„FROM A BIRD'S EYE VIEW FOR THE BENEFIT OF THE PUBLIC ADMINISTRATION?!” - SOME RELEVANT ADMINISTRATIVE USES OF DRONES -

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ABSTRACT: *In addition to the smartphone applications, some specialized administrative bodies of the public administration have additional opportunities to facilitate the activities of the authorities. One of the important technical and development tools of the 20th century is the range of drones originally developed for military purposes. Undoubtedly, drones can be apostrophized as one of the most popular technical tools, based on the fact that in addition to their ever-expanding uses, they also provide excellent help for leisure activities and outdoor photo/video documentation. In addition, we can find their application in more and more fields of our Hungarian public administration system. In recent years, the use of drones has been successfully introduced in more and more administrative areas, which makes the work of the authorities more efficient and faster, which in many cases can lead to the saving of human lives too. From these areas of expertise, I have highlighted some of the good practices that I consider to be most important and may give some positive expressions to implement them in other fields.*

KEYWORDS*: drone; application; modernisation; special administrative field; info-communication.*
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1. INTRODUCTORY THOUGHTS

Nowadays, in my opinion, in addition to smartphone applications, some specialized administrative bodies of the Hungarian or other EU member states have additional opportunities to facilitate the activities of the authorities with other excellent tools. In today's news about the war between Ukraine and Russia, we often hear about the use of drones, but unfortunately, here, due to military considerations, in connection with the destruction of enemy units. In my opinion, drones can undoubtedly be regarded as one of the most popular technical devices, based on the fact that, in addition to their ever-widening range of uses, they also provide excellent assistance for leisure activities and outdoor photo/video documentation, all at an affordable price. The latter statement is supported by the fact that drones suitable for photography can be purchased for 30,000.

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from HUF, while more serious tools, even suitable for professional use, will be much more expensive, often with a purchase price of more than HUF 10 million. I am aware that there are dangers to the use of drones, which I do not want to go into in detail in this study, because I want to present the positive effects and benefits that it can provide for the public administration (Harkai-Felföldi, 2020). I also do not want to deal with civil law (liability) and data protection issues arising during the use of the drone. During my research, I considered the drone(s) as a tool, the use of which in certain administrative areas can greatly contribute to making the work of the given authority more efficient and effective. It is a fact that these devices are already being "deployed" in many places, which I will refer to as a good example.

The legal regulation is currently still in a developing and formative phase in this respect, but I consider that the use of drones can definitely be one of the most useful tools soon (or even today) in terms of the modernization of public administration (Sonnenwend, 2018),, which I wish with the good practice already implemented in some prominent specialized administrations illustrate and set as an example to be followed by bodies in other fields.

2. ABOUT DRONES IN GENERAL

Regarding the technology itself, we can say that their availability is getting closer and closer, since their prices are rapidly decreasing, while as a result of the available technical background, drones with a very long range[1] and equipment are already available on the market. These products are characterized by high-quality image recording devices, long-range, built-in GPS and ever-increasing load capacity.

We have to distinguish between flying models and drones, which are easily distinguishable from each other when viewed from the side. The flying model and the drone are essentially similar only in that both are controlled from the ground by the controller. In the case of the former, human control is necessary throughout, while in the case of the drone, this is not a condition during the entire duration of the flight, as thanks to more advanced control solutions, it can independently approach and even follow - moving - persons or objects.

An important difference is that, based on the currently valid legislation, the models may only be flown outside inhabited areas, because if the plane loses its signal, it may even fall to the ground, causing damage to people or property. If the same phenomenon - i.e. the loss of the signal between the control unit and the device - occurs, then an independent flight control "protocol" is activated, which can return the structure to the starting point without the intervention of the person/driver on the ground. It is a clearly visible trend that the number of drones in the world has multiplied in the last few years. According to estimates, the number of drone users in Hungary already exceeds 100,000, thanks to which the annual number of drone flights may reach 10 million by 2025, which is approx. It

[1] This range varies by model, but versions with a range of 2-3 kilometers can be said to be almost average, and versions with a range of 5-6 kilometers are not rare either.

means 27 thousand[2]. During these flights, however, prior permission must be requested to drive and use the airspace (Bakó,2020). [3]

According to polls, so far many people have played the rules[4] by saying that their structure is not a drone, but a toy. Machines weighing less than 120 grams (unmanned aerial vehicles not equipped with a data recording device) are toys according to the law and can therefore be used freely. They do not have a device suitable for recording images, and they can move away from the operator at a maximum of 100m.

It is important to point out that liability insurance must be taken out for these machines as of June 1, 2020[5], in case the drone causes any accidents. To use them, you must read study material on the website of the aviation authority, for which the authority automatically issues a certificate. However, this will only be enough if the pilot uses the drone outside. In order to fly a drone indoors, it is mandatory to attend a traditional course and obtain a driver's license.

In addition, it is also necessary to request an airspace use permit, which - thanks to the new rules - can also be solved with a mobile application. Applications are recorded and reviewed. If everything is correct, the legal airspace use permit can be obtained in 30 minutes[6].

It is important, but if we think about it more, it is also reasonable that the national defence, the Police[7], TEK, and disaster management are also notified of these. Of course, the application was also developed for iOS and Android[8]. In addition, the user can access live airspace data and meteorological information, which will be particularly useful for the safe flying and driving of drones.

XCVII of 1995 on air transport. Act (hereinafter: Lt.), as well as Act 392/2016 on the designation of the military aviation authority. (XII. 5.) Government Decree (hereinafter referred to as Government Decree) contains provisions regarding aviation tasks to be performed with unmanned aerial vehicles[9]. It is important to highlight that, depending on the specific airspace permit and the location of the operation, in addition to obtaining the restricted airspace permit, the aviation activity can only be started after a notification has

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[2] Source: https://hirado.hu/tudomany-high-tech/high-tech/cikk/2021/03/30/ahogy-no-a-dronok-szama-az-egen-ugy-valik-egyre-kockazatosabba-a-repules, (June 11.,2022.)

[3] Gábor BAKÓ, co-chairman of the Aerial Mapping and Remote Sensing Association (ACRSA), has this to say about the legal regulation:,, I think this area is not properly regulated, and many people abuse its shortcomings." - He told. This means that what is allowed and what is not is revealed from a joint reading of several pieces of legislation. It's so complicated that it has deterred many from legally using a drone. The Association also conducted a public opinion survey in order to find out which factors make aerial photography by drone difficult. During the investigation, everyone saw time as the main hindering factor. If it is not possible to obtain a permit on an online interface within two days, the law will not be complied with. Therefore, time is the first factor to change. The best solution to facilitate the request for a license would be a free online interface that is state-owned and not tied to any company. 2020, Budapest

[4] Act XCVII from1995 on air transport. (hereinafter: Lt.) on the basis of § 71. point 50.

[5] 39/2001. (III. 5.) Government decree on compulsory aviation liability insurance

[6] See about this: Government Decree 4/1998.(I.16.) on the use of Hungarian airspace

[7] See on this: 13/2022. (IV. 7.) ORFK instruction on tasks related to the use of unmanned state aircraft

[8] See more about this: https://mydronespace.hu, June 13, 2022.

9 See also: 6/2021. (II. 5.) ITM Decree on the designation of organizations conducting the training and testing of remote pilots, the detailed rules for the training and testing of remote pilots, and the fee for participating in the exam

been made to the aviation authority. Sports and private use are exempt from the notification obligation.

The aviation authority will provide electronic feedback on the registration of the notification, the activity can only be started after that. If the notification is incomplete, the aviation authority will refuse registration, or if the aviation authority becomes aware that the activity is not being carried out following the contents of the notification, it will prohibit the performance of the activity.

In accordance with § 1 of the Government Decree, the minister responsible for national defence will act as the military aviation authority according to § 3 (2) of the Lt. after January 1, 2017.

Based on the regulations governing the operational procedures of the Ministry of National Defence, military aviation authority tasks - including tasks related to the designation of occasional airspace necessary for carrying out operations with unmanned aerial vehicles - are performed by the State Aviation Department of the Ministry of National Defence.

To this can be added the data protection issues that arise during the production of images and audio recordings. Among other things, it is due to this that on June 11, 2019, the European Union's new drone rule was adopted[10]. Accordingly, the common European rules for drones have been published, this is Commission Regulation (EU) 2019/947 of 24 May 2019. implementing regulation on rules and procedures for unmanned aerial vehicle operations to ensure safe drone operations throughout the EU. Among other things, the rules help to protect the safety and privacy of EU citizens, while allowing the free flow of drones (as goods) and ensuring a level playing field. "Europe will be the first region in the world to have a comprehensive set of regulations to ensure the safe and sustainable operation of drones for both commercial and recreational activities. Common rules will help promote investment, innovation and growth in this promising sector. [11]" - said Patrick Ky, director of EASA[12]. I believe that this also proves that the EU has recognized the wide-ranging (among other things) potential of drones for public administration, for which, however, it is necessary to provide an appropriate legislative background - in Hungary as well as in the EU.

The newly created common rules help drone operators, be they professional or recreational users, to understand what is allowed in the regulation[13]. At the same time, it also allows them to be used cross-border within the Union, once the operators of the drones have obtained a license in the state of registration. This means they can operate their drones seamlessly when travelling through the EU or when developing a drone business in Europe. The new rules also contain technical and operational requirements, which can be summarized as follows:

According to the adopted additional implementing regulation, EU member states must ensure the following:

1. Regardless of their weight, drones must be provided with a unique identifier and registered with the competent authority.

[10] See more: https://infostart.hu/kulfold/2019/05/24/megvan-az-unios-dronrendelet, September 30, 2021.
[11] https://www.easa.europa.eu/newsroom-and-events/press-releases/eu-wide-rules-drones-published,(October 2, 2021.)
[12] European Union Aviation Safety Agency
[13] See more: https://dronerules.eu/hu/recreational/regulations, (June 11.,2022.)

2. Starting in 2020, the operators must also be identifiable, because devices suitable for flying can pose a significant threat to people, privacy, and the environment, as well as cause damage to property. This provision also applies to all drones regardless of weight.

3. Operators of drones weighing less than 25 kilograms may, under certain conditions, fly their devices without prior permission, if the drone does not fly higher than 120 meters and under all circumstances, it flies in the operator's field of vision, away from people.

4. Member States must define so-called flight zones where drones can be used - in accordance with the rules determined by their weight. Areas that drones cannot fly into may include airports, their environs, or city centres.

5. The capabilities (specifications for components, assemblies) that the drone must have in order to fly safely are defined

The unique identification[14] of new drones allows authorities to track a specific drone if necessary. This will help prevent incidents like those at Gatwick and Heathrow in 2018. On the other hand, the rules apply to each type of operation, from operations without prior authorization to rules for certified aircraft and operators, as well as minimum remote control training requirements. The decrees themselves entered into force 20 days after their promulgation, but after 1 year, the so-called users were given a grace period for application, and member states were also allowed to prepare for the enforcement of the legislation. According to this, the new rules replaced the existing national rules of the member states as of June 2020.

Regardless of the current development of the regulation, it can be seen that the number of areas of use is - continuously - expanding, as a result of which engineers are increasingly able to develop technical parameters and necessary software and applications that meet the needs. Thanks to the long-range (several kilometres during a flight) and the qualitative development of image recording devices and optics, the devices can now be used perfectly for documenting various natural phenomena, sports events, and events. Additional uses can be, for example, the testing of air quality with the help of the installation of the appropriate sensors, as well as the analysis and mapping of locations and areas where it would otherwise be risky to carry out tests in other ways (e.g. industrial accidents, sites of natural disasters). In addition, it must be emphasized that they can be successfully used for remote monitoring of areas that are difficult to access, or even for monitoring the condition of facilities (e.g. power plants, factories, dams).

It is an interesting fact that already in 2013, the Amazon online store launched a drone test as a kind of pilot program, in the framework of which the packages waiting for delivery were tested in practice with eight-rotor drones. Their newly created service was named Prime Air. According to the original plans, a maximum of 2.3 kg of goods could be delivered to the customer within 30 minutes. In March 2015, the program received the necessary permits from the US Federal Aviation Administration (FAA) to begin testing package delivery drones[15]. A similar idea was the trial operation of the Swiss state post, where they want to make the delivery of mail more efficient with the devices.

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[14] See more: https://hvg.hu/tudomany/20190525_europai_unios_dronszabalyok_2020_eu_europai_bizottsag_dronhasznalat_dron_regisztralas, (June 11.,2022.)

[15]See:http://www.ma.hu/tudomany/244261/Az_Amazon_megkapta_az_engedelyt_a_csomagszallito_dronok_tesztelesere, (June 11.,2022.)

Thanks to their affordable prices and compact size, drones are also capable of flying in places where machines controlled by humans - in a machine body - would not be able to. Examples of this can be the use of caving, and the examination of natural formations - craters of active volcanoes, geysers, and glaciers.

The technology allows mapping not only distances, but also heights. This can be especially useful for biologists, for example for documenting high-altitude ecosystems (e.g. observing flora and fauna - even birds' nests). The rotors, which keep them in the air, often prevent the observation of the living world due to the noise it creates, similar to "buzzing". However, this can also have a positive effect. This can even be used specifically as a wildlife deterrent, in places where it is increasingly challenging (e.g. for park caretakers, farmers) due to the damage caused by living creatures and birds (e.g. chewing damage or simply the accumulation of excrement).

These tools have already been used in Hungary to map cultural assets, as it seems that they can also be used for archaeological applications. This is evidenced by the fact that "the MTA BTK Institute of Archeology recently acquired a magnetometer that shows small changes in the magnetic field compared to the environment, as well as a professional drone, which was used on several excavations. The drone played a major role in the excavation of a detail of a columned building with a gable roof from the Neolithic period on the border of Tolna-Mözs settlement. [16]

In the following, I would like to briefly present some special application opportunities in the field of professional administration.

3. USE FOR CONSTRUCTION ADMINISTRATION PURPOSES

In connection with the development and modernization of construction management, the need to exploit the opportunities provided by drones has also arisen. Accordingly, a number of developments have been started in the past few years, the purpose of which is to develop applications and software for which drones can provide data. Due to their peculiarity, as I explained earlier, they provide the opportunity to overcome many physical obstacles in a relatively short time.[17]

Thanks to the developments, it is possible to equip the drones with so-called laser scanners, which are thus able to scan buildings even at a long-range, thus creating a digital image of them up to three-dimensional. This solution can serve the builder if he wants to control the construction process. Analyzing the incoming data, it can be revealed almost immediately if there are any deviations from the plans of the building, either by accident or on purpose. In that case, the builder still has the opportunity to eliminate the unlawful condition, which may even result in demolition. In addition to the builder, the task of the drone can also be the additional assessment and inspection of construction sites, the possibility of which is being used in practice these days.

An important circumstance regarding the mapping of buildings in settlements by drones is that the data obtained from aerial photographs (even with very high-resolution optics) is less detailed than a digital image obtained with the help of a drone equipped with a laser scanner. The taken aerial photograph indeed provides an insight into the areas

[16] See:http://mta.hu/tudomany_hirei/regeszek-dronnal-es-magnetometerrel-106834 (June 11.,2022.)
[17] See: http://www.eletestudomany.hu/dronok_es_epuletek, (June 11.,2022.)

between the houses (also) that are not visible from the street, but the size of the buildings can only be inferred from the top view, which in most cases is not sufficiently accurate[18]. Added to this is the fact that the data collected from the moving drone covers a certain part of the buildings, so often not the area behind it. On the other hand, if we equip a drone with a laser (probing) scanner, we will have a significantly wider range of data at our disposal. The huge advantage of this modern technology is that, as a result, the area and building measured by the scanner can be examined online in real-time[19].

Another important and even relatively common field of use could be the external survey and three-dimensional mapping of special buildings. It could assist with the survey of ruins, buildings with poor facades, castles, monuments, castles, manors and other structures, where the obtained data can be viewed at any time and thus used - after obtaining the necessary permits - for reconstruction, rebuilding or even demolition.

4. USE FOR POLICE ADMINISTRATION PURPOSES

In the toolbox of law enforcement innovations, the future is represented here as well – perhaps not by chance – by drones. "This is the future and the police are open to the use of new technical tools. With the drones, the police could take photos of new surfaces, and then we could easily analyze the materials recorded from a bird's eye view." - Győr police captain Attila Váczi, police lieutenant colonel, said about drones in the IV. At the International Asset Protection Conference at the Chamber headquarters in Győr in 2016[20]. The number of areas of applicability seems quite wide here as well. The most important of these can be (without claiming to be exhaustive):

- recording the intact crime scenes,
- it would be easier to find the hiding places and abandoned objects of the chased person in hot pursuit, thanks to which the work would be speeded up,
- preventing individual crimes by monitoring the area and the citizens staying at the event when securing events,
- with the help of video and audio recordings of border surveillance, as well as with the help of thermal camera detectors, people's movements can be detected even at night, even from a great distance,
- support for accident data recording in the case of traffic safety use,
- speed measurement and detection of other traffic violations,
- detection of dangerous events in the vicinity of populated areas, e.g. inland wildlife appearance.

It is also clear from the list that there is a serious potential for the use of drones within the organizational system of the police, which can be used both in cities and in the countryside (Szewc,2021).

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[18] See:http://www.eletestudomany.hu/dronok_es_epuletek, (June 11.,2022.)

[19] Note: If, during our own construction, we need the height of the neighboring buildings to level our future building, in that case we can easily obtain this by measuring with a drone, saving ourselves from unnecessary queuing at the competent office.

[20]See: http://www.kisalfold.hu/gyori_hirek/ez_a_jovo_dronok_a_bunuldozesben_ mindennapokban_-_bemutato_gyorben/2498502/, (June 11.,2022.)

5. USE FOR FORESTRY – AGRICULTURAL ADMINISTRATION AND MANAGEMENT PURPOSES

We can say that the use of drones in these areas (equipped with high-resolution cameras or sensors) can bridge the gap between ground-based field surveys and expensive bird's-eye surveys from manned helicopters or aeroplanes.

With their use, these unmanned aerial vehicles make it possible to carry out inventory tasks and measurements in forest and agricultural areas more precisely than ever before, and in an increased scope. In the case of these two fields of expertise (forestry and agriculture), a key role will be played by the low flight altitude and the ability to adapt well to weather conditions.

One of its main applications is the mapping of forests, fields and open areas, where the resulting images can be used almost immediately for a wide range of analyzes and applications, such as assessing the health of trees or other plants.

These may include the following cases:

- acceleration of official inspections, within the framework of which the approved forestry
- control of compliance with schedules (have the administrative
- plans adopted by bodies),
- detection of illegal logging activity,
- early detection and evaluation of pest infestation,
- determining the moisture content, and the level of dead wood.
- examination of the state of the tree crowns,
- analysis of water, snow, ice, storm and fire damage,
- determining the location and extent of wildlife damage.

Another important use in our country can be the monitoring of climate change. This is an area where the forestry profession, supported by digital information, can provide decisively influential information for political decision-makers.

In the last couple of years, the use for various agricultural purposes has also gained special importance, in the framework of which, thanks to the level of development of the devices and software, they offer the possibility of application from monitoring the growth of crops to the performance of spraying tasks, even during the inspection of agricultural areas. Of course, the use of drones in agricultural areas has many controversial points, but a significant part of them is based on the reliability of the measurements. However, we can establish a few facts without a doubt:

1. Information collected by an agricultural drone can show which areas are healthier and where the plants are weaker. Based on the data collected in this way, the farmer can make modifications and interventions.

2. If we equip a drone with a thermal camera, it can even detect leaks in the irrigation system and even determine which plants are getting too little or too much water.

3. With a drone, we can approach an area of up to three square centimeters, as a result, it may be able to count each plant individually, which could have been a tiring and cumbersome task before, but it can also provide important information about the expected harvest.

4. There is automated drone software that automatically calculates which flight path provides the greatest coverage over the cultivated area, and can even control the device independently from takeoff to landing.

5. Drones may be able to survey the fields on a weekly, daily, or even hourly basis, so they can even create a series of images that can be arranged in a row, from which it can be determined how the state of the crop changes from time to time. This allows us to detect any changes immediately and to react more quickly to emerging problems.

6. According to the calculations of the International Association of Driverless Vehicles (AUVSI), in the not-too-distant future, farmers will own 80 per cent of the commercial drone market.[21]

In addition to this specifically helping and supporting use for farmers, in my opinion, the authorities should also introduce these tools into their procedural tools. As I indicated earlier, pilot training is currently taking place within the county government offices, where one of the areas of use will be precisely the agricultural sector, according to the hopes of the staff and the authorities. Within this framework, the tools could be successfully used in the performance of the following official duties:

- on-site inspections for the mapping of ragweed (the advantage is that large areas can be inspected in a short time, which can also form the basis of subsequent fines from the authorities),
- in connection with the control of state or EU subsidies (agricultural, land-based), whether the recipient has used the subsidy properly,
- to comply with the rules for the use of agricultural land, during the control of the fulfilment of the prescribed cultivation obligations,
- to establish measurements and boundary points during the division of land.

I think it is clear from all of this that perhaps these two areas of professional administration can be the breaking point where the authorities can achieve - and are already achieving - the greatest results thanks to the use of these tools.

6. USE IN THE FIELD OF HEALTH ADMINISTRATION

The use of drones can be an important element of the use of modern technological tools in health administration. Perhaps one of the most special, but at the same time, most socially useful uses of this could be the project[22] that Alec Momont first developed, as a prototype of the first aid drone. The essence of this is that the drone is equipped with a defibrillator, which can be deployed in areas that cannot be reached in minutes with other vehicles. The developed device has quite serious features, as it has a load capacity of approximately four kilograms and can cover an area of twelve square kilometres with approx. it reaches in one minute, thereby increasing the patient's chances of survival to an unprecedented extent compared to the traditional, much slower means of delivery. Obviously, the question arises here, how to use the device, and how to save lives with it. Thanks to the development of technology, it is also possible to carry out life-saving measures remotely in real-time, following instructions given by a specialist. Documented

[21]See: https://www.agroinform.hu/gazdaelet/a-mezogazdasagban-is-terjed-a-dron-orulet-32591-001 (June 11.,2022.)

[22]See: https://index.hu/tech/2014/10/30/eletet_menthet_a_defibrillator_dron/ (June 11.,2022.)

life-saving successes are also associated with the technology. A case in the USA is worth mentioning, during which local disaster management and fire department staff rescued two young people caught in a flood. With the help of a drone managed by the fire department, it was possible to survey the terrain, then use the device to drop rope and life jackets, and finally carry out a successful rescue.[23]

Disaster management staff have already deployed drones in Hungary as well. The Baranya County Special Rescuers tried to find a man missing in a mine with the help of a drone. In addition to the manpower search, they used the possibilities offered by the drone and scanned the area of the reeds of the lake from a height of a few meters from the shore, which was monitored by the disaster prevention staff standing on the shore through a screen.[24]

Recently, the investigation of the application possibilities of drones has arisen - also for disaster prevention - in the detection of waste and illegal outdoor burning. Drones could not only collect visual data, but if equipped with suitable sensors, they could also collect air quality data, which in many cases could help the work of the authorities and the implementation of measures.[25]

When equipped with a defibrillator, we can speak of a device suitable for saving lives, which, thanks to its technical characteristics, can be used excellently even in hard-to-reach places.

Thanks to the results of a Swiss experiment[26], to process laboratory samples faster, drones are also used to transport not too heavy samples between different healthcare institutions[27]. Their delivery does not require too much strength and energy, but speed is necessary, in many cases lives can depend on how quickly a result arrives. This is also why we can consider the medical use of drones as a rather innovative solution, which can be used to avoid the loss of time caused by urban traffic and especially traffic jams. In addition to samples, it is of course also possible to deliver blood, medicines or other materials related to health care over long distances[28].

For those who live in a less urbanized area, getting to a doctor and medicine can be difficult. This is why the continuous development and testing of drones in this area are important since by using them, the quality of the health service and the efficiency of its management can be improved, as well as its perception by society, realizing the objectives of the concept of the Good State.

Over the past few years, the coronavirus has also demonstrated the extent to which technology can help prevent, identify and collect data from health crises and pandemics,

[23]See more: https://www.origo.hu/techbazis/20150703-dronokkal-mentettek-eletet-tuzoltok-dron-kopter-aradas.html, (June 11.,2022)
[24]See more: https://hvg.hu/itthon/20150413_Dronnal_keresnek_egy_eltunt_embert_Barany (June 18, 2022.)
[25]See: https://www.borsod24.com/2020/02/21/dronnal-figyelnek-a-sajo-menti-illegalis-egeteseket/ (June 11., 2022.)
[26] Between March 2017. – October 2017..
[27]See: http://hvg.hu/tudomany/20170331_korhazi_dron_egeszsegugyi_szallitas_laborminta_gyors _szallitasa_svajc_lugano (June 11.,2022.)
[28] A drone has transported chilled human blood more than 250 kilometers across the hot Arizona desert – setting a record for transporting biological samples by remotely operated vehicle. The blood was still in good condition after the three-hour transport, which means that the role of drones in rural medicine can even be life-saving. http://www.origo.hu/gazdasag/20170921-dronnal-szallitottak-emberi-vermintat-sikeresen.html (June 11.,2022.)

in which, in addition to specially designed mobile applications (e.g. Virus Radar, Quarantine App, etc.) drones can also help in the fight against the epidemic.[29]

7. CLOSING THOUGHTS

Of course, the areas of use I have listed - not nearly completely - do not give a 100% impression of how many areas these tools can be relevant to. One of them explained that new and new areas are practically constantly emerging where devices can be put to excellent use at low cost and without risking human life. In fact, thata nowadays, there more and more occassion, when the authorities tr to do everything in order to ban or prevent the use of private drones for reconnaissance and photo/video recording at certain events (e.g. public holidays ceremonies, …etc.) either for hobby or economic purposes (e.g. media appearance). Various drone blocking and control devices, as well as so-called drone interceptor drones, are now available for this purpose, to prevent the state insterests. One of the interesting consequences of their unquestionable popularity is the continuous development trend, and the fact that their prices are constantly decreasing, while their range and equipment are constantly increasing. It will be a very important circumstance in the long run how receptive society will be to these tools and how ready it will be to exploit the potential opportunities inherent in them. We live in the days of open debates regarding the usability of drones, where many people voice their fear when they try to limit or even ban the use of these devices citing data protection rights[30]. I will not deal with the private law aspect of drone use during this research[31], the priority is still the examination of public administration modernization, which serves the goals of society as a whole, as opposed to the potential violation of the privacy rights of an individual. Of course, I am also aware that a high level of social acceptance and a suitable legal environment are necessary for a well-functioning and practical usability, in which individual aspects of private law must also play a role. In my opinion, the presented good practices can serve as excellent evidence and an example to be followed for other areas of professional administration, that

[29] See more: RESTÁS Ágoston: Drone Applications Fighting COVID-19 Pandemic—Towards Good Practices. *Drones* 6,. 2022/1,. 15. https://www.mdpi.com/2504-446X/6/1/15/htm, (June 11.,2022.)

[30] ,, In cartography, personal rights do not affect the request for permission at all. Half a centimeter per pixel is the highest resolution that can be achieved. In this resolution, a person is as visible as if someone's face were cut out in a police photo. The persons cannot be recognized, so no personal rights issues arise. However, the one-by-one pictures that are taken from a drone do. It shouldn't be viewed differently than a camera. We see no difference between someone on the ground leaning over the fence and filming or filming from a drone. Both are equally likely to be detected. Ethically, the same legislation applies to it, for example media law, personal rights." Conversation with Gábor Bakó, co-chairman of the Aerial Mapping and Remote Sensing Association (ACRSA) - University of Óbuda - Aerial Photography Day (June 04.,2022.)

[31] See more about these: Réka PUSZTAHELYI: Reflections on civil liability for damages caused by unmanned aircrafts. Zbornik radova pravni fakultet (Novi Sad) (0550-2179 2406-1255): 2019/1., 311-326., :https://aseestant.ceon.rs/index.php/zrpfns/article/view/21513, and Réka PUSZTAHELYI - STEFÁN Ibolya: Strict liability for pecuniary and non-pecuniary damage arising from the use of drones. Publicationes Universitatis Miskolcinensis, Sectio Juridica et Politica 2019/ 1., 449–469.
https://matarka.hu/koz/ISSN_0866-6032/tomus_37_no_1_2019/ISSN_0866-6032_tomus_37_no_1_2019_449-469.pdf, June 15, 2022.

it is indeed necessary to use modern tools as widely as possible, especially in this case drones.

REFERENCES

Articles:

HARKAI Dorina–FELFÖLDI Péter: A pilóta nélküli légijárművek alkalmazási lehetőségei a közszolgálatban. In: Birkner Zoltán, et. al. (Szerk.): *IV. Turizmus és Biztonság Nemzetközi Tudományos Konferencia* – Tanulmánykötet. Pannon Egyetem, Nagykanizsa, 2020, 130-143.

HERDEL, Viviane, et al.: *Public drone: Attitude towards drone capabilities in various contexts*. Proceedings of the 23rd International Conference on Mobile Human-Computer Interaction. 2021.

PUSZTAHELYI Réka: Reflections On Civil Liability For Damages Caused By Unmanned Aircrafts. *Zbornik Radova Pravni Fakultet* (Novi Sad) (0550-2179 2406-1255): 2019/1., 311-326.

PUSZTAHELYI Réka - STEFÁN Ibolya: Szigorú felelősség a drónok használata során felmerülő vagyoni és nem vagyoni sérelemért. *Publicationes Universitatis Miskolcinensis, Sectio Juridica et Politica* 2019/1. 449-469.

RESTÁS Ágoston: Drone Applications Fighting COVID-19 Pandemic—Towards Good Practices. *Drones* 2022/1., 15.

SONNEWEND Gyula: A drónok repülésének jogi szabályozása hazai és nemzetközi viszonylatokban. Nemzeti Közszolgálati Egyetem Hadtudományi és Honvédtisztképző Kar, Szolnok, 2018.

SZEWC, Tomasz: Communication in the third dimension. Legal aspects of using drones in the city area. *Scientific papers of Silesioin University of Technology, Organizaion and Management Series,. No. 151. 682-689. oldal, 2021*. Silesian University of Technology Publishing House

SZABÓ Balázs: *A közigazgatás technikai- technológiai fejlesztése a XXI. század első két évtizedében*. PhD disszertáció, Miskolci Egyetem, 2020.

Szabó Balázs: Mobile applications for administrative purpose in the EU and V4 - with special regard to document management. *European Studies: the review of European law economics and politics* 2019/1., 106-122.

Legal Sources:

947/2019 EU Bizottsági rendelet a Pilóta nélküli légi járművekről szóló 945/2019 EU Bizottsági rendelet végrehajtásáról.

1995. CXVII. törvény a légiközlekedésről

13/2022. (IV. 7.) ORFK utasítás a pilóta nélküli állami légijárművek alkalmazásával kapcsolatos feladatokról

6/2021. (II. 5.) ITM rendelet

Internet pages:

https://hirado.hu/tudomany-high-tech/high-tech/cikk/2021/03/30/ahogy-no-a-dronok-szama-az-egen-ugy-valik-egyre-kockazatosabba-a-repules http://erdo-mezo.hu/2017/02/15/juliusban-lephet-ervenybe-az-uj-magyar-drontorveny/,

https://eur-lex.europa.eu/legal-content/HU/TXT/HTML/?uri=CELEX:32018R1139&from=EN#d1e3686-1-1,
https://www.easa.europa.eu/newsroom-and-events/press-releases/eu-wide-rules-drones-published,
https://dronerules.eu/hu/recreational/regulations,
https://hvg.hu/tudomany/20190525_europai_unios_dronszabalyok_2020_eu_europai_bizottsag_dronhasznalat_dron_regisztralas,
http://www.ma.hu/tudomany/244261/Az_Amazon_megkapta_az_engedelyt_a_csomagszallito_dronok_tesztelesere,
http://www.origo.hu/egeszseg/szivderito/20170615-hogyan-mukodik-hogyan-ad-le-sokkot-es-ment-eletet-a-defibrillator-hirtelen-szivhalal-eseten.html,
http://mta.hu/tudomany_hirei/regeszek-dronnal-es-magnetometerrel-106834
https://index.hu/tech/2014/10/30/eletet_menthet_a_defibrillator_dron/
https://www.origo.hu/techbazis/20150703-dronokkal-mentettek-eletet-tuzoltok-dron-kopter-aradas.html
https://hvg.hu/itthon/20150413_Dronnal_keresnek_egy_eltunt_embert_Barany,
https://www.borsod24.com/2020/02/21/dronnal-figyelnek-a-sajo-menti-illegalis-egeteseket/,
http://www.eletestudomany.hu/dronok_es_epuletek,
http://www.kisalfold.hu/gyori_hirek/ez_a_jovo_dronok_a_bunuldozesben_mindennapokban_- _bemutato_gyorben/2498502/,
https://www.minap.hu/cikk/dront-bevetettek-rendorok,
https://infostart.hu/belfold/2022/04/07/dronnal-figyelik-a-balaton-parti-vaddisznok-mozgasat-video
https://www.agroinform.hu/gazdaelet/a-mezogazdasagban-is-terjed-a-dron-orulet-32591-00,