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EDEN-Medical

Enabling Cross-Border Drone (UAS) Operations: Overcoming Legal and Administrative Barriers in the Benelux- Germany Region

Position paper

EDEN-Medical

10 August 2026

UNIKLINIK
RWTHAACHEN

ITEM 10 years
Cross-border of expertise

 Maastricht University

FSD Institut für
Flugsystemdynamik

RWTHAACHEN
UNIVERSITY

flydrive

 Zuyderland
De zorg van je leven

 DocsInClouds

DRONEPORT
Simt-Truiden N 50°47'20" E 05°12'06"

 Ziekenhuis
Oost-Limburg

feuerwehr
aachen

Background

The use of unmanned aircraft systems (UAS) is expanding rapidly across Europe as drone technology matures, and applications move beyond recreational use towards routine commercial and public service operations. Increasing demand for UAS services in sectors such as healthcare, emergency response, infrastructure inspection, environmental monitoring and logistics has been accompanied by the gradual development of a harmonised European regulatory framework intended to enable safe and scalable operations. Ensuring that regulatory and administrative frameworks support routine cross-border operations is becoming increasingly important, particularly in border regions where cooperation across national boundaries is part of everyday practice.

For instance, the COVID-19 pandemic and regional flooding exposed vulnerabilities in healthcare resiliency and logistics and demonstrated the importance of cross-border cooperation. In the Euregio Meuse-Rhine, one of Europe's most interconnected border regions, healthcare providers across national borders are often geographically closer than providers within the same national healthcare system, yet cooperation, such as cross-border transport of medical goods, remains hindered by regulatory and administrative obstacles. Unmanned aircraft systems (drones) offer significant potential to strengthen cross-border healthcare logistics by enabling the rapid transport of time-critical medical goods, provided that an enabling regulatory framework supports their safe and scalable cross-border deployment. Within this context, the Interreg Meuse-Rhine funded EDEN-Medical project brings together hospitals, universities, public authorities and industry partners from Belgium, Germany and the Netherlands to develop and evaluate a cross-border UAS network for the transport of medical goods while addressing the legal, organisational and operational conditions required for its implementation.

Recognising that regulatory and administrative challenges remain among the principal barriers to routine cross-border UAS operations - and that many of these challenges arise from the interaction between European and national legislation, as well as differences in their implementation and administrative procedures - the project hosted a dedicated workshop focusing on legal and administrative aspects. The workshop acknowledged that these obstacles are not unique to the EDEN-Medical project or the Meuse-Rhine region but are common to many (cross-border) operators, particularly within the Benelux-Germany region. Participants across these regions, including representatives from comparable initiatives, industry, public authorities, healthcare organisations, legal experts and other relevant stakeholders, were explicitly invited to facilitate cross-sector and cross-border dialogue. The workshop aimed to promote knowledge exchange, enable participants to learn from one another's practical experiences, jointly identify existing barriers and develop recommendations reflecting a broad stakeholder consensus. Building upon these discussions and the wider project activities, this position paper translates the practical experiences and shared perspectives of persisting legal and administrative obstacles of stakeholders across the Benelux-Germany region into policy recommendations aimed at facilitating (cross-border) UAS operations through greater regulatory harmonisation and administrative simplification at the European level.

Participants

Participants to the workshop and consultations represented a multidisciplinary stakeholder landscape spanning companies, industry, healthcare, academia, public authorities and emergency services from Belgium, Luxembourg, Germany and the Netherlands, combining operational, technical, legal and regulatory expertise.

Organisation / Initiative	Country
Aachen Fire Brigade	DE
Aachen Institute for Rescue Management and Public Safety (ARS)	DE
ADLC (A Drone Logistics Company)	BE
ANWB Medical Drones	NL
BeNeDrone (Interreg Vlaanderen–Nederland)	BE / NL
BHO Legal	DE
Brandweer Oost Limburg	BE
Brandweer Team Digitale Verkenning Zuid Limburg	NL
Brightlands Institute for Smart Society (BISS), Maastricht University	NL
CHU de Liège	BE
Docs in Clouds TeleCare GmbH	DE
DNL Contact	DE
DronePort	BE
EMRIC (Euregio Meuse Rhine Incident and Crisis Management)	BE / DE / NL
flyXdrive GmbH	DE
GLVI Gesellschaft für Luftverkehrsinformatik	DE
GRIFFIN Project / Luxembourg Air Rescue (Luxembourg Air Services)	LU
Hawkeye (Interreg Euregio Meuse-Rhine)	BE / DE / NL
Institute of Flight System Dynamics (FSD), RWTH Aachen University	DE
ITEM, Maastricht University	NL
Jan Yperman Hospital	BE
Medifly Hamburg	DE
Morpheus Logistik GmbH	DE
NIPV (Netherlands Institute for Public Safety)	NL
Robor Electronics B.V.	NL
Unifly	BE
Uniklinik RWTH Aachen	DE
Vivantes Netzwerk für Gesundheit GmbH	DE
Ziekenhuis Oost Limburg	BE
Zuyderland Medical Center	NL
StädteRegion Aachen	DE
Independent aviation consultant	DE / LU / FR
POM West-Vlaanderen	BE / NL

Obstacles & Recommendations

1. Fragmented and non-harmonised implementation of EU legislation for unmanned aircraft systems, and national airspace management

The European regulatory framework for unmanned aircraft systems (Regulation 2018/1139 and its implementing Regulations 2019/947 and 2019/945) have substantially harmonised the legal rules governing UAS operations. However, the workshop discussions highlighted that the Member States continue to interpret and implement these rules differently. Variations exist in operational risk assessments, safety requirements, the authorisation of Beyond Visual Line of Sight (BVLOS) operations, airspace integration and acceptable risk mitigation measures. Participants referred, for example, to different national interpretations of Regulation 2019/947 and differing assessments of air risks, and requirements for visual detection and avoidance of other air traffic. Consequently, operators face different regulatory expectations depending on the Member State in which they operate, despite relying on the same European legislation. The fragmented and non-harmonised national implementation represents the most frequently experienced obstacle for operators involved in cross-border UAS operations.

These differences are also evident in national approaches to airspace management. Although the EU framework establishes common rules for UAS operations, Member States remain competent to designate geographical zones (hereinafter, referred to as 'geozones') in which such operations are prohibited, restricted, or subject to additional conditions. Participants observed that in Germany, the large number of geozones requires operators to contact multiple entities responsible for the respective geozones before a flight can take place. One operator experienced differing approaches to processing these requests, while no common guidance exists on how applications should be handled. By contrast, the operator experienced the Dutch and Belgian system as more streamlined, with fewer geozones. These experiences illustrate the fragmented approaches to airspace management across Member States and the additional administrative burden this creates for cross-border UAS operators.

In cross-border regions, these differences become particularly problematic because operators must navigate several national systems within a single operational area. The Euregio Meuse-Rhine illustrates these challenges particularly well. The region is characterised by heavily regulated airspace due to the presence of multiple airports, military airspace and other restricted zones, often requiring operators to design alternative (in some situations, inefficient) flight routes. Participants also reported that geozone maps stop at national borders, requiring operators to consult multiple national databases when planning cross-border flights. At present, there is no single source providing geozone information across the Euregio or the EU. During previous cross-border projects, for example, drone operators had to overcome different geozone management approaches along the cross-border hospital-to-hospital route. A Belgian stakeholder similarly has reported significant operational constraints on offshore UAS operations across the Belgian-Dutch maritime borders. Furthermore, operators need to comply with different approaches by the Member States to airspace separation and the means to detect other airspace users.

Recommendation 1: European Commission, EASA and Member States should promote more consistent implementation of EU Regulations 2018/1139, 2019/947 and 2019/945 by developing common guidance, operational standards and best practices for operational risk assessments, BVLOS operations and airspace management. Greater legal certainty would reduce administrative burden and ensure a more level playing field across the EU. Coordination of geozone management should

be strengthened by developing common guidance, promoting interoperable digital geozone information, and facilitating closer cooperation between neighbouring aviation authorities. In addition, Member States should explore the establishment of cross-border drone corridors in highly integrated border regions or territories. To facilitate safe and efficient cross-border UAS operations, Member States should support the development and implementation of U-space services and the use of Automatic Dependent Surveillance-Light (ADS-L), particularly in regions where U-space services are not yet available. In the longer term, closer coordination of airspace management and the progressive deployment of interoperable U-space services across borders should be pursued to enable seamless integration of unmanned and manned aviation across borders.

2. Complex and lengthy operational authorisation procedures, including national and cross-border flights

The current authorisation procedure remains one of the main barriers to UAS operations, both nationally and in cross-border contexts. Participants consistently reported lengthy and highly variable processing times across Member States. Major obstacles were noted especially regarding specific category (SAIL III/IV) operations. Individual experiences illustrate the scale of these delays. In Germany, approvals were reported to take between six weeks and six months, with some respondents describing waiting periods approaching one year. In Belgium, one stakeholder experienced an authorisation procedure lasting more than fifteen months, while in Luxembourg another reported that an application remained under review for several months without visible progress. Limited administrative capacity, financial resources and rapidly growing number of UAS operations and authorisation requests within national aviation authorities was identified as a factor contributing to these delays. As a result, significant application backlogs have emerged, leading to lengthy processing times and creating considerable uncertainty for operators seeking to deploy UAS services.

Recommendation 2: Member States should invest in increasing the administrative capacity of aviation authorities and optimise existing resources and review procedures in order to reduce application backlogs and shorten processing times.

3. Absence of a streamlined cross-border authorisation procedure

Cross-border UAS operations require operators to obtain separate authorisations from every Member State whose airspace will be used. Rather than a single cross-border approval, operators must sequentially obtain national authorisations, resulting in duplicated documentation, repeated operational risk assessments and a significant administrative burden. This obstacle is compounded by the already lengthy national authorisation procedures described above, as operators must complete multiple approval processes before a cross-border operation.

Participants further noted that the current procedure places much of the responsibility for cross-border coordination on the operator rather than on the competent authorities. Instead of benefiting from direct administrative cooperation between aviation authorities, operators must submit separate applications, transfer documentation between authorities and ensure that the various national requirements are met. Several respondents also reported uncertainty regarding the sequence in which applications should be submitted, and the overall cross-border approval

process. Although Article 13 Regulation 2019/947 provides that operators should first obtain authorisation in the Member State of registration before seeking approval in the Member State of intended operation, this sequential approach may itself create delays. Because national implementation and safety requirements differ, operators would often prefer to engage with all relevant authorities at an early stage to ensure that the proposed operation satisfies local requirements before investing significant time in the initial authorisation procedure.

Finally, participants highlighted the absence of a single point of contact for cross-border applications. During Dutch authorisation procedures, for example, a participant reported having to communicate with numerous different contact persons. Participants expressed a clear preference for a coordinated one-stop-shop managing cross-border authorisation procedures, especially in a cross-border region. One operator with experience of cross-border flights between Germany, Luxembourg and France referred to issues of mutual recognition, when an operational manual and procedures has already been approved in one Member State, but questioned in the second. From a technical perspective, also cross-border connectivity of mobile networks was noted as an obstacle when flying across borders. Other obstacles related to the administrative burden associated with authorisation applications and supporting documentation. Participants noted differences between countries in the type of documentation required, such as operational plans.

Recommendation 3: The current procedure of obtaining separate national operational authorisations should gradually be replaced by a coordinated (euregional) one-stop-shop system, with strengthened mutual recognition. Such a mechanism would enable operators to submit a single application that is jointly assessed by the relevant national aviation authorities, substantially reducing duplicated documentation, repeated operational risk assessments and administrative burden. As an initial step, pilot one-stop-shop mechanisms could be established between neighbouring countries with intensive cross-border cooperation, for example within the Benelux or the Meuse-Rhine region.

4. Cross-Border Emergency and Public Service Applications

The legal obstacles identified are not limited to private or commercial UAS operators but also affect public authorities and emergency services. Hospitals, ambulance services, fire departments and other public organisations across the Benelux-Germany region increasingly recognise the potential of UAS to strengthen emergency response and improve the resilience of public services. Examples include the transport of blood, medicines and diagnostic samples between hospitals, as well as the use of drones by fire and rescue services for monitoring floods, wildfires, industrial incidents and search-and-rescue operations in cross-border regions. However, the current legal framework creates significant uncertainty regarding the implementation of such operations.

One important source of uncertainty concerns the legal framework applicable to state-operated UAS flights. While civil UAS operations are largely harmonised at EU level, flights carried out by state authorities largely fall outside the scope of the EU Regulations and are instead governed by national legislation. Consequently, different legal regimes apply across Member States, creating uncertainty regarding the operational requirements for cross-border deployments by public authorities and limiting the potential for routine cross-border cooperation. Some participants also

referred to uncertainty regarding differences between Member States in the interpretation of who qualifies as a "state operator", particularly where flights are carried out by a third-party operator.

In sectors such as healthcare UAS logistics, aviation legislation represents only one part of the regulatory framework. Operators must also comply with separate legal frameworks governing the cross-border transport of medicines, blood, tissues and other medical goods, and privacy and data protection. The applicable requirements differ depending on the type of medical goods being transported, resulting in a fragmented legal landscape that is often difficult for hospitals and UAS operators to navigate. Participants also reported uncertainty arising from differences between countries in how "dangerous goods" are defined and interpreted. Participants therefore highlighted the absence of practical guidance on the applicable legal requirements as a major obstacle to implementing cross-border medical UAS logistics.

Recommendation 4: Integrated cross-border regions, such as Benelux or the Meuse-Rhine region, should jointly develop practical guidance clarifying the legal requirements applicable to cross-border operations by state and public authorities, including fire departments, emergency services and hospitals.

5. Airspace-related barriers to BVLOS operations

Participants further highlighted that controlled airspace remains one of the principal barriers to routine BVLOS operations in some Member States. BVLOS flights within controlled airspace are legally not always possible or only possible under highly restrictive conditions. However, the extent of these barriers differs between Member States. According to a German operator, existing air navigation services (ANS) framework and procedures do not yet sufficiently accommodate routine integration of unmanned aircraft into controlled airspace. As a result, difficulties are encountered in completing the operational risk assessment required for granting an operational authorisation, particularly where coordination with air traffic control forms part of the operational concept. Participants therefore identified a need for further development of the European regulatory framework governing air navigation services, together with improved integration of unmanned aircraft into controlled airspace. On the other hand, in some Member States BVLOS operations in uncontrolled airspace are considered to pose a higher risk and are therefore treated more restrictively.

All participants acknowledged that routine cross-border BVLOS operations will typically involve transitions between controlled and uncontrolled airspace. Consequently, a harmonised approach to BVLOS operations across both airspace environments is required, although the specific operational and regulatory challenges differ. In particular, electronic conspicuity and situational awareness remain important considerations for safe BVLOS operations in uncontrolled airspace.

Recommendation 5: The European Commission, EASA and Member States should further develop and promote the harmonised implementation of the existing European regulatory framework to enable the safe integration of unmanned aircraft BVLOS flights into both controlled and uncontrolled airspace. This should include adapting the relevant ANS and SERA regulations and establishing a regulatory framework for air traffic control procedures applicable to unmanned aircraft, and further operational integration of U-space services within existing ANS and ATC procedures.

Annex I. Agenda of EDEN-Medical Workshop

EDEN-Medical Workshop: Legal and administrative obstacles in (cross-border) drone operations across Benelux-German regions

Date: 12 May 2026, 10.00-12.00 via Teams

Agenda

10.00-10.20	Welcome and introduction to the workshop Sarah Veldeman (Uniklinik Aachen)
<i>Presentation of drone initiatives and encountered legal challenges across Benelux-Germany regions</i>	
10.20-10.35	Presentation of the EDEN-Medical project Sarah Veldeman (Uniklinik Aachen) Legal obstacles identified in the EDEN-Medical project Susanne Sivonen (ITEM/Maastricht University)
10.35-10.50	Medical goods transport in Luxembourg François Halmes (Luxembourg Air Rescue)
10.50-11.05	Experiences with cross-border flights within EULE, SafirMed and Grenzflug+ Johanna Holsten (FlyXdrive)
11.05-11.20	ADLC: Drone transportation of chemicals in Antwerp, Belgium Rayan Quintaes (ADLC)
<i>Discussion of legal obstacles and policy recommendations</i>	
11.20-11.50	Panel discussion on legal obstacles and policy recommendations (with audience) moderated by Susanne Sivonen (ITEM/Maastricht University) • Sushma Maranganti Bhatte, Yeni Plasencia Calaña (BeNeDrone – Medical goods transport Flanders-Netherlands) • Andreas Gherman (Freelance aviation expert consultant, DE-LUX-FR) • Sabrina John (CEO of GLVI, Medifly Hamburg, Germany)
11.50-12.00	Conclusions & Closing Sarah Veldeman (Uniklinik Aachen)