 2002), has been waiting for drone munitions from the US since 2011. For a long time, the involvement of European defense companies had been largely limited to providing operational services and maintenance. Now there is a rising interest among European states in becoming more independent from non-European defense manufacturers.

III. Building a European Drone Capability

European governments and EU-institutions, e.g. the Commission, have stressed the importance of enhancing European strategic autonomy, among other ways, by means of intensified cooperation.[75] An important step in that direction is PESCO, including an array of frameworks and funds for synchronizing national defense planning, coordinating capability development, enhancing competitiveness, and fostering collaboration among EU member states.[76] Currently, there are four big MALE-drone R&D cooperation programs in Europe, two multinational (the nEUROn and the European MALE Remotely-Piloted Air System, MALE RPAS) and two bi-national ones (Anglo-French and French-German Future Combat Air Systems, FCAS). Furthermore, the European Defence Agency (EDA) coordinates joint technology, training, and infrastructure initiatives. This chapter provides an overview of the European efforts to build an indigenous European drone capability.

In the past, there have been individual attempts to build advanced drones in Europe, but most have had limited success.[77] One of the oldest national programs that is still running is the

[73] This was the case with the German Euro Hawk project, which had cost €600 million before it was aborted (Ben Knight, "Why is Germany Leasing Armed Drones?," Deutsche Welle, 31 May 2018, https://www.dw.com/en/why-is-germany-leasing-armed-drones/a-44025798.)
[74] Jack McDonald, "Drones and the European Union - Prospects for a Common Future," (London: Chatham House, 2018), 12f.
[75] Ursula von der Leyen, interview by Nico Fried and Christoph Hickmann, July 02, 2014; EU Commission, "Proposal for a Regulation of the European Parliament and of the Council Establishing the European Defence Industrial Development Programme Aiming at Supporting the Competitiveness and Innovative Capacity of the EU Defence Industry," COM(2017). 2017/0125 (COD) (Brussels 2017), 2.
[76] EU Commission (2017), 6.
[77] Andrea Gilli and Mauro Gilli, "Emerging Technologies: UAVs," in *The Handbook of European Defence Policies and Armed Forces.* , ed. Hugo Meijer and Marco Wyss (Oxford: Oxford University Press, 2018).

British Taranis project. Since BAE Systems Military Air & Information received the lead contract in 2006, the project team has been working on a prototype with stealth capability, capable of taking-off, flying, and landing automatically to explore future technological and operational opportunities of unmanned aircraft. The MOD first revealed the Taranis prototype in 2010 and the maiden flight took place in 2013.[78] Other individual projects were, however, less rewarding. Leading European companies, such as BAE Systems, Dassault Aviation and Airbus competed with each other, simultaneously developing similar drone systems, such as the Telemos and Talarion models. The inner-European competition led to making large investments in replicating capabilities. Today, it is widely considered ineffective.[79] That is why European countries are increasingly cooperating to build up a European MALE-drone capability, aiming to secure independence in the long run. A recently launched multi-billion-euro European Defence Fund (EDF) offers financial resources for joint acquisition and development initiatives of drone technology.[80] Much of the cooperation is managed by the EDA.

Regarding UAVs, groups of two or more European countries collaborate in producing MALE-drones indigenously. The four preeminent programs are the following (see Table 4):

- *nEUROn*: A consortium of European states is developing a European armed drone technology demonstrator with stealth capacity and distinct autonomous functions, e.g. reconnaissance. The nEUROn program was launched as a French initiative in 2003 with the prime contractor, Dassault Aviation, which first presented a prototype at the Paris Air Show in 2005.[81] By 2006, Italy (Alenia Aermacchi), Sweden (Saab), Spain (Airbus Defence and Space), Switzerland (Ruag), and Greece (Hellenic Aerospace Industry) joined the program. Since the first test flight in 2012, the nEUROn has flown more than a hundred test flights. In September 2015, it carried out the first test launch of a 250 kg bomb. Through nEUROn the six states seek to strengthen their national and European competitiveness in the defense industry.[82]

[78] Air Force Technology, "Taranis Unmanned Combat Air Vehicle (UCAV) Demonstrator," Air Force Technology, https://www.airforce-technology.com/projects/tanaris/. Beth Stevenson, "Analysis: Taranis Developers Reveal Test Flight Specifics," FlightGlobal, 16 May 2016, https://www.flightglobal.com/news/articles/analysis-taranis-developers-reveal-test-flight-spec-425347/; Craig Hoyle, "Video: UK Ends Silence on Taranis Testing," FlightGlobal, 05 February 2014, https://www.flightglobal.com/news/articles/video-uk-ends-silence-on-taranis-testing-395574/.

[79] See for example Blanca Ballester, "European Common Security and Defence Policy. Cost of Non-Europe Report," (European Added Value Unit, 2013).

[80] McDonald, "Drones and the European Union," 11; EU Commission, "A European Defence Fund: €5.5 Billion per Year to Boost Europe's Defence Capabilities," news release, June 07, 2017, http://europa.eu/rapid/press-release_IP-17-1508_en.htm.

[81] Craig Hoyle, "Europe's Neuron UCAV Breaks Cover," FlightGlobal, 23 January 2012, https://www.flightglobal.com/news/articles/pictures-video-europes-neuron-ucav-breaks-cover-367225/; Charles Edelstenne, "Press Conference Given on the Occasion of the 46th Paris Air Show by Charles Edelstenne, Chairman and CEO of Dassault Aviation," news release, 10 June, 2005, http://www.european-security.com/n_index.php?id=5292.

[82] Ministère de la Défense, "Le démonstrateur Neuron présenté officiellement," news release, 03 February, 2012, https://www.defense.gouv.fr/dga/actualite/le-demonstrateur-neuron-presente-officiellement. Pierre Tran, "'Neuron' Combat Drone Completes First Sea Trials," DefenseNews, 08 July 2016, http://www.defensenews.com/home/2016/07/08/neuron-combat-drone-completes-first-sea-trials/; Dassault Aviation, "Programme Milestones," news release, https://www.dassault-aviation.com/en/defense/neuron/programme-milestones/.

- *European MALE Remotely Piloted Air System (RPAS)*: Germany, France, Italy, and Spain signed this project – often referred to as "MALE RPAS" or "EuroMALE" – in May 2015, aspiring to develop a European MALE-drone.[83] The EDA provides support in the area of air traffic integration and facilitates the ability of other EU-states to benefit from the program. Belgium, for example, received observer status in December 2017.[84] In fall 2016, Airbus Defence and Space (Germany and Spain), Dassault Aviation (France), and Leonardo (Italy) started a two-year definition study in order to analyze the national needs and requirements and to agree on a system design. Germany contributes the largest share of the funding (€18.6 million), whereas the other three states provide €13.8 million each.[85] At the 2018 ILA air show in Berlin, the team first revealed a full-size MALE-RPAS mock-up. The platform has a 2,300 kg payload and weighs about eleven tons, which is about twice as heavy as the IAI Heron TP or the MQ-9 Reaper.[86] As Dirk Hoke, CEO of Airbus Defence and Space, optimistically announced, it "represents a first milestone of what Europe can achieve in a high-technology sector if it bundles its industrial strength and know-how."[87] A prototype should be available by 2023 and by 2025 the first platforms should be delivered. The main tasks of MALE-RPAS will be ISR, but their armament should be possible as well.[88]

- *Future Combat Air Systems (FCAS)*: In 2014 the UK and France agreed on the development contract for an Unmanned Combat Air System (UCAS) within the scope of the FCAS program.[89] A prototype should be ready by 2025.[90] This Anglo-French drone should bring together skills and knowledge from BAE Systems, which developed the Taranis demonstrator, and Dassault Aviation, which is leading the nEUROn project. Other defense companies involved in FCAS include Finmeccanica, Rolls Royce, Snecma/ Safran, and Thales. The development phase started in 2017. Both countries committed to provide €1.75 billion (£1.54 billion) as funding for the program. A first operational prototype should be ready by 2025.[91] Whether this goal will be achieved is, however, not

[83] The project picks up on Cassidian Talarion's attempt at building a European MALE-drone, which had failed in 2012.
[84] European Defence Agency, "Remotely Piloted Aircraft Systems – RPAS," EDA Website, 24 April 2018, https://www.eda.europa.eu/what-we-do/activities/activities-search/remotely-piloted-aircraft-systems---rpas; Organisation for Joint Armament Co-operation, "MALE RPAS - Medium Altitude Long Endurance Remotely Piloted Aircraft System," OCCAR Website https://www.occar.int/programmes/male-rpas.
[85] Lars Hoffmann, "Germany To Lead Development of European UAV," DefenseNews, 11 December 2016, http://www.defensenews.com/air/2015/12/11/germany-to-lead-development-of-european-uav/.
[86] Flugrevue, "Große EuroMALE-Drohne enthüllt," Flugrevue, 26 April 2018 2018, https://www.flugrevue.de/militaerluftfahrt/uav/grosse-euromale-drohne-auf-der-ila-2018-enthuellt/753622?special_id=678078.
[87] Dassault Aviation, "Airbus, Dassault Aviation and Leonardo Reaffirm their Total Commitment in the First Fully European MALE Programme," news release, 26 April 2018, 2018, https://www.dassault-aviation.com/wp-content/blogs.dir/2/files/2018/04/ENG-MALE-PR-ILA.pdf.
[88] Chris Pocock, "France and Germany To Develop New Fighter Without UK?," Aviation International News, 02 August 2017, https://www.ainonline.com/aviation-news/defense/2017-08-02/france-and-germany-develop-new-fighter-without-uk.
[89] Furthermore, in 2014, the UK and France created a Joint User Group for their Reaper operators, foreseeing, among other things, collaboration on training and air certification. Louisa Brooke-Holland, "Overview of Military Drones Used by the UK Armed Forces," (House of Commons Library, 2015), 12.
[90] Beth Stevenson, "New $2.2 Billion Anglo-French FCAS Phase Announced," FlightGlobal, 08 March 2016, https://www.flightglobal.com/news/articles/new-22-billion-anglo-french-fcas-phase-announced-422866/.
[91] Ibid.

certain. In April 2018 the British side put the project on hold because of Brexit and the concomitant budgetary constraints.[92] There is no publicly available information on a potential armament.

- *Future Combat Air Systems (FCAS)*: In summer 2017, France and Germany initiated close cooperation for developing and procuring high-tech military systems. Back then, the Anglo-French FCAS was officially still running, Dassault Aviation publicly announced plans for a new defense cooperation with Airbus – confusingly also called FCAS. Eric Trappier, CEO of Dassault Aviation, promised the program would "strengthen the political and military ties between Europe's core nations and it will reinvigorate its aerospace industry."[93] It includes, among other things, work on MALE drones and drone swarms. Operational demonstrators should be developed as of 2025.[94] In June 2018, the French and German defense ministers signed a joint declaration, assigning France (and hence Dassault Aviation) the leading role for the FCAS project. The main objectives are for FCAS to accomplish interoperability, by uniting existing and future manned and unmanned components (e.g. the Eurofighter and the MALE RPAS) and increasing the system survivability as well as its effectiveness.[95]

Table 4) European MALE-Drone Development Projects

Project	Countries	Beginning	Prototype	Armament Option
nEUROn demonstrator	France, Italy, Sweden, Spain, Switzerland, Greece	2003	2006	250 kg bomb
Future Combat Air System (FCAS)	UK, France	2014	by 2025	Publicly non-committal
MALE RPAS	Germany, France, Italy, Spain (Belgium)	2016	by 2023	Yes
Future Combat Air System (FCAS)	France, Germany	2018	by 2025	Publicly non-committal

Besides jointly researching and developing platforms, European countries also collaborate on R&D of technologies required for effectively operating MALE-drone systems, seeking to become more independent from third country suppliers. Within the "Demonstration of Satellites enabling the Insertion of RPAS in Europe" program, the EDA and the European Space Agency explore independent and secure satellite data-links for European UAVs. Other projects concern sensor and data analysis technologies.[96] Sweden (lead state), France, Germany, Italy, and Spain fund and coordinate the "MIDair Collision Avoidance System"

[92] Pierre Tran, "UK Was the One to Put the Brakes on Drone Demo Project Industry Says," DefenseNews, 12 April 2018, https://www.defensenews.com/global/europe/2018/04/12/uk-was-the-one-to-put-the-brakes-on-drone-demo-project-industry-says/.
[93] Airbus, "Airbus and Dassault Aviation join forces on Future Combat Air System," news release, April 25, 2018, http://www.airbus.com/newsroom/press-releases/en/2018/04/Airbus-and-Dassault-Aviation-join-forces-on-Future-Combat-Air-System.html.
[94] Ibid.
[95] Stefan Rentzsch, "Europäische Rüstung stärken", BMVg Website, 19 June 2018, https://www.bmvg.de/de/aktuelles/europaeische-ruestung-staerken-25498 (accessed September, 03 2018).
[96] European Defence Agency, "Remotely Piloted Aircraft Systems – RPAS".

program, which will demonstrate "detect-and-avoid" technology for UAVs. Launched in 2015, Germany (lead state), France, Poland, Sweden, and Italy conduct research on advancing automatization in UAVs within the scope of the "Enhanced RPAS Autonomy" project.[97]
To reduce the reliance on access to foreign training and infrastructure support, the EDA sustains several drone-related frameworks. It facilitates, for instance, a joint MALE RPAS Training Technology Demonstrator project, which has provided MALE-drone simulators to nine European training facilities.[98] Furthermore, at an EDA meeting in November 2013, seven European states (France, Germany, Italy, the Netherlands, Spain, Poland, and Greece) created the *European MALE RPAS User Community*.[99] Belgium, the UK and Switzerland recently expressed interest in joining the group as well. According to the EDA the forum serves, among other purposes, to ascertain opportunities for European cooperation in training, logistics, and asset maintenance as well as to "[e]xchange information and facilitate cooperation among Member States who operate such systems in order to streamline resources".[100]

Summary: Building a European Drone Capability

Both the EU and individual European countries are already investing billions of Euros into the R&D and production of military drones, which indicates the significance attributed to this new technology. In order to strengthen the strategic autonomy vis-à-vis the non-European defense industry and save resources by avoiding competitive replication of similar weapon systems, European states have initiated a variety of cooperative R&D, production, and training initiatives in the past several years. The EDA coordinates a large share of these initiatives and aims to further expand collaboration opportunities in the future, not only including R&D and manufacturing, but also the integration of knowledge and experience. The joint MALE-drone programs and the *European MALE RPAS User Community* demonstrate the European ambition to build towards an indigenous drone capability. At the same time, it remains questionable to what extent the objectives of saving resources and avoiding the replication of systems truly hold, given that there are still four similar MALE-drone programs in Europe after all. Furthermore, with the UK leaving the EU, the financial situation needs to be revised, and programs, such as the Anglo-French FCAS, potentially adjusted or halted.

Building a European Drone Capability

- Europe wants to emancipate its drone capability from the US and Israel.
- With Taranis, the UK has one of the oldest national programs developing a MALE-drone demonstrator that is still running.
- Two bi-national and two multinational programs are developing MALE-drones.
- Specific R&D efforts include satellite data-links, sensor and data analysis, "detect-and-avoid" technologies, and automatization.
- The EDA is the main agent in Europe for coordinating joint drone projects regarding R&D, training, and infrastructure.

Key Points 2) Building a European Drone Capability

[97] Ibid.
[98] Ibid.
[99] Andrew Rettman, "Seven EU States Create Military Drone 'Club'," EUObserver, 20 November 2013, https://euobserver.com/foreign/122167.
[100] European Defence Agency, "Remotely Piloted Aircraft Systems – RPAS".

IV. Missions and Experiences

The European use of MALE-drones is expanding. Critical deployment sites are mainly foreign regions, such as Northern Africa, South Asia, and the Middle East. The only exception is the French use of retired Harfang drones within its national civil airspace. Abroad, MALE-drones have predominantly been used for purposes of humanitarian intervention, rather than "traditional" national defense operations. In the past five years, Italy has, furthermore, set an example by using surveillance drones in various types of operations. The majority of European states use their MALE-drones exclusively for ISR missions. Only the UK also employs them for striking targets in counterterrorism missions (Table 5). This section provides an overview of the ways European states have used MALE-drones so far.[101]

UK

The RAF operates the Reaper in cooperation with the US Air Force from the 39 Squadron at the US Creech Air Force Base in Nevada, created in 2007, and from the 13 Squadron, located at the RAF Waddington base in the UK, which opened in 2013.[102] UK Reaper aircraft have provided ISR and carried out strikes for Operation Herrick in *Afghanistan* since 2008.[103]
Since then, the British drone practices have gradually approached US drone strike policies. Although the British government emphasized for years that the UK would only use armed drones in operations backed by a UN-mandate, in 2014 the Royal Forces began to combat the Islamic State in Iraq and the Levant (ISIL) in *Syria* and *Iraq* (Operation Shader).[104] In doing so, the UK military struck terrorist targets in countries against which it was not waging war. In 2015, there was another precedent. The British RAF killed a British ISIL member in a drone strike on Syrian territory, four years after a US drone strike killed an American Al-Qaeda member in Yemen. According to the British government, the targeting decision was based on the right to individual and collective self-defense under Art. 51. Still, the Intelligence and Security Committee of the British Parliament criticized the lack of transparency and insufficient parliamentary scrutiny surrounding the decision-making process.[105] In 2017, the UK government's attorney general, Jeremy Wright, explained the legal rationale. British drone strikes would use lethal force in "imminent" self-defense against people who "inspire, enable or direct attacks" from overseas. For Chris Cole (Drone Wars UK), the UK is following "the lead of the US in attempting to re-define the understanding of 'imminent' to enable the expansion of the ability to undertake pre-emptive armed attacks."[106]

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[101] For an overview of how states worldwide have employed UAVs, see Matthew Fuhrmann and Michael C. Horowitz, "Droning On: Explaining the Proliferation of Unmanned Aerial Vehicles," *International Organization* 71, no. 2 (2017): 399.
[102] Brooke-Holland, "Overview of Military Drones Used by the UK Armed Forces," 11.
[103] Hoyle, "UK Cheers the Reaper UAV".
[104] Chris Cole, "British Drone Operations Against Isis, 2014-2016: Operational Data, Continuing Issues of Concern," DroneWars UK, February 2017, https://dronewarsuk.files.wordpress.com/2017/02/uk-armed-drone-operations-against-isis-in-iraq-and-syria-feb2017.pdf. See UK Parliament, "Iraq: Written Question – 213741, asked by Tom Watson on 06 November 2014, answered by Mark Francois on 17 November 2014," (2014).
[105] Intelligence and Security Committee of Parliament, "UK Lethal Drone Strikes in Syria," (London2017).
[106] Chris Cole, "Attorney General Speaks on Legality of UK Preemptive Drone Strikes," DroneWars UK, 12 January 2017, https://dronewars.net/2017/01/12/attorney-general-speaks-on-legality-of-uk-pre-emptive-drone-strikes/#comments.

According to estimates by Drone Wars UK, by May 2018, British Reaper drones released 880 weapons within operation Shader alone.[107]

France

French Harfang drones supported the International Security Assistance Force (ISAF) in *Afghanistan* from 2009 to 2012, where French airmen operated the platforms deployed at the US-run Bagram Airfield. The Harfangs supported French and international ISR missions, collecting data for operational planning, escorting convoys, countering improvised explosive devices (IEDs) and directly supporting ground troops.[108] In 2011, the French Air Force also flew ISR missions with Harfang UAVs to support the French contribution (Harmattan) to the NATO operation Unified Protector in *Libya*. To this end, they were deployed at the Sigonella Air Base in Italy.[109] From 2013 to 2014, during Operation Serval in *Mali,* Harfangs provided ISR support to manned aircraft, which acquired and attacked enemy targets on the ground.[110]
In summer 2014, the French-led the counter-insurgency/counterterrorism Operation Barkhane mission across the sub-Saharan *Sahel region,* replaced Operation Serval, gradually exchanging the Harfangs for Reaper aircraft. According to Jean-Baptiste Vilmer, director of the Institute for Strategic Studies in Paris, "[t]he results were impressive, as the drones supported operations that eliminated numerous terrorist leaders and freed hostages."[111] By March 2018, the fleet deployed at the Niamey Air Base (Niger) had grown to five platforms. Official sources ascertain that the Reaper is now "an essential element of the French military apparatus in the Sahel", allowing decision-makers to respond to actions in real time.[112] In a speech to the military, Defense Minister Florence Parly explained the government's decision to arm the Reaper: "[b]eyond our borders, the enemy is more furtive, more mobile, disappears into the vast Sahel desert and dissimulates himself amidst the civilian population". Thus, it would be crucial to have "the capacity to strike at the opportune moment" in order to "be able to gain in efficiency and limit the risk of collateral damage".[113]
After having replaced the Harfang with Reapers, the government announced that the former should continue flying domestically, providing special air security and surveillance during major national events, such as the G8 and G20 summits, for example.[114] By doing so, France might have foreshadowed an important future development, namely domestic employment[115] Jorge Domecq, the Chief Executive of the EDA, noted a new European MALE-drone system "should also be able to meet the need of the civil community, for missions ranging from homeland security to border control or firefighting."[116]

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[107] Chris Cole, "Iraq/Syria operations (Operation Shader)," Drone Wars UK, May 2018, https://dronewars.net/uk-drone-strike-list-2/.
[108] Ministère de la Défense, "Afghanistan: Fin de Mission Pour le Détachement Harfang," (2012).
[109] Ministère de la Défense, "Libye: Premier Vol du Harfang au Profit d'Harmattan," (2011).
[110] Ministère de la Défense, "Mali: 2000 Heures de Vol Pour le Détachement Harfang," (2013).
[111] Vilmer, "A Perspective on France."
[112] Armée de l'Air, "Barkhane: 20 000h de Vol Pour le Drone Reaper Dans la Bande Sahélo-Saharienne," (Ministère des Armées, 2018).
[113] Irish and Evans, "France Turns to Armed Drones".
[114] Tamir Eshel, "France Opts for U.S. Reapers," Defense Update, 31 May 2013, http://defense-update.com/20130531_france_opts_for_the_reaper.html.
[115] National police forces have already domestically used small drones for surveillance purposes.
[116] Jorge Domecq, "RPAS: The European Challenge," *EDA magazine* 2015.

Germany

Germany first employed unarmed drones in *Afghanistan* in March 2010.[117] The Heron 1 system stationed in Mazar-e Sharif, currently includes three platforms, which are conducting ISR missions within Operation Resolute Support. Among other activities, they detect explosive devices, accompany convoys and patrols, surveil driving routes, conduct long-term monitoring, and support combat forces. Since November 2016, the Bundeswehr has operated three additional Heron 1 drones as part of the German air reconnaissance capability in the Multidimensional Integrated Stabilization Mission of the United Nations in *Mali* (MINUSMA).[118] They are assigned to the "Taktische Luftwaffengeschwader 51" in Jagel, Northern Germany.[119] While the analysts who examine the data collected by the Heron 1 in Mali work from Jagel, the pilot and the sensor operator are located in West Africa.[120]

Italy

Italy has employed its unarmed MALE drones for over a decade and in a broad array of countries. Usually the Italian staff operates their MALE-drones from the Amendola Air Base. Already in 2005-2006, Italy deployed Predator drones to *Iraq* to conduct ISR-missions for Operation Iraqi Freedom, thus being one of the European forerunners of MALE-drone employment.[121] Predator and Reaper drones have also been operating in *Afghanistan* since 2007 (ISAF).[122] In 2011, Italian Reapers supported Operation Unified Protector in *Libya*.[123] Predator drones then returned to *Iraq* in 2014 as part of the Combined Joint Task Force fighting against ISIL.[124]

Interestingly, the Italian forces also used their MALE-drones in operations other than counter-insurgency/ counterterrorism. In 2012, the Italian Reaper flew ISR-missions within the NATO KFOR Joint Enterprise peacekeeping mission in *Kosovo*.[125] In *Libya* and the *Mediterranean Sea*, Italian forces employed them for ISR purposes; particularly border surveillance, as part of the Mare Nostrum and the European Union Naval Force (EUNAVOR) MED operations 2013-2014.[126] In addition, Italian Predator drones fly for the EUNAVOR *Somalia* operation,

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[117] Björn Lenz, "Wächter am Himmel: Heron-Pilot in Afghanistan," Bundeswehr.de, 06 April 2018, http://www.bundeswehr.de/portal/poc/bwde?uri=ci:bw.bwde.aktuelles.aus_dem_einsatz&de.conet.contentintegrator.portlet.current.id=01DB170000000001|AXJ8YL374DIBR.

[118] Kietzmann, "Verlegung der Drohne Heron 1 nach Mali beginnt". Last updated December 15, 2017.

[119] Ibid.; Bundeswehr, "Heron 1 in Afghanistan jetzt 30.000 Flugstunden im Einsatz".

[120] Stefan Beuke, "'Heron' – das ferngesteuerte Auge Jageler Soldaten in Mali", shz.de, 30 November 2016, https://www.shz.de/15488246 (accessed September 25, 2018).

[121] Peruzzi, "Italian Predators Deploy to Iraq".

[122] Craig Hoyle, "Italian Predator Bs Start Afghan Duty," Flight International, 20 January 2014, https://www.flightglobal.com/news/articles/italian-predator-bs-start-afghan-duty-395035/.

[123] Tom Kington, "Italy Gives Bombing Stats for Libya Campaign," DefenseNews, 14 December 2011, http://rpdefense.over-blog.com/article-italy-gives-bombing-stats-for-libya-campaign-92483481.html.

[124] Cenciotti, "Italian Tornado Jets and Predator Drones".

[125] Roberto Berardi, "Kosovo: Primo Volo del Predator," Ministero della Difesa, 16 March 2012, https://web.archive.org/web/20150206223036/http://www.aeronautica.difesa.it/News/Pagine/KosovobattesimodelvolodelPredator.aspx..

[126] Roberto Berardi, "Mare Nostrum: 1^ Missione del Predator," Ministero della Difesa, 29 October 2013, http://www.aeronautica.difesa.it/comunicazione/notizie/archivio/2013/Pagine/MareNostrumIlPredatorAMindividuaunaimbarcazioneconpersoneabordo.aspx; Steve Scherer and Massimiliano Di Giorgio, "Italy to End Sea Rescue Mission that Saved 100,000 Migrants," Reuters, 31 October 2014, https://www.reuters.com/article/us-italy-migrants-eu/italy-to-end-sea-rescue-mission-that-saved-100000-migrants-idUSKBN0IK22220141031?feedName=worldNews&feedType=RSS.

also known as Operation Atalanta. Since having reached full operational capability in September 2014, they have supported the EU-led anti-piracy mission along the coast of Somalia and the *Gulf of Aden* by conducting ISR.[127] When the Italian embassy in *Libya* closed in February 2015 due to the advances of ISIL, a Q-1C Predator A+ monitored the naval evacuation of Italian citizens.[128] While Italy is still waiting for American munitions to arm their Reapers, it announced its hope that, in the future, the armed MALE-drones could "support NATO and coalition operations, increase operational flexibility, and better protect deployed Italian forces", according to the news agency Reuters.[129]

Table 5) MALE Drones Employed Abroad by European States

Country	Model	Country of Mission	Time	Tasks	Operation
UK	Reaper	Afghanistan	since 2008	ISR + Strikes	Herrick
	Reaper	Iraq	since 2014	ISR + Strikes	Shader
	Reaper	Syria	since 2014	ISR + Strikes	Shader
France	Harfang	Afghanistan	2009-2012	ISR	ISAF
	Harfang	Libya	2011	ISR	Unified Protector
	Harfang	Mali	2013-2014	ISR	Serval
	Reaper	Niger & wider Sahel region	since 2014	ISR	Barkhane
Germany	Heron	Afghanistan	since 2010	ISR	Resolute Support
	Heron	Mali	since 2016	ISR	MINUSMA
Italy	Predator	Iraq	2005-2006	ISR	Iraqi Freedom
	Predator & Reaper	Afghanistan	since 2007	ISR	ISAF
	Reaper	Libya	2011	ISR	Unified Protector
	Reaper	Kosovo	2012	ISR	KFOR Joint Enterprise
	Reaper	Libya & Mediterranean Sea	2013-2014	ISR	Mare Nostrum & EUNAVOR MED
	Predator	Iraq	since 2014	ISR	Combined Joint Task Force
	Predator	Somalia & Gulf of Aden	since 2014	ISR	EUNAVFOR
	Predator	Libya	2015	ISR	Embassy Evacuation

[127] Giovanni Tortorelli, "Gibuti: Primi 15 gg di Impiego del Predator," Ministero della Difesa, 08 October 2014, http://www.aeronautica.difesa.it/comunicazione/notizie/archivio/2014/Pagine/Gibuti-primi-15-gg-di-impiego-operativo-del-Predator-.aspx.
[128] David Cenciotti, "MQ-1C Predator Footage of Repatriation of Italian Nationals from Libya," The Aviationist, 16 February 2015, https://theaviationist.com/2015/02/16/predator-filmed-italian-repatriation/.
[129] Shalal, "U.S. Government Approves Italy's Request to Arm its Drones".

Summary Missions and Experiences

European states have employed MALE-drones for ISR purposes in more than eight countries, mainly located in the Middle East, South Asia and Northern Africa, encompassing different types of operations. The most common type is counterterrorism operations, because all four countries deployed MALE-drones in these. They are also the most extensive, since MALE-drones were actively used in conflict regions, such as Afghanistan and Iraq for several years. Still, MALE-drone employment is not limited to counterterrorism. Italy, especially, has used them for ISR tasks within the scope of peacekeeping, border control, anti-piracy, and evacuation missions. Furthermore, France's domestic use of Harfang drones indicates that flying MALE-drones in the European airspace is no longer unthinkable. Regarding the future, it can, moreover, be expected that an increasing number of European militaries will use armed MALE-drones to attack targets. While the UK has been the first to conduct strikes, three main defense players - the UK, France, and Italy - will have armed aircraft soon. Whether these states will also follow the UK's lead and – like the US – conduct drone strikes in conflict areas that are not official warzones is a crucial question and must be addressed in time.

Missions and Experiences

- European states have used their MALE-drones in various types of operations, also other than counterterrorism.
- Italian MALE-drone operations have been the most diverse.
- Germany has operated its MALE-drones in the fewest countries.
- France was the first country to use its MALE-drones in domestic civil airspace.
- The UK is the only country using armed drones (UCAVs) to carry out strikes, since 2014 even outside of officially declared warzones like Syria and Iraq.

Key Points 3) Missions and Experiences

V. Conclusion

In Europe, MALE-drones are steadily proliferating with several states first acquiring unarmed platforms (Netherlands, Spain, Belgium, Switzerland, Poland, and Greece), supplementing their existing fleets (UK, France, Italy) and arming previously unarmed aircraft (Italy, France). Judging by the current status quo, the UK, France, and Italy are likely to have the largest MALE-drone fleets in Europe by 2025, including armed UCAVs.

In the past, European countries have been dependent on external suppliers, especially the US and Israel, for obtaining drone systems, receiving training, and using the supporting infrastructure. Seeking more strategic autonomy, the objective is now to build up an indigenous European MALE-drone capability, while simultaneously saving resources and avoiding an unnecessary duplication of similar weapon technologies by individual European defense companies. Thus, a number of European countries cooperate on R&D, production, training, and knowledge sharing, such as, for instance, the nEUROn, the MALE-RPAS, the FCAS programs and the European MALE RPAS User Community.

Compared to some other states, such as the US, Israel, and China, European countries had a late start and are still behind with respect to procurement and R&D of MALE-drones. Their acquisition has, overall, been a slow process, indicated not only by the number of capabilities

originally intended as interim solutions that ended up being used for years, but also by the long procurement timespans due to the need for coordination with the other parties, waiting time, and/or national budget problems. Given the number of players involved, each with distinct interests and needs, plus the uncertainty posed by Brexit, it remains to be seen whether the ongoing inner-European cooperation projects will progress as scheduled.

Nevertheless, the UK, France, Italy, and Germany have been employing MALE-drones abroad for about a decade, in more than eight countries, predominantly in conflict zones in the Middle East, South Asia or Northern Africa. Most European MALE-drone employments take place within counterterrorism operations, but Italy has also used them in other types of operations, including peacekeeping, border control, anti-piracy missions, and evacuations. Whereas the Italian, French, and German militaries used unarmed platforms exclusively to carry out ISR tasks, the British Air Force also employed Reapers to conduct strikes.

Two recent developments in the European MALE-drone use are particularly noteworthy. The first development is the recent use of MALE-drones in domestic civil airspace. France was the first European country to fly large Harfang drones in national airspace to surveil civilians, using platforms that were originally used in military missions abroad. This practice of domestic MALE-drone use might spill over to other European countries and calls for a thorough political and legal assessment on the national and European levels regarding, among other concerns, privacy issues, risks of abuse, and militarization of the civil airspace. The second development pertains to the British expansion of drone strikes since 2014: the UK now strikes in Iraq and Syria, countries that are not official warzones. Evidently, it has loosened its legal perspective on drone strikes, moving closer to the American targeted killing practices. Doing so, the UK has set an example. The question is whether other European states will follow it.

It can be expected that the UK will not long remain the only European country conducting drone strikes. France and Italy are waiting for the delivery of the munitions. With the exception of Switzerland, no European state that is currently procuring unarmed drones has strictly ruled out arming them later. Governments are pushing the actual decision into the future, hence keeping their options open (“armable but not armed”). Thereby, they are largely avoiding the discussion on the proliferation of armed drones and drone strike policy.

Ultimately, Europe is facing a crossroad in drone affairs, but also a window of opportunity. It needs to decide if it wants to continue the laissez-faire approach and potentially “slide” into the legally shady American, and gradually also British, approach to drone strikes or if it will take a turn towards arms control, including the establishment of European transparency and verification measures and the creation of a proper European drone strike policy with common targeting principles, in accordance with the international humanitarian law and European values. Now would be the right time for doing so. Currently, it is still only the UK which employs drone strikes and since Brexit has been on the horizon, there has been a momentum for intensifying EU defense cooperation as declared in the PESCO agreement. So far, EU member states have mainly used this momentum for building up the drone capability, yet they can and they should take advantage of this window of opportunity so as not to miss out on setting and following their own standards for this increasingly proliferating weapon system.

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Kontakt:
Prof. Dr. Götz Neuneck
Interdisziplinäre Forschungsgruppe Abrüstung, Rüstungskontrolle und Risikotechnologien/
Interdisciplinary Research Group on Disarmament, Arms Control and Risk Technolgies
IFAR[2]

Institut für Friedensforschung und Sicherheitspolitik an der Universität Hamburg/
Institute for Peace Research and Security Policy at the University of Hamburg
Beim Schlump 83, 20144 Hamburg
Tel: +49 40 866 077-0 Fax: +49 40 866 36 15
ifar@ifsh.de www.ifsh.de
Webpage zur Rüstungskontrolle: www.armscontrol.de