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The Use of Unmanned Aircraft Systems for State Operations in the Republic of Slovenia: between Legal Confines and Technological Progress

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ABSTRACT
Regulation (EU) 2018/1139 on common rules in the field of civil aviation, together with delegated and implementing acts, provides the legal framework for regulating UAS at the EU level. It is important to note that mentioned acts do not apply for activities performed by the Member State, from which it follows, that new special national regulations are. Nevertheless, the Member States can still, decide that individual chapters of the regulation also apply for their performed operations. While many states of the EU have chosen to utilize this mechanism, the Republic of Slovenia has not made an official decision to do so. The circumstances described above raise a number of questions regarding the precise definition of the state operations, their delimitation and possibility of applying general regulations for operations with UAS performed by the police and other state authorities. Based on an analysis of European and national regulations, this paper presents the legal options for the use of UAS in state operations.

KEYWORDS: unmanned aircraft systems, state operations, European regulation, Slovenia, safety oversight, Regulation (EU) 2018/1139

POVZETEK
Osnovna Uredba (EU) 2018/1139 o skupnih pravilih na področju civilnega letalstva, skupaj z delegiranimi in izvedbenimi predpisi, predstavlja pravno podlago za urejanje brezpilotnih zrakoplovov na ravni Evropske unije. Navedeni akti praviloma ne veljajo za izvajanje državnih aktivnosti, iz česar izhaja, da je za njihovo delovanje praviloma potrebno sprejeti posebne nacionalne predpise. Države članice se lahko vseeno na podlagi mehanizma »opt-in« odločijo, da bodo posamezna poglavja uredbe veljala tudi za izvajanje tovrstnih aktivnosti. Medtem ko so se številne države Evropske unije odločile za uporabo omenjenega mehanizma, Republika Slovenija te odločitve zaenkrat uradno še ni sprejela. Iz navedenih okoliščin izhajajo številna vprašanja, ki se nanašajo na natančno definicijo državnih aktivnosti, njihovo razmejitev ter možnosti uporabe splošnih predpisov pri izvajanju aktivnosti s sistemi brezpilotnih zrakoplovov, ki jih opravljajo policija in drugi nosilcih javnih pooblastil. V prispevku so na podlagi opravljene analize evropskih in nacionalnih predpisov sistematično predstavljene pravne možnosti za uporabo brezpilotnih zrakoplovov pri izvajanju državnih aktivnosti.

KLJUČNE BESEDE: sistemi brezpilotnih zrakoplovov, državne aktivnosti, evropska ureditev, Slovenija, letalsko-varnostni nadzor, Uredba (EU) 2018/1139

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Introduction

The development of unmanned aerial vehicle technology in the 21st century has expanded from a predominantly military segment to other areas as well. Technological advances in electronics, optics, computing, and energy storage, coupled with affordability and increasing battery capacity, have enabled the technology to be used in an increasingly diverse range of fields and significantly expanded the user base. As a result, the use of this technology is not only becoming more widespread in the civilian sector, but is also beginning to be used in operations under the control and responsibility of Member States. Due to the specific nature of these operations, it is essential that the conditions for the use of unmanned aircraft systems (UAS) for these purposes are well defined.

The flight of UAS is primarily a civil aviation activity and is regulated by the European Union. In 2018, with the adoption of Regulation (EU) 2018/1139, the competence for the regulation of UAS was transferred from the national to the European Union level (Regulation (EU) 2018/1139, 2018). Based on Regulation (EU) 2018/1139, Commission Delegated Regulation (EU) 2019/945 and Commission Implementing Regulation (EU) 2019/947 were adopted in 2019, which set out in more detail the requirements for UAS and the rules for their use.

As noted above, Regulation (EU) 2018/1139 provides the legal basis for the regulation of civil aviation at the level of the European Union. It also provides the demarcation between civil and state operations. This demarcation is derived from Article 2(3), which states that this Regulation shall not apply to state operations that are under the control and responsibility of the Member States. However, the Regulation gives Member States the possibility to apply any chapter of the Regulation to some or all state operations on the basis of an "opt-in" mechanism. If the country decides to use this mechanism, it must notify the European Commission and the European Civil Aviation Agency. The Republic of Slovenia so far has not made an official decision to implement European Union regulations for state operations with UAS (EASA, 2022b).

Regulation (EU) 2018/1139 (2018) contains a vague definition of state operations, and it is therefore up to the Member States to determine when certain activities of state authorities, bodies of self-governing lo-

cal communities and holders of public authority are to be considered as state operations and when they are not.

The current regulation in the Republic of Slovenia contains inconsistencies regarding the precise definition of state operations, since for some time now UAS have been used not only by entities that fall under the so-called classical state operations, such as the police and the military, but also by other legitimate entities, which need to be precisely defined and the permitted exception to civil rules need to be established.
The purpose of this paper is to systematically present the legal options for the use of UAS in the conduct of state operations, which arise from the current legal framework and the planned changes to the legislation. At the same time, the paper also addresses specific issues related to the use of unmanned aerial systems.

Unmanned Aircraft Vehicle and Unmanned Aircraft Systems

There are several different terms used to refer to "unmanned aircraft" both in the general public and in professional terminology. In addition to the common term "drone", the terms unmanned aircraft and unmanned aerial vehicle are also used (Atelšek, et al., 2015). Despite the multitude of different terms, the term unmanned aircraft is used consistently in the regulations of the Slovenian Armed Forces. Therefore, the content of our paper will emphasize that usage.

To understand unmanned aircraft technology and the legal regulation of this field, it is important to make a clearer distinction between the terms "unmanned aerial vehicle" and "unmanned aircraft system".

The basic definition of an unmanned aerial vehicle (UAV) comes from the Commission Delegated Regulation (EU) 2019/945 (2019) and means "any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board".

Meanwhile, an unmanned aircraft system (UAS) "means an unmanned aircraft and the equipment to control it remotely" (Commission Implementing Regulation (EU) 2019/947, 2019).

From the above definition of the two terms, it is clear that the UAS is a broader concept that includes the UAV as well.

Sadraey (2020, p. 19), in his book Design of Unmanned Aerial Systems, makes a similar distinction between the two concepts. He states that an unmanned aerial systems "is a group of coordinated multidisciplinary elements for an aerial mission by employing various payloads in a flying vehicle". In contrast, he defines an unmanned aerial vehicle in a narrower sense as "a remotely piloted or self-piloted aircraft unmanned aerial vehicle on which individual modules can be mounted".

While some authors define the UAS in slightly different ways, these differences are mainly due to different scientific disciplines. What they all have in common is that they define the UAV as an integral part of the UAS (Eisenbeiss, 2004; Finn, et al., 2014; González-Jorge et al., 2017).

The UAS is composed of several modules, and although several different subdivisions appear in the literature (Finn, et al., 2014; González-Jorge et al., 2017), the main one is the division into three main components.

The first set includes a carrier, or so-called UAV. With technological developments and increased demand, the number of different types of UAVs has also increased. These can vary by type (e.g., fixed-wing UAV or UAV with different numbers of rotors) (Sandraey, 2020), degree of autonomy, size, weight, and power source. These characteristics have an impact on flight duration and payload capacity (Vergouw, et al., 2016, p. 2).

The second part is the system to control and operate the UAV. This system can operate autonomously or be remotely controlled. Autonomous operation is characterized by a flight path that is pre-planned by a computer and then executed by the UAV either unassisted or via a ground control station. The system allows the drone to react to changing weather conditions. If necessary, it can abort the flight and land safely. In the remote control mode, the operator communicates with the UAV at all times, either by controlling it in the field of view or by receiving data directly from on-board video surveillance or other sensors. To make operations safer, many newer UAVs are equipped with various safety systems designed to prevent the UAV from colliding or crashing (Police, 2016, p. 3).

The third and final component is the system designed to perform tasks. There is a wide variety of such systems, and the extent of the UAS will

depend on the system that is chosen. Three main groups can be discerned. The first group consists of weapon systems, e.g. gas weapons. The second group consists of transport and delivery systems. These systems have been used mainly by the military to deliver supplies. But more recently, these systems have gained value in civilian areas, such as large delivery companies for mail and small packages, medical delivery, and agricultural activities such as aerial fertilization of crops. The third category includes surveillance and data collection systems. These include photography, video and audio recording, and the use of thermal imaging cameras. The LiDAR (Light Detection and Ranging) sensor is also commonly used due to its wide range of applications. This sensor collects data and forms a cloud of points with accurately measured distances between objects in the coverage area (González-Jorge, et al., 2017, p. 10).

As indicated above, UAS is a versatile technology with a wide range of applications. However, it is critical to evaluate its benefits and drawbacks, which depend on factors such as the type, size, adaptation of the selected vehicle and accessories, as well as the specific application. There are numerous studies that examine the use of UAS in specific industries (Colomina, Molina, 2014; Balajee Laksham, 2019; Mihelič, 2020). Despite its variable components, this technology has some common features. This paper will only list those features that are common to a variety of applications. The main advantage of using UAS is their cost-effectiveness. For example, a DJI Phantom 4 Pro costs about two thousand euros (DJI, 2023), while an hour of helicopter flight in Slovenia is priced between eight hundred and three thousand euros (Police, 2016, p. 4). With the use of UAS technology, various tasks can be performed in a much safer and more secure manner, ensuring the safety of people whose lives could be at risk during the operation of manned aircraft. It has the advantage of quick runway setup and take-off, user-friendly aircraft management and data acquisition systems that can directly sense information from their environment. However, certain limitations need to be acknowledged, particularly the limited flying time, which is related to the capacity and number of batteries. The UAS may also crash or malfunction, and performance may be limited in adverse weather conditions, among other limitations (Colomina, Molina, 2014, p. 5).

Therefore, it is important to select the most appropriate UAV and sensor types for the intended use. The wide range and adaptability of

the UAS make it an increasingly ubiquitous tool in various economic sectors (European Commission, 2022, p. 5), including private security (Čas, Božjak, 2022, p. 78), agriculture, film production, and public health, with a particular focus on emergency medical care. They are also increasingly used to support activities that are under the control and responsibility of the Member States, such as public safety, security and rescue (European Commission, 2022, p. 5).

General Legal Framework for using Unmanned Aircraft Systems in the European Union

The flight of UAS is primarily a civil aviation activity and is regulated by the European Union. In 2018, with the adoption of Regulation (EU) 2018/1139, the competence for the regulation of UAS was transferred from the national to the European Union level (Regulation (EU) 2018/1139, 2018). Based on Regulation (EU) 2018/1139, Commission Delegated Regulation (EU) 2019/945 and Commission Implementing Regulation (EU) 2019/947 were adopted in 2019. The following sections will highlight the most important provisions for the use and control of this technology by analyzing the three basic regulations, mentioned above.

Regulation (EU) 2018/1139 on common rules in the field of civil aviation

In July 2018, the European Parliament and the Council adopted Regulation (EU) 2018/1139 on common rules in the field of civil aviation, or the new Basic Regulation, which also applies to UAS. The new Regulation replaced the so-called Basic Regulation from 2008 (Regulation (EC) 216/2008). Until the new Regulation was adopted, Member States and their national aviation authorities were responsible for regulating the remaining areas of UAS use, resulting in different approaches to regulating this area over the past decade (Lavallée, 2019, p. 2).

With the entry into force of the new Regulation, responsibility for regulating all civil UAS, regardless of their operational mass, has been transferred from the Member States to the EU level, making harmonized EU safety rules applicable in all Member States. In accordance with the principle of subsidiarity, Regulation (EU) 2018/1139 established centralized regulation in this field, with the European Commission and European Union Aviation Safety Agency (EASA) playing the main role. The primary objective of the new regulation was to estab-

lish and maintain a high uniform level of civil aviation safety and environmental protection. However, due to the transnational nature of air transport, these objectives could not be effectively achieved through national regulation. Therefore, the EU began to regulate this area at the Union level (Pagallo, Bassi, 2020, p. 5).

Regulation (EU) 2018/1139 covers, inter alia, the rules for the design, manufacture, maintenance and operation of aircraft and their parts and defines the role of EASA. It also covers the conduct of safety oversight of aircraft, the collection of data and the preparation of proposals for safety rules for the European Commission (Clare, Kourousis, 2021, p. 341).

The new Regulation provides the legal basis for the regulation of civil aviation at EU level. At the same time, it introduces a distinction between civil and state operations. This distinction is made in Article 2 (3), which states that "the Regulation shall not apply to: aircraft, and their engines, propellers, parts, non-installed equipment and equipment to control aircraft remotely, while carrying out military, customs, police, search and rescue, firefighting, border control, coastguard or similar activities or services under the control and responsibility of a Member State, undertaken in the public interest by or on behalf of a body vested with the powers of a public authority, and the personnel and organizations involved in the activities and services performed by those aircraft" (Article 2 of the Regulation (EU) 2018/1139, 2018).

Furthermore, Regulation (EU) 2018/1139 also gives Member States the possibility to apply any chapter of the Regulation to some or all state operations on the basis of an "opt-in" mechanism. This provision is also very flexible in the sense that it allows Member States to define for themselves what they consider to be activities "under the control and responsibility of a Member State, undertaken in the public interest by or on behalf of a body vested with the powers of a public authority...". If a Member State decides to apply the rules of the Regulation to activities otherwise excluded by the above provision, it must inform the European Commission and EASA (EASA, 2022c).

The Regulation establishes a centralized framework in which the main authorities are shared between the European Commission and EASA. According to this regulation, the EASA proposes to the European Commission technical rules and standards for all sizes of UAS, while the

European Commission is empowered to adopt delegated and implementing acts to further develop the regulatory framework in this field (Bassi, Pagallo, 2022, p. 3).

Although the new Regulation in general limits the jurisdiction of the Member States and their national authorities to regulate UAS, it nevertheless allows some exceptions. These arise from Articles 56(8) and 71 of the Regulation, which allow Member States to adopt specific national rules for operating UAS, to grant exemptions from certain European requirements, or to request an amendment to a delegated or implementing act to allow the use of different means of demonstrating compliance (Bassi, Pagallo, 2022, p. 3).

In order to update or ensure the uniform implementation of an already adopted European legislative act, the European Parliament and the Council may, on the basis of the Treaty on the Functioning of the European Union, empower the European Commission to adopt delegated or implementing acts. Therefore, based on Articles 57 and 58 of Regulation (EU) 2018/1139, Implementing Regulation (EU) 2019/947 on the rules and procedures for the operations of unmanned aircraft and Commission Delegated Regulation (EU) 2019/945 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems were adopted in 2019 (Brezovar, Belič, 2021, p. 26).

Commission Delegated Regulation (EU) 2019/945 on unmanned aircraft systems and third-country operators of unmanned aircraft systems

Commission Delegated Regulation (EU) 2019/945 (2019) on unmanned aircraft systems and third country operators of unmanned aircraft systems lays down requirements for the design, manufacture, maintenance and operation of UAS. Responsibility for compliance with these requirements also lies with all economic operators that place the UAS on the market. At the same time, they should also ensure compliance with the requirements for each class, regardless of whether the UAS was manufactured in the EU or outside the EU.

The requirements of the Delegated Regulation relate in particular to the establishment of technical documentation concerning the product and its appropriate marking, such as the CE marking, the EU declaration of conformity and the serial number. The EU declaration of conformity indicates that the product has been shown to comply with

the requirements set out in the Annex to this regulation (Article 14 of the Commission Delegated Regulation (EU) 2019/945, 2019), while the CE marking can be defined as "the marking by which the manufacturer indicates that the product is in conformity with the applicable requirements set out in Union harmonization legislation providing for its affixing" (Article 3 of the Commission Delegated Regulation (EU) 2019/945, 2019)).

An important innovation introduced by the delegated regulation is the division of unmanned aircraft production into classes. Each class is identified by a class identification label. The designations C0, C1, C2, C3 and C4 are associated with a specific subcategory A1, A2 and A3 in the "open" category. The classes represent the equipment requirements for each type of UAV which can then be used under the conditions derived from the individual subcategories in the "open" category (EASA, 2020, p. 30).

Commission Implementing Regulation (EU) 2019/947 on the rules and procedures for the operation of unmanned aircraft

Commission Implementing Regulation (EU) 2019/947 (2019) on the rules and procedures for the operation of unmanned aircraft was due to come into force in July 2020, but has enter into force six months later to the epidemiological situation. It contains provisions that further regulate the operation of UAS, rules for personnel, including remote pilots, and rules for organizations involved in operations in the EU. However, the term "operations of UAS" in this Regulation does not include operations in confined spaces (e.g., buildings, caves, silos, mines, etc.), as the likelihood of a UAS entering outside airspace is very low (Easy Access Rules for Unmanned Aircraft Systems, 2022, p. 20).

Procedures and rules for the operation of UAS should respect the principle of proportionality. Depending on the nature and risk level of the operation, operators should adapt to the operational characteristics of the individual UAS and to the characteristics of the operational area, such as population density, presence of buildings and terrain features (Commission Implementing Regulation (EU) 2019/947, 2019).
Stated above, therefore Article 3 of the Regulation provides for the classification of operations with UAS into three main categories, taking into account the level of risk:

- The "open category" is intended for low-risk operations and does

not require any prior operational authorization or operational declaration by the UAS operator.
- The "special category" is intended for medium-risk operations and requires an operational authorization by the competent national authority or operational declaration from the UAS operator.
- The "certified category" is for high-risk operations and, in addition to the requirement for system certification in accordance with Commission Delegated Regulation (EU) 2019/945, this category also requires the certification of the operator and, in some cases, the licensing of the remote pilot (Article 3 of the Commission Implementing Regulation (EU) 2019/947, 2019).

In addition to the rules and restrictions laid down in the Regulation for each category, the Regulation allows Member States to restrict or exclude UAS operations in certain areas to ensure safety, security, privacy or environmental protection. Member States may designate areas in which certain UAS operations are exempt from the open category requirements. In the Regulation these areas are referred as "UAS geographical zones" and information on the areas and restrictions must be made publicly available, together with their period of validity (Article 15 of the Commission Implementing Regulation (EU) 2019/947, 2019).

In line with Article 56(8) of the Regulation (EU) 2018/1139, Commission Implementing Regulation (EU) 2019/947 does not limit the possibility for Member States to establish national rules for operations with UAS outside the scope of the Regulation, including public security and the protection of personal data and privacy, in accordance with EU law.

Legal Framework for using Unmanned Aircraft Systems in the Republic Of Slovenia

Aviation in the EU is regulated by national and EU regulations. In the case of a conflict between EU law and national law, EU law generally prevails, in accordance with the principle of primacy, which has been developed by the jurisprudence of the Court of Justice of the EU. It is important to note that this principle applies only within the field of application of the national law and not within the field of validity of the national law. Finally, it is important to understand that regulations enter into force in all EU Member States once they have been adopted and published in the Official Journal of the European Union and the

standstill period has expired. Implementation procedures are generally not required for their entry into force, except where the Regulation provides otherwise. According to Article 288 of the Treaty on the Functioning of the European Union, regulations are directly applicable and effective in both vertical and horizontal relations (Brezovar, Belič, 2021, p. 26).

As mentioned above, Regulation (EU) 2018/1139, which relates to civil aviation, is the main regulatory act governing aviation in the Member States of the European Union. However, national legislation is also relevant in this field. The following sections provides a detailed overview of the legal acts regulating this field in the Republic of Slovenia.

Aviation Act

In the Republic of Slovenia, the basic regulatory act for aviation is the Aviation Act (2001), which divides aviation into civil aviation and military aviation.

The Aviation Act does not contain any provisions relating directly to UAS. However, certain provisions are indirectly relevant or important to the use of UAS. Due to their increase in civilian use and the lack of regulations for their safe operation, in 2016 the Civil Aviation Agency Slovenia issued a Safety Directive on unmanned aircraft (Article 2). The legal basis for adopting the Safety Directive was the Aviation Act and the Ruling on the establishment of the Civil Aviation Agency. The purpose of the directive was to draw the attention of the operators to the dangers and to contribute to the reduction of risks in the use of UAS. This document was an attempt by the Civil Aviation Agency Slovenia to temporarily regulate this area and was replaced later that year by the Decree on unmanned aircraft systems. Although the Civil Aviation Agency Slovenia strived to temporarily regulate this area with the Safety Directive on unmanned aircraft, later that year it was replaced by the Decree on unmanned aircraft systems.

The Decree on unmanned aircraft systems (2016) established the basic technical and operational standards for the safe use of this technology, as well as the conditions for persons involved in the operation of UAS with a maximum take-off mass less than 150 kilograms. The Decree primarily regulates the civil use of UAS, as Article 1 makes it clear that it does not apply to UAS intended for the performance of state opera-

tions. These include military, customs, police, search and rescue, fire-fighting, coastguard and similar activities. At the same time, however, the flight rules of the Decree must be observed in the performance of these activities, unless specific rules provide otherwise.

The Decree remained in force until the Regulation (EU) 2018/1139 and its delegated and implementing acts entered into force, although certain provisions remained applicable until the end of 2022.

Regarding state operations, the Slovenian Decree on Unmanned Aircraft Systems allowed to apply its provisions for conducting such operations under certain conditions. However, with the adoption of the new regulation in 2018, the regulation of this area has been transferred from the competence of individual Member States to the competence of the EU. And according to the Regulation (EU) 2018/1139, state operations are now in principle excluded from the scope of this Regulation.

This is one of the reasons why a new Aviation Act is in the process of adoption. The structure of the current Aviation Act will be maintained, but the content will be in line with new aviation safety guidelines, technologies, systems and procedures. At the same time compliance with international standards and the European legal framework will be ensured. The new Aviation Act will include all requirements arising from EU regulations, relevant ICAO Standards and recommended practices and the results of inspections in this area. The more detailed information on the proposal for a new Aviation Act will be presented in the following (CAA, 2021).

Decree implementing the Delegated Regulation (EU) on unmanned aircraft systems and on third-country operators of unmanned aircraft systems

Commission Delegated Regulation (EU) 2019/945 is an act of the European Commission regulating the field of UAS at the EU level. With the adoption of the Decree implementing the Delegated Regulation (Article 2, 2022) the Republic of Slovenia has fulfilled its obligations and has designated the competent authorities in accordance with Commission Delegated Regulation (EU) 2019/945.

Republic of Slovenia has designated the Ministry of Infrastructure as the Notifying Authority. The Market Inspectorate has been designated

as the market surveillance authority and carries out all market surveillance tasks, such as monitoring the use of the CE marking and informing the European Commission and other Member States on matters within its field of activity. While the Financial Administration controls the entry of products into the EU market (Proposal of the Decree implementing the Delegated Regulation, 2022, p. 15).

Both of the above authorities cooperate and exchange information with the Civil Aviation Agency (CAA) in order to carry out their duties effectively (Proposal of the Decree implementing the Delegated Regulation, 2022, p. 15).

Decree on implementing Regulation (EU) on the rules and procedures for the operation of unmanned aircraft

In order to comply with the requirements of this Commission Implementing Regulation (EU) 2019/947 on the rules and procedures for the operation of unmanned aircraft, it was necessary to adopt certain additional measures at the level of the Republic of Slovenia. These measures are set out in the Decree on implementing Regulation (EU) 2019/947 (2020, Article 1). Among other things, the national decree designates the competent authority, lists the specific requirements for model aircraft associations or clubs, and defines the geographical zones in which the flight of UAS is restricted or prohibited. It also specifies the manner in which information on the geographical zones is made available to the public. In addition, the regulation contains specifics provisions related to the regulation during the transition period.

During the first year of implementation of the decree, it became clear that certain measures defined in the national decree should be amended (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 15). Therefore, a new implementing decree was proposed for inter-ministerial coordination at the end of 2022. Once adopted, it will replace the current national decree (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 15).

The main changes that the new Decree will introduce, with reference to the currently available proposal, are mainly related to a more comprehensive regulation of geographical zones, in particular regarding the methods and procedures used to designation. In the following part

there is a more detailed description of the changes introduced by the new Decree and their impact on the use of UAS for activities that are under the control and responsibility of the Member States (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 15).

The CAA is the competent authority for the implementation of the Decree on implementing Regulation (EU) 2019/947. It has the main responsibility for carrying out inspections, but some of the inspections are also carried out by the police and the municipal warden service. The proposed new Decree regulates supervision in a similar way. The difference is that it assigns new tasks to certain authorities. According to the proposal, they should also detect violations of regulations and restrictions on operations in geographical zones, excluding those established to ensure aviation safety. By extending the responsibilities, the proposal for a new regulation aims to follow the intention of Article 18 of Regulation (EU) 2019/947, which provides that oversight shall be performed by the competent aviation authority, but that these tasks do not include the performance of open category oversight. This is mainly because the massive use of UAS in this category makes it more sensible for such surveillance to be carried out by police or municipal warden service in the Member State, similar to the situation in road traffic (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 16).

Under Article 15(1) and (2) of the Regulation, Member States have the possibility of designating specific geographical zones where activities related to UAS are prohibited or restricted for safety, security, privacy and environmental reasons (Article 5 of the Decree on implementing Regulation (EU), 2020). In order to improve the flexibility and transparency of the geographical zones, a new system for the designation of these zones is foreseen. Depending on the type of geographical zone, different designation methods are defined, as follows:

- geographical zones for aviation and general security and privacy are defined directly by the Decree;
- other geographical zones are determined by the Ministry of Infrastructure or at the request of other authorities;
- geographical zones established for the purpose of carrying out the activities of aeromodelling clubs and associations are determined by the CAA,
- the Ministry of Infrastructure shall not be responsible for the establishment of temporary geographical zones for the exercise

> of police tasks, but the police shall determine and establish such zones according to their needs in the exercise of their tasks and powers (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 17).

Geographical zones may be established for a limited or unlimited period of time. It is essential that they are also publicly available in a common unique digital format in order to ensure a higher level of security and transparency. In the current proposal for a Decree, certain temporary geographical areas are exempted from publication, but their publication is still advised in the case of longer-term interventions in the event of natural or other disasters, police missions, or in the case of public gatherings, as it constitutes an additional safeguard to prevent unauthorized flights from taking place within these areas (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 26).
The wording of the currently published proposal for a new regulation allows for exceptions to the publication of provisional geographical zones in the publication system, which is not in line with Article 15(3) of the Commission Implementing Regulation (EU) 2019/947 (2019). It states that Member States shall ensure that information on these zones, including their period of validity, is publicly available in a common digital format, without exceptions. It is reasonable to expect that the system of publication of temporary geographical zones will be aligned with the requirements of Commission Implementing Regulation (EU) 2019/947 in the latest version of the national decree, given the inconsistency of the envisaged exemptions.

Compared to the current Decree, the proposed new Decree provides a more detailed breakdown of the types of geographic zones that can be established. In the following, only the most significant changes that will have an impact on the use of UAS in the performance of state operations will be presented.

The geographical zones for the performance of police tasks are already defined in the current national Decree. They refer to both permanent and temporary geographical zones. The proposed new Decree does not change the substance of the provisions, but differs in that the temporary geographical zones that the police may establish are regulated in a separate article (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 21). This is due to the fact that the purpose and manner of the establishment of these zones are different in rela-

tion to Article 56 of the Police Tasks and Powers Act, which regulates temporary restrictions of movement (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 23). The unpredictable nature of police tasks makes it difficult to estimate the duration of temporary geographical zones, making the standard system of publication unsuitable. The primary reason for the unsuitability is the previously mentioned approach for publishing geographical zones. However, it is still necessary to provide information about temporary geographical areas. The notification must be carried out in accordance with the guidelines in Article 56(6) of the Police Tasks and Powers Act (2013), which requires marking the area of temporary restricted movement using tape, fencing or similar methods (Pozderec and Kotnik, 2023, p. 105).

An increasing number of state authorities, bodies of self-governing local communities and holders of public authority are using UAS to carry out their tasks. In the proposed new Decree, those operations are regulated in the new Chapter III. In contrast to police and military activities, these operations are usually associated with a lower level of risk. For this reason, they are generally not classified as classical state operations, in accordance with the Regulation (EU) 2018/1139. As previously mentioned, this Regulation exempts state operations from civil regulation. At the same time, Member States can decide whether operations with UAS that are carry out by state authorities, bodies of self-governing local communities and holders of public authority, fall under these regulations or whether they are subject to specific rules as classical state operations. In Republic of Slovenija it is foreseen that less complex state operations will be carried out in accordance with the civil regulations. However, in order to ensure more efficient performance of tasks, certain exceptions may be granted (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 23).

Based on the above, it can be concluded that the new Decree will improve existing provisions and complement the existing way of establishing geographical zones, while also reducing the administrative burden on public authorities in some cases (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 23). In response to the increasing use of UAS for state operations, more detailed regulations will be implemented. In order for regulation in this area to be effective, decision-makers need to keep abreast of technological advances and current circumstances.

Novelties of the proposed new Aviation Act

The current Aviation Act has undergone only minor changes since its enactment in 2001. The main changes have been made to comply with the obligations arising from joining the EU and to implement the European Directives. Adjustments to the current legislation have become necessary due to technological advances and the international nature of civil aviation. The implementation of the new legislation will bring the civil aviation in line with modern practices for ensuring safe aviation while facilitating timely adaptation to the European legal framework and conformance with international ICAO standards and recommendations. Among other factors, the progress of international civil aviation influenced the emergence and use of new specialized terminology, which therefore need to be updated in the new Act. Otherwise, the adoption of the relevant secondary legislation for the further regulation of the area of civil aviation in the Republic of Slovenia will be made more difficult or even prevented (CAA, 2021).

The Aviation Law proposal indicates that the forthcoming legislation will have a wider scope. Furthermore, it will provide more comprehensive regulation for military and police aviation, which currently lacks regulation. This will also provide a legal basis for the regulation of other state operations in the field of aviation that are not regulated by the present legislation. This is necessary since state aviation activities are expanding beyond the military and police use (Proposal for consideration - Proposal for the Aviation Act, 2021, p. 8).

In contrast to the current law, the upcoming legislation will include additional regulations related to UAS. Besides a general definition of the term, this new legislation will also regulate the registration process of UAS that undertake high-demanding operations. UAS for which certification is required will also need to be entered in the aircraft register. Fines for activities performed with UAS will also be partially established. Since the use of these systems is regulated in detail by EU regulations, the new law in this area is generally silent and rather modest regarding provisions on UAS, as it mostly refers to the application of EU regulations (Proposal of the new Aviation Act, 2021).

In addition to the civil regime, the upcoming Act will provide new and broader regulation of military and police aviation, including provisions directly or indirectly relevant to the use of UAS (CAA, 2021).

The general legal framework of military and police aviation is important for understanding the governance of state operations with UAS.

The new law will have a special chapter on the regulation of military aviation. It will establish rules and requirements that are not adequately regulated in the current law. With the enactment of the new aviation law, the appropriate legal basis will be in place for the competent minister to issue regulations on the flight of unmanned aircraft in the performance of military tasks (Proposal of the new Aviation Act, 2021, p. 10).

The field of police aviation is not directly regulated by the current Aviation Act, but the civil regulations are still partly applicable and used for this field Proposal of the new Aviation Act, 2021, p. 15). Due to the nature of the work, individual flight operations may deviate from general aviation norms, but the exceptions must be clearly defined and assessed from an aviation safety perspective. With the enforcement of Regulation (EU) 216/2008, the forerunner of Regulation (EU) 2018/1139, the schedule for carrying out the European Commission's implementing rules regarding technical rules of civil aviation has been made apparent. With the implementation of the European Aviation Regulation and the fact that the Slovenian police had an outdated helicopter fleet that did not comply with EU aviation safety regulations, the Minister responsible for Transport issued the Rules on airworthiness, air operations, aviation aircrew, and certain flight rules for police and customs aircraft, which regulated an area that was not compliant with EU regulations. This allowed the CAA to conduct comprehensive aviation safety oversight of all police aviation sectors, including aircraft maintenance, airworthiness, crew training, and helicopter operations. In 2017, the Rules amending the Rules on airworthiness, air operations, aviation aircrew, and certain flight rules for police and customs aircraft were adopted. This led to the deletion of paragraphs 1, 2, 6, 7, 8, and 9 of Article 3, as well as Articles 5-14. As a result, there is currently no accessible substantive or procedural regulation governing police air operations in the Republic of Slovenia (General Police Directorate, 2023, p. 2). This also eliminated the independent oversight of part of the operations, which was provided by the CAA until January 1st, 2018, when the Regulation (EU) 2018/1139 entered into force (Proposal of the new Aviation Act, 2021, p. 234).

The new Aviation Act aims to ensure that police tasks are carried out in accordance with the aviation safety requirements of Regulation (EU)

2018/1139, by establishing administrative and aviation oversight of police aviation. Thus, in addition to overseeing the registration and airworthiness of police aircraft and certifying personnel, the CAA will be authorized to once again oversee police flying operations after 2018. The forms and modalities of high-risk air police operations and the flying of police UAS will be regulated by specific regulations to be issued by the competent minister. This will serve as the legal basis for further regulation in these two areas (Proposal of the new Aviation Act, 2021, p. 235).

Legal Options for the use of Unmanned Aircraft Systems in State Operations

The difference in the regulation of state operations in aviation was established by the Chicago Convention and further defined in Article 2(3) of the Regulation (EU) 2018/1139 (2018), which serves as the legal framework for civil aviation regulation in the European Union.

According to Article 2(3) of the Regulation 2018/1139 and the clarifications provided by EASA, state operations can be categorized into classical state operations and non-specific state operations (EASA, 2022a). Classical state operations generally include the activities of those authorities which, by the nature of their tasks, are usually performed under specific national rules, typically the military and the police. On the other hand, non-specific state operations include "similar activities or services under the control and responsibility of a Member State, undertaken in the public interest by or on behalf of a body vested with the powers of a public authority". The precise interpretation of these activities rests with the Member States (Article 2, paragraph 3, Regulation 2018/1139, 2018).

Further, according to the sixth paragraph of the same Article of Regulation (EU) 2018/1139, Member States may choose to apply select chapters of the Regulation to those operations. This can be done "where it is considered that, in light of the characteristics of the activities, personnel and organizations in question and the purpose and content of the provisions concerned, those provisions can be effectively applied" (Article 2, paragraph 6, Regulation 2018/1139, 2018). However, if Member States choose to use the "opt-in" mechanism, they must notify both the European Commission and EASA (EASA, 2022c). A number of EU countries have decided to partially apply civil rules to state operations (EASA, 2022b). For example, Austria has notified

that it will apply the civil provisions of Chapter VII of the Regulation when exercising its border control, search and rescue and firefighting powers. The Netherlands has also notified the application of certain other sections of the Regulation. Similarly, in the majority of European States, police aircraft are registered in the civil aircraft register and are subject to the rules of civil aviation (EASA, 2022b). However, certain state operations may, due to the nature of these tasks, deviate from the rules of general aviation. In these cases, it is essential that these deviations are precisely defined and evaluated by an aviation safety assessment (Proposal of the new Aviation Act, 2021, p. 234).

Although the European aviation legislation prefers to use the "opt-in" mechanism in this field and some Member States have done so (Proposal of the new Aviation Act, 2021, p. 234), the Republic of Slovenia has not formally adopted this decision (EASA, 2022c).

As previously stated, the present Aviation Act does not provide detailed regulations for state operations or UAS. Nevertheless, the proposal of the new law includes more comprehensive regulations for both military and police aviation. The explanatory notes in the proposal make it clear that the civil rules will be applied to police aviation, among other areas, unless specific regulations determine otherwise. This suggests the use of an opt-in mechanism, although, as noted above, the Republic of Slovenia has not yet officially done so (Proposal of the new Aviation Act, 2021, p. 234). The reason for this is still unknown and may depend on needs and circumstances, while it is still not certain that it will actually be implemented. The precise application of civil rules and the extent to which police aviation will be regulated by specific legislation following the adoption of the new law which will partly depend on the competent Ministry.

Another important provision of the new Aviation Act is the regulation of additional state operations, which will serve as a legal basis for the adoption of rules that specifically address various types of state operations beyond those covered by the law itself. This will in fact provide a basis for regulating all those non-specific state operations, which are also referred in Article 2(3) of the Regulation (EU) 2018/1139. Due to societal changes, there is a growing inclination to use UAS by different state authorities. The newly proposed law is in line with these evolving trends. Once adopted, the law will allow the Government, upon the proposal of the competent authority, to issue regulations to regu-

late various state operations not directly regulated by law. Inter-ministerial coordination and competent aviation authority involvement will also be guaranteed, as the Government will establish detailed conditions and criteria for implementation. The proposing authority will be responsible for supervising the performance of each state activity, which will increase the administrative burden (Proposal of the new Aviation Act, 2021, p. 137).

Due to the vague definition of "state operations" in Regulation (EU) 2018/1139 and the specificities of UAS, there is uncertainty in determining which activities of state authorities, bodies of self-governing local communities and holders of public authority falls under state operations and which do not. The exact boundary has not yet been fully established, but it is essentially a matter of two concepts.
The first is the demarcation based on the purpose of the operations, as derived from the Regulation (EU) 2018/1139 (2018). The second is the demarcation based on the level of risk of the operations, which is also the underlying purpose of the Commission Implementing Regulation (EU) 2019/947 (2019).

Based on the current regulation of UAS at EU level, it may be more appropriate to apply the concept of level of risk, as this is also the concept on which civil rules and procedures for the operation of UAS are based. Therefore, if the level of risk is low enough to allow operations to be carried out in accordance with the general rules, these activities would not be classified as state operations. However, if the level of risk in the performance of certain tasks is higher and exceeds the limits of the general rules, these would be considered as state operations performed on the basis of specific rules and outside the framework of the general rules.

This concept of demarcation also makes sense in view of the diversity of tasks and powers of the various public authorities. Not all their tasks are so specific that they need to be governed by specific rules (Commission Implementing Regulation (EU) 2019/947, 2019). For example, if police officers wanted to use a UAS with a thermal imaging camera to search for a missing person in a large meadow area where no people are present, they could safely carry out the task under the civil procedure rules. However, it would be very different if police officers wanted to use a UAS with a video camera to monitor the safe execution of police procedures (e.g., apprehension of criminals) in a city center

where bystanders are present. Because of the higher level of risk, such use of UAS could be prohibited under civil law. In the exercise of the tasks and powers assigned to the police, they may be allowed to act in this way. However, these actions must be precisely defined by specific regulations.

Currently, the police have no specific regulations for this matter. Nevertheless, once the new Aviation Act comes into force, it will serve as the legal basis for regulating the flight of police UAS (Proposal of the new Aviation Act, 2021, p. 291).

The proposal for a new Decree on implementing Regulation (EU) (2020, p. 20) follows the concept of risk-based demarcation. Chapter III of this Decree provides a special regime for eligible entities, including state authorities, bodies of self-governing local communities and holders of public authority, to carry out UAS operations in accordance with general civil rules, while being granted certain exemptions from the national limitations within geographical zones. Operations will continue to comply with the provisions of Regulation (EU) 2019/947 and the limitations of national legislation. These operations tend to pose a lower level of risk than police activities and are therefore less likely to be classified as classical state operations (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 23).

The process of defining and limiting state operations raises the question of whether entities categorized as classical state operations can apply the general rules in this area even the if the Member State did not notify the validity of individual chapters of the regulation, on basis of an "opt-in" mechanism.

The current position resulting from the preparatory documents (Proposal of the new Decree on implementing Regulation (EU), 2022, p. 23) and expert discussions between the Ministry of Infrastructure and CAA representatives is that, as a general rule, any organization - whether it's the police, the army, or a public institution, can use civil regulations in the performance of its duties, as long as it complies with the rules and restrictions established by these regulations. However, entities that wish to exceed these restrictions must establish their own legal framework for carrying out such activities (Interview with A. M., 2023). They will only be authorized to implement such regulations once the new Aviation Act is enforced (Proposal of the new Aviation Act, 2021, p. 292).

Therefore, it is possible to classify state operations into three levels:

- Carrying out operations according to general guidelines.
- Carrying out operations in accordance with Chapter III of proposal for a new Decree on implementing Regulation (EU), which can only be carried out by eligible entities with minor predefined deviations from the general rules.
- Carrying out operations under the "classical" state operations is only applicable to entities that fall under the definition of Article 2(3) of the Regulation (EU) 2018/1139, if their operations exceed the limits set by the general rules. In such these cases, it is necessary for these entities to adopt specific rules to regulate the conduct of these operations (Interview with A.M., 2023).

The relatively vague definition of "state operations" in Regulation (EU) 2018/1139 (2018) therefore leaves Member States a wide discretion in this area, as it would be both unreasonable and impossible to foresee all circumstances or situations in individual Member States at the level of the European Union (Žaberl and Pozderec, 2014, p. 3). Member states are free to determine the rules for the implementation of state operations with UAS on an individual basis, taking into account national needs. At the same time, the above-mentioned Regulation also allows them to decide whether certain chapters of the Regulation shall also apply to entities performing state operations. As described above, the current legislation in the Republic of Slovenia contains certain inconsistencies. These inconsistencies will be largely resolved with the adoption of the new Aviation Act and the new Decree on implementing Regulation (EU). However, the implementation of the rules and the further development of UAS technology will show in practice whether there is a need for more detailed regulation in this area at the EU level.

Conclusion

The Chicago Convention already regulates state operations in aviation in a distinct manner. Further clarification of the difference between civil and state operations is provided by the Regulation (EU) 2018/1139 and its delegated and implementing acts. If Member States choose not to apply certain chapters of the Regulation to these activities, they must adopt specific national provisions. A large number of Member States have chosen to partially apply civil rules to state operations for reasons of economy and efficiency. Given that the Republic of Slovenia has not yet formally decided to do so, specific rules should be adopted.

The study reveals that the comprehensive aviation regulation in Slovenia does not adequately regulate police and military aviation, particularly with regards to providing a sufficient legal framework for governing other state operations. The explanatory notes and the practical application of the proposed Aviation Act make it evident that civil regulations serve as the basis for state operations. Nevertheless, derogations are allowed, but in most areas, they are not yet precisely defined. This suggests that an opt-in mechanism is in fact being used, which causes inconsistencies and prevents a clear demarcation in this area.

As mentioned above, the Regulation (EU) 2018/1139 contains a vague definition of state operations and it is up to the Member States to determine when certain activities of state authorities, bodies of self-governing local communities and holders of public authority are to be considered as state operations and when they are not.

After analyzing the relevant factors, it has become clear that demarcation based on the level of risk of the operations, which is the main focus of Commission Implementing Regulation (EU) 2019/947, is a more suitable approach than the delimitation based on the purpose of the operations, which is derived from the Regulation (EU) 2018/1139. Moreover, this choice of delimitation concept is logical in view of the different tasks and powers of the various national authorities. According to this concept, for state operations with UAS, where the level of risk is lower, the operations are carried out in accordance with the general rules. Nevertheless, if the level of risk in the performance of certain tasks is higher and exceeds the limits of the general rules, these deviations must be specified in specific rules.

The police, as a typical representative of state operation, do not currently have these specific regulations, but the new Aviation Act will provide a legal basis for further regulation. As mentioned above, the current regulations in the Republic of Slovenia contain inconsistencies in the definition of state operations. For some time now, not only entities falling under classic state operations, such as the police and military, but also other state authorities have been using UAS. Those need to be precisely defined and permitted deviations from civilian regulations need to be predetermined. These inconsistencies will be largely resolved with the adoption of the new Aviation Act and the new Decree on implementing Regulation (EU).

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