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# THE ROLE OF TATTOOS IN PRISON COMMUNITY

*With their roots set deep in the tradition of many different cultures, carrying the mark of social stigma throughout the early ages of modern prison systems development, and finally, becoming fashion accessories inseparable from modern pop culture, tattoos obtain a rather specific meaning if made behind the prison walls. There are several reasons for that: their symbolism, the roles they have inside the prison community, their relation to criminal behaviour, their impact on offender's re-socialization and re-offending as well as the health risks they cause. Having in mind the worldwide presence of this phenomenon and its local manifestations, the authors of this paper analyse its socio-genesis, taxonomy, functions and consequences as well as potential responses aimed at mitigating the negative impacts of prison tattoos on the life, health and reintegration of offenders.*

**Key Words: tattoos, prisons, prisoners, recidivism, re-socialisation**

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## 1. Introduction – Socio-genesis of Prison Tattoos

The term "tattooing" refers to inscribing one's skin with lasting patterns and designs (Deter-Wolf *et al.,* 2016: 20) by permanently inserting pigment into punctures in the skin with the help of specially designed needles (Radović, Đurđević, 2017:194). The word "tattoo" was used for the first time as a noun and a verb in the 18th century in the diary of captain James Cook, who took its original form "tatu" from the Tahitian and Samoan languages while sailing across Polynesia (Omelchenko, Karpenko, Volkodav, 2019). Although tattoos are sometimes categorized as an exotic and recent phenomenon in Europe, there are well known ancient historic examples of this practice, as well as ethnographic ones which are still present (among Catholics in Bosnia for example) (Truhelka, 1986).

In spite of the fact that the word „tattoo" is relatively new, tattoos are considered the oldest and the most wide-spread form of body modification (Awofeso, 2002: 162). Archaeological and historical findings suggest that that the first tattoos were made around 12000 years ago (Takač, Pilija, 2012: 249). Numerous ancient mummified tattooed human bodies recovered from all over the world confirm that tattooing was practised at every continent apart from Antarctica as an essential element of Indigenous people's cultural fabric (Deter-Wolf *et al.,* 2016) as well as a component of religious rites (Hellard, Aitken, Hocking, 2007: 477). The role of Indigenous tattoos varied, depending on the specific culture and time-frame, including: demonstrating entry into adulthood, reflecting social status, confirming material success, showing lineage and belonging to a group, directing supernatural forces etc. (Deter-Wolf *et al.,* 2016).

In the Judeo-Christian context, Cain, the first murderer was marked by God on his forehead. Although the book of Genesis doesn't specify what exactly was the nature of that marking, visual stigmas have strong ties with criminality in the very foundations of western culture. In some historic frames, social stigma of crime and bodily stigma in the form of tattoo were merged together in the practice of enforced marking of criminals and prisoners. In ancient Greece and Rome, tattooing was applied as a means to mark slaves, deserters and perpetrators of criminal offences (McCarron, 2008: 88). Throughout the early years of modern prison systems, custodial authorities used tattoos to stigmatize and degrade the convicts (Awofeso, 2002: 162). These tattoos were imposed on the offender by the state to signify judgement, ownership, and the impossibility of rehabilitation (McCarron, 2008: 91). During the late 18th century, thieves in France bore a lily with the letter "V" for *voleur* on their shoulders, and similar practices were applied in the Russian empire (Goscilo, 2012: 209). Moreover, prisoners that were transported by ships from the United Kingdom to Australia were forcibly tattooed

for the purpose of surveillance and humiliation (Caplan, 2000, in Awofeso, 2002: 162). Compulsory tattooing of prisoners in the Nazi death camps is the most recent and the most infamous case when tattoos were used as measures of codification aimed at treating individuals like numbers that belonged to the state not only in life but in death as well (McCarron, 2008: 96).

As the state was losing legitimate mandate to tattoo the convicted persons, their desire to tattoo themselves was growing. For example, as compulsory tattooing was abolished in the French penal system in the 19th century, voluntary tattooing among prisoners rapidly increased (McCarron, 2008: 81). A similar situation occurred in Australia, where the shift from compulsory imprint of tattoos on prisoners to voluntarily tattooing among prisoners was apparent from the early convict era (Awofeso, 2002: 162). Enforced tattooing of convicts by prison authorities is currently forbidden in the majority of modern prison systems, but prisoners continue tattooing themselves voluntarily and with a lot of enthusiasm in most prisons of the Western world (Awofeso, 2002: 163). Paradoxically, prisoners appropriated and altered marks that were originally invented to shame them.

For the purpose of this paper, the term "prison tattoo" is not limited only to the tattoos voluntarily made by prisoners behind the prison walls, but it includes also the tattoos professionally done outside prison that are "privileged by the narrative gaze within texts set in prison" (McCarron, 2008: 87). Apart from belonging to the persons who are serving or have served the prison sentence, these tattoos share another common feature – their meaning and message can somehow be linked either to the crime committed by or to the punishment imposed on their owners. So, regardless of the actual location and time of their creation, these tattoos have a deep and unique symbolic continuance that surpasses the time and spatial frameworks of any court judgement or penitentiary institution.

For past two decades, the society's perception of tattooing and tattoos has undergone substantial changes (Dey, Das, 2017). Once being linked to non-mainstream groups (Dey, Das, 2017), nowadays tattooing represents a part of popular culture and is rather common among the general population, particularly in developed countries (Hellard, Aitken, Hocking, 2007: 477). From socio-historical perspective, tattoos used to have expressive functions in the past (marking tribal, religious or professional affiliation), while nowadays they tend to have cosmetic use. Still, in some cases they can retain symbolism of group membership even today, and prison tattoos are a clear example (Katsos *et. al*, 2018: 21). The fact that modern society does not perceive tattoos as the marks of stigma but rather as fashion accessories only emphasizes the distinction between regular, legally made tattoos and prison tattoos as tattoos that have been created under specific conditions, with specific motives and(or) for a specific purpose. Still, the ties between

tattoos and deviance are still strongly present in some contexts, and the most productive way to understand the origin of this attachment is to analyse the very birthplace of criminological study of this subject – the work of Cezare Lombroso.

## 2. The Origins of the Criminology of Tattoos

Cezare Lombroso hasn't failed to note great importance of tattoos for both prisoners and criminals. In his very introduction to *Criminal man*, while describing famous case of Italian brigand Vilella, Lombroso counted tattooing among other atavistic features which criminals and "primitive people", as well as primitive animals, have in common: "Enormous jaws, high cheek-bones, prominent superciliary arches, solitary lines in the palms, extreme size of the orbits, handle-shaped or sessile ears found in criminals, savages, and apes, insensibility to pain, extremely acute sight, *tattooing*, excessive idleness, love of orgies, and the irresistible craving for evil for its own sake, the desire not only to extinguish life in the victim, but to mutilate the corpse, tear its flesh, and drink its blood" (Lombroso, 1911 a: 26). As Maurice Parmelee, the author of the introduction to the 1911. English translation of the study *Crime, its Causes and Remedies*, critically remarked, it is very interesting that tattoos are treated as other bodily traits, even though they are transmitted by social practices, and not by genes (in: Lombroso, 1911 b: 10-11).

Problematic interpretation uses analogy of tattooing practices of criminals (both born and habitual ones), "primitives" and lower classes (workers, soldiers, sailors) as one of the proves of their members' inborn likeliness. "Primitive people", both ancient (Thracians, Pict and Celts) and contemporary (Eskimos, Wuhaiva and Maori) being more or less deprived of clothes, used tattoos as decorations and marks of distinctions and rank, as the classic of criminology claims (Lombroso, 1911 a: 45). Lombroso is careful to note that there are "normal" people who are tattooed as well, but that they make 0.1% of population, while 9% of criminals have tattoos, with recidivists, murderers and thieves being the most likely to be tattooed, and forgers and swindler the least (Lombroso, 1911 a: 46).

Analyses of this phenomenon is in line with Lombroso's nowadays unacceptable racial theories, although the facts that he presented in his work are remarkable and prove his keen interest in this subject and impressive effort in gathering relevant data about it. Concretely, he notes that criminal tattoos consist of designs, hieroglyphics and words and puts strong emphasis on the painfulness of the whole process, which is in accordance with his argument that criminals have greater resistance to pain than "normal people" (Lomborso, 1911 a: 45).

Lombroso also claims that they purposefully choose parts of the body which are the most sensitive to be tattooed (genital area) – the practice which surpasses even the "savages", and which further indicates criminal's indecency (Lombroso, 1911 a: 47), which can be understood as their rejection of accepted norms.

One of the key features of Lombroso's understanding of the nature of criminal tattoos is the deep connection between their symbolic content and psychological traits of born criminals. Namely, he remarked that especially tattoos made in prison are a product of criminals *vindictiveness,* because they are "full of solemn oaths of vengeance" (Lombroso, 1911 a: 38-39). For prisoners, they serve as eternal reminders of promised revenge to certain individuals outside the prison. Their content may also include other violent messages (daggers), symbols depicting criminal's career or important life events, committed crimes, initials, place of origin, sentimental declarations (Lombroso, 1911 a: 232-233), or signs of belonging to a criminal group (Lombroso, 1911 a: 46-49). Lombroso again sees strong analogy between the last type of tattoos and "primitive" tribal markings.

## 3. The Taxonomy of Contemporary Prison Tattoos

Unlike the tattoos describe in classical criminological literature, contemporary prison tattoos have many different meanings. Despite their variety, a certain taxonomy or classification of the most common types of contemporary prison tattoos can be made, but it should be noted that not all of them are equally present in all prison systems. Wohlrab *et al.* have established 10 motivational categories for acquiring a body modification, referring to tattoos and body piercing: beauty-art-fashion, individuality, personal narrative, physical endurance, group affiliations-commitment, resistance, spiritual-traditional tradition, addiction to tattoos, sexual motivation and no specific (Wohlrab *et al.*, 2007). From forensic point of view, the position of tattoos can be crucial for the identification of persons' identity, and different locations on the body are usually divided into 5 anatomical regions: head, neck, torso, upper and lower limbs (Katsos et. Al, 2018: 23). Concerning visibility of tattoos, human skin can be divided into 4 zones. Zone 1 includes the head, the neck and the hands; zone 2 includes the outside surface of upper arms, forearms and the lower legs; zone 3 includes the torso, shoulders and the thighs, and zone 4 the intimate parts of the body. Each of the listed regions has specific implications and conveys different messages (Katsos et. Al, 2018: 23). Concerning their content, there are five types of prison tattoos, depending on their design, message and motive behind their creation: 1) commodified, 2) Nazi, 3) gang, 4) religious and 5) *memento mori* (McCarron, 2008: 92).

*Commodified prison tattoos (i.e. prison tattoos as commodified or purchased objects)* include those tattoos that are used to construct prisoner's body, alongside with body-building (McCarron, 2008: 96). Namely, through marking his body with tattoos, the prisoner actually confronts the institutional marking that, just like mandatory wearing of prison uniforms, denies his individuality (McCarron, 2008: 96). Such approach to prisoners' perception of body-building and tattooing is plausibly depicted in an autobiographic novel "Record Atila" (*Dosije Atila*), written by a former prisoner Đorđe Vasiljević. When describing the process of body-building under prison conditions, he emphasizes that at that time for him, having a muscular body ornamented with prison-made tattoos represented the confirmation of his own value and the proof that the prison system did not manage to break him (Vasiljević, 2018: 206). He further confesses that he found an inmate who was willing and skilled enough to have him tattooed with a tattoo machine made from a ball pen, electric motor and batteries, using straightened and sharpened springs taken out from lighters as needles and a mixture of melted rubber slipper and shampoo as ink (Vasiljević, 2018: 206). Explaining the tattoo covering his arm and the upper part of his hand, visible even under long sleeves, he says that he deliberately chose a large tattoo that would always stand out and that could never be

**Photograph 1.** *Correctional Institution in Sremska Mitrovica, 2019.*

*Author: Ana Batrićević*

fully covered with clothes because he wanted some kind of a reminder that would deter him from returning to prison (Vasiljević, 2018: 206).

*Prison tattoos inspired by Nazi iconography and emblems* seem to be rather common among American inmates (McCarron, 2008: 96). Designed with the intention to shock and repel, these tattoos do not necessarily carry an anti-Semitic message, but are aimed to declare their owners' hate for African Americans as well as "white solidarity" and supremacy in general (McCarron, 2008: 96). Having in mind the fact that a large majority of inmates in American prisons have African American or Hispanic origins, it becomes clear that wearing such tattoos requires a considerable amount of courage on the behalf of their owners (McCarron, 2008: 96). This type of tattoos is typical for relativity novel "white prison subculture" in the USA, which pushed out previous ideologically ambiguous biker tattoos (Valentine 2000: 49). In European, and especially in Eastern European context Nazi inspired tattoos are a symptom of most extreme political groups, while function similar to American far right iconography is taken by nationalistic symbols.

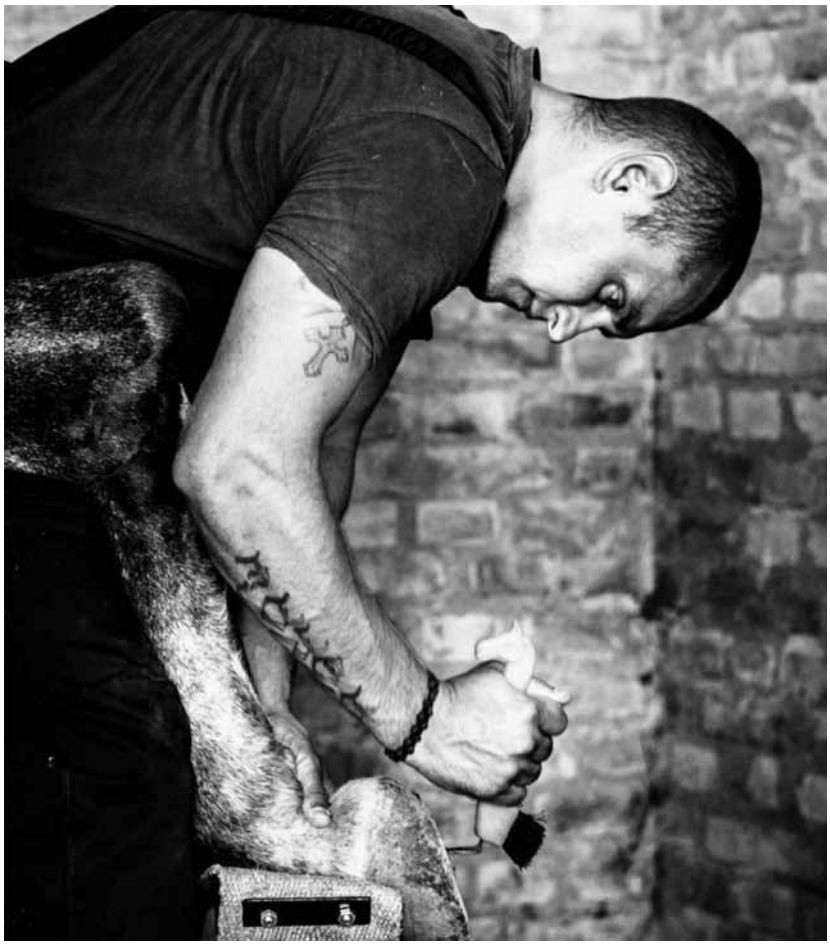
*Gang prison tattoos* represent the signs of commitment to a small and very specific community (McCarron, 2008: 97). They are usually crude and contain very strong antisocial symbols focused on death and violence (skulls, snakes, the grim reaper and tombstones) (Byard, 2013: 536). The roots of gang tattoos can be found in the guild or craft tattoos, and their essential purpose is to emphasize incorporation and community (McCarron, 2008: 97-98). In most American prisons, the punishment for gang related tattooing is much more severe that for other cases of prison-made tattoos and if an inmate is discovered to be a member of a gang, he can be sent to solitary confinement even for an indefinite period of time (D'Amico, 2007: 2). Again, decentralised gangs such as "Bloods", "Crips" and various Latin American groups ("*Sureños*", "*Norteños*", "*Nuestra Familia*"...) represent a phenomenon which is almost unknown in the European context, including Serbia. The closest analogy in local context are tattoos with symbolism of sport club affiliated gangs.

*Prison tattoos with religious or biblical implications* (such as a cross, a quote or a portrait of a character from the Bible, a rosary, icons, sacral objects, etc.) are considered a response to prison atmosphere and its elements that trigger behaviour and personality changes, highlighting the need to interpret the meaning of life through religion (Perju-Dumbravă *et al.,* 2016: 345). Religious prison tattoos are frequently inscribed on the bodies of prisoners with Hispanic origins (McCarron, 2008: 98).

Tattoos inspired by biblical motives seem to be very well tolerated by the inmates, as long as they are not combined or on the same part of the body (they

usually occupy chest, back or arms) with other types of tattoos (Perju-Dumbravă *et al.,* 2016: 345). From a psychological point of view, subsequent modifications of certain tattoos, particularly the replacement of vulgar tattoos with religious or biblically inspired ones, commonly indicates the change of prisoner's behaviour either caused by a change in his/her life or by him/her regretting the past crimes (Perju-Dumbravă et al., 2016: 345-348).

**Photograph 2.** *Correctional Institution in Sremska Mitrovica, 2019.*



*Author: Ana Batrićević*

*Memento mori prison tattoos* are interpreted as a modern, secular replacement for conventional religious tattoos, especially in American prisons, where a skull, often accompanied by a bouquet of roses is a rather frequent motive (McCarron, 2008: 99).

**Photograph 3.** *Correctional Institution in Sremska Mitrovica, 2019.*

*Author: Ana Batrićević*

## 4. Prison Tattoos as a Means of Countering prison deprivations

According to Sykes, five fundamental deprivations, collectively known as the "pains of imprisonment", arise as the consequences of daily life in penitentiary institutions: 1) the loss of liberty, 2) the deficiency of desirable goods and services, 3) the absence of heterosexual relationships, 4) the missing of autonomy and 5) the lack of security (Ilijić, 2014 a: 140; Ilijić, 2014 b: 122-123). Long term exposure to prison deprivations is likely to cause serious mental health issues, during incarceration as well as after release, including: depression, hostility and increased risk of suicide (Edgemon, Clay-Warner, 2019) as well as some other problems such as: withdrawal, victimization among inmates and prison riots (Petrović, Jovanić, 2018: 479). Furthermore, in accordance with the so-called deprivation model, both material as well as symbolic frustrations emerging due to the prison environment may produce criminogenic effects by motivating the prisoners to develop their own informal "prison culture", as an opposite to official norms of conduct (Shammas, 2017), which can be interpreted as a specific kind of social game.

In fact, crime as a phenomenon cannot be completely understood without it's ludic component (Ignjatović, 2008: 143), and prison tattooing has a very interesting

status form this perspective. Being at the same time a legal activity outside of prison, and an illegal one inside, tattooing offers a way for prisoners to feel the pleasure of playing with prison administration, and showing superiority over guards. Because of the complexity of the process which includes gathering of materials and hiding them, finding the artist, a place to make a tattoo and someone to keep watch, playing this social game requires a lot of planing. In that sense, it is not unlike other illegal prison activities, such as the misuse of drugs and alcohol and stashing weapons, cellphones and pornographic material. Analogy is very strong especially with use of drugs, both in technical and tactical aspects as well as in psychological rewards (Ivanović, 2011: 63-73). In that sense, prison tattooing is both an exercise and testing of guard's vigilance, as well as proving to oneself and others the rejection of prison norms and superiority over them. In the prison environment, where enforced rules are much tighter then under regular conditions, the breaches of rules can also bring great pleasure and excitement (Elias, Dunning, 1986: 65-66).

## 5. The Prohibition of Tattooing inside Prisons

In the majority of prisons worldwide, tattooing is considered an illegal activity (Hellard, Aitken, Hocking, 2007: 477). For example, most of correctional code of conduct manuals in American prisons formally treat tattooing as a "minor violation" of inmate disciplinary codes (D'Amico, 2007: 2). Also, According to Article 20 of Regulation on the House Rules of Penitentiaries and District Prisons (Official Gazette of the Republic of Serbia, No. 110/2014 and 79/2016), prisoners are allowed to keep the following things in their possession: personal hygiene items, shaving kit that does not endanger safety, orthopaedic devices, writing kit, tools for the cleaning of clothes and shoes, wrist watch, wedding or engagement ring, religious items and literature, bed sheets, underwear and shoes, pipe, tobacco and cigarettes and clothes and shoes for sports activities. Also, it is emphasized that prisoners can keep only the type and the number of things that would not allow them to breach order and safety inside the institution. So, although the House Rules do not explicitly mention tattooing, the list of acceptable and the characteristics of forbidden items clearly indicate that carrying out such an activity and keeping the items that are necessary for its conduct are prohibited.

One of key reasons why tattooing is forbidden in prisons is derived from the health risks that it is related to. The link between tattooing and the transmission of some infectious diseases has been familiar for a long time (Nishioka, Gyorkos, 2001: 27). Tattooing includes skin piercing and potential blood contact and, therefore represents a serious risk factor for the infection with blood borne

viruses, particularly the HIV and hepatitis C and this risk becomes even greater if tattooing is done under prison conditions due to the lack of disinfection facilities and appropriate equipment (Hellard, Aitken, Hocking, 2007: 477). Since tattooing is illegal in prisons, prisoners have their tattoos made in an environment that has limited (if any) infection control precautions aimed at reducing the transmission of blood borne viruses (Hellard, Hocking, Crofts, 2004: 414).

## 6. The Economy of Prison Tattoos

Competencies in making tattoos and crafting needed tools and materials in prison have great value in clandestine prison economic transactions. First of all, it is one of the few prestigious artisan services that prisoners can provide to one another, and earn compensation in return. Secondly, since all materials needed for tattooing actually come from within the prison, investments in this kind of barter are minimal and include one's skill and the factor of risk taken. Last but not the least, because tattooing is an intimate and highly emotionally charged activity with permanent (and sometimes unwanted) consequences, prisoners who are getting the tattoo will try their best to please the artist without the use of coercion and to earn their trust. Paradoxically, tattooing as an illegal activity within the prison walls comes to resemble the most regular activities in the ordinary, everyday life[1].

From an economic perspective, dichotomy of prison and non-prison tattoos applies to prison and non-prison tattoo artists. Later obviously have better position from the start, because they have mastered their competencies outside of prison and can use them immediately with good confidence. First category, which is apparently more interesting for the topic of this article, are the prisoners who decide to learn how to tattoo during their sentence, driven by artistic or financial motives. They typically start practising on their own bodies first, and after they have grasped the basics of tattooing, they start to tattoo other prisoners as well[2].

## 7. Mitigating the Negative Consequences of Prison Tattoos

In spite of prohibitionist policies, prisoners continue tattooing themselves under unhygienic and risky circumstances (Awofeso, 2002:165). So, instead of

1 *Hidden In America – Prison Ink,* 04.04.2016, https://www.youtube.com/watch?v=aTdSd0VK0hE, accessed 16.11.2020.

2 *Hidden In America – Prison Ink,* 04.04.2016, https://www.youtube.com/watch?v=aTdSd0VK0hE, accessed 16.11.2020.

arguing for its prohibition, there are some public health community's representatives advocating the legalisation of tattooing in prisons and suggesting that programmes should be developed that reduce prisoners' need and desire to have a tattoo in prison (Hellard, Hocking, Crofts, 2004: 414).

The idea to legalise tattooing in prisons and to allow the prisoners the access to professional tattoo artists is based upon the principle of harm minimisation (Awofeso, 2002: 165). Namely, tattooing in prisons is closely interrelated with other risky behaviours such as intravenous drug use and carries a serious risk of blood borne infections, such as hepatitis and HIV, due to the technique used, improvised equipment and non-compliance with infection control guidelines (Awofeso, 2002: 165). By allowing tattooing in prisons under proper conditions, these risks are expected to be minimised. Developing a program that would allow legalized tattooing in prisons is considered rather difficult and complex but it would significantly decrease the risk of infectious diseases transmission among prisoners (Hellard, Hocking, Crofts, 2004: 414). The example of the aforementioned approach can be found in the work of Canada Correctional Services that launched a Safer Tattooing Practices Initiative project in 2005, which was implemented through operational and educational component (Nafekh, 2009).

The operational component included the implementation of tattoo rooms in six federal institutions – one institution for men in each of the five regions (Atlantic, Cowansville, Bath, Rockwood and Matsqui Institutions) and one institution for women (Fraser Valley Institution for Women) (Nafekh, 2009). The educational component was delivered at Canada Correctional Service's five regional reception centres and it included the informing of all inmates with a new federal offence about the potential dangers of unsafe tattooing practices at the five regional reception centres (Nafekh, 2009). Moreover, the educational component provided information via guidelines document and pamphlets which were distributed at each of the six pilot sites (Nafekh, 2009). The Initiative increased the level of knowledge and awareness amongst staff and inmates about the prevention and control of blood borne infectious diseases transmission and indicated the potential of such program to reduce harm and exposure to health risk, to provide additional employment opportunities for inmates within the institution, and work skills applicable in the community (Nafekh, 2009).

Having in mind the connection between prison tattoos and criminal behaviour inside as well as outside prison, as well as their strong psychological, emotional and social symbolics, the question of their removal and its impact on offenders' future life inevitably arises. Since the removal of gang tattoos represents a statement about leaving gang life, it could be argued that the removal of prison tattoos could similarly be symbolize leaving a criminal lifestyle and becoming a

productive member of the society (Rozycki Lozano *et al.,* 2011). Namely, tattoos in general, and especially prison made ones that have an anti-social, criminal or gang membership symbolics, often represent a serious obstacle for the employment of former prisoners and deter them from obtaining regular source of income, which may lead to re-offending (Dooley, Seals, Skarbek, 2014: 269; Hardcastle et al., 2018: 51-54; Knežić, 2011: 78-79). Therefore, providing former prisoners with the opportunity to participate in free or low-cost tattoo removal programs could significantly increase the probability of their successful re-socialisation and social reintegration.

The work of a Northern California based non-profit organisation "Jails to Jobs" represents an example of good practice in this field, providing former and offenders that are about to be released from prison with advice and assistance related to employment. In that context, this organisation also keeps a searchable database of free and low-cost tattoo removal programs that are being applied across the USA, which includes more than 300 programs in 42 states.[3]

## 8. Conclusion

The phenomenon of prison tattoos and tattooing in prison is intrinsically linked to the very nature of modern penitentiaries, sharing the same history with their institutional context. Alongside with the development of modern penal institutions, voluntary tattooing practices behind the prison walls have evolved into a complex system of symbols, roles, messages, relations and identities. On the one hand, in the era of visual media expansion, prison tattoos from certain areas (USA and Russia) have become a part of global culture, whereas on the other local variations, specific to some cultural contexts, are emerging as well. The latter have not been sufficiently scientifically examined yet, although the findings of such research could be of great significance.

There is no doubt that the everlasting appropriation of ones own artistic and emotional expression in a world substantially defined by deprivations has significant implications on prisoners' lives. That is the reason why the prisoners persistently keep making tattoos, despite the risks, obstacles and prohibitions, challenging the system and norms imposed upon them. Because of long duration of the entire process and its ever changing features, one question needs to be answered over and over again, and that is individual interpretation and understanding of this artistic practice through the eyes of its participants − prisoners

3 Jails to Jobs, What we do: Educate, inform, connect and assist, https://jailstojobs.org/what-we-do/, accessed 15.11.2020.

themselves. This research endeavour could shed more light upon some still unknown aspects of prison culture and reveal complex social and emotional relations that stand behind the prison made tattoos.

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# CYBER WARFARE AND INTERNATIONAL CYBER LAW: WHITHER?

*This paper analyses historical, sociological and normative aspects of the cyber violence in international relations and international law, aiming to assess the adequacy of the extant international norms for its regulation. It results with the knowledge on the lack of international cooperation and a universal approach, the instrumentalisation of the internet as a means of warfare, lacunae in the relevant legal framework, and the peril of compromisation of the international law. Since the social*

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*jeopardy of activities in the cyberspace is hardly measurable and subjected to highly arbitrary interpretations, the problem of the uncertain peacetime or belligerent legal qualification of cyber activities is exposed. The other serios problem is a high risk from potentially disproportional responses of states to the cyber violence. Especially due to the lack of universal international institutions in the field of cyber, it must be concluded that the international lege lata applicable to the cyber violence is not adequate and sustainable. The progressive development of international cyber law is thus suggested, through the pacification of the internet and the international criminalisation of cyber violence.*

**Key words: Internet, Cyber warfare, Cyber law, Lawfare**

## 1. Introduction

Accelerated technological development and the global spread of the Internet is certainly one of the greatest contemporary challenges international law is facing. New means and ways of communication are changing the nature of relations between people and states, and extensive legally-theoretical and scientific elaborations of these changes have resulted in knowledge of the accompanying global threats that deserve the attention and reaction of the entire international community.

However, these findings did not lead to the defining of a comprehensive positive legal framework and the systematization of legal discipline that would comprehensively regulate this emerging area of legal transactions, which is already commonly known as Cyber law. This incoherence and incompleteness is certainly the result of competition between states in the accumulation of benefits provided by a new area of communication, as much as the attitude of science that a new legal regime is not needed, i.e. that existing law can successfully regulate this area. The inadequacy of legal regulation is particularly problematic in international law of war. It points out that this is an area of conflict where there are no laws (Gervais, 2012: 579) and proposes the adoption of a convention on cyber weapons or at least a more general conventions on Internet security, in order to reduce the threats cyber attacks represent (Geers, 2010: 547-551).

Applying historical, sociological and dogmatic methods, this paper analyzes the dilemma between the need for a new legal framework and the retention of the existing one, by focusing on the legal regulation of the use of Internet-mediated violence in peace and war. In the first part, the basic concepts and tendencies related to cyber warfare in the practice and theory of international relations are presented. The second part presents and explains the international legal framework for the use of

force by using the Internet, including both groups of rules of war (*ad bellum* and *in bello*). The third part summarizes the social, normative and ethical aspects of the legal regulation of cyber warfare and proposes a solution to the dilemma.

## 2. Internet and interpretation of contemporary wars

To understand the status and function of international norms related to the area of violent use of the Internet in peace and war, it is necessary to shed light on the historical, doctrinal and social context of contemporary conflicts. About that below.

When we talk about the Internet, we should always keep in mind that this is a deeply militarized phenomenon. Namely, it is an incidental product of the development of science and technology of the Cold War, which arose as a result of the efforts of the American Government to ensure the sustainability of the communication system in the circumstances of a possible nuclear attack. In this context, the destructive potential of purpose-designed softwares for disabling opponents' computer networks was also noted (Gervais, 2012: 527-531).

Electronic spectrum control is considered as an important aspect of the internal sovereignty of states, in particular of the formed forces for electronic warfare that have been existing in all contemporary armed forces for several decades. Therefore, in military doctrines governing the rules of use of force around the world, the concept of Cyber warfare as an element of comprehensive war efforts has been developed, which means the use of military force by cyber means and methods. Cyber warfare is considered as an important aspect of Hybrid warfare. This concept encompasses the means, methods and goals of warfare that deviate from traditional settings insofar as they are conducted in a gray zone in which the already blurred line of demarcation between war and peace is lost. In short, hybrid warfare combines classic military warfare with diplomatic, economic, intelligence, and electronic means and methods – for political and economic pressure and to achieve desirable psychological effects. This modern way of warfare includes „conventional capacities, irregular tactics and formations, terrorist acts, including non-discriminatory violence and coercion, criminal disorder, perpetrated by the parties to the conflict and non-state actors." (Wither, 2020: 8).

As the question of the legality of cyber warfare remains unresolved (Gervais, 2012: 526) – which can certainly be concluded for other aspects of hybrid warfare – it is necessary to legally justify such problematic activities. To this end, a new aspect of hybrid warfare called Lawfare has been developed. This complex word – perhaps more appropriate to argue *contradictio in adjecto* or even oxymoron

– was coined in 1975 in the context of criticisms of excessive and inhumane application of adversarial judicial procedures.[1] This concept was introduced into the world of military doctrine by the American general and lawyer Charles Dunlap at the beginning of this century to mark the abuse of the right to achieve military goals and define it as a first-class factor of modern military interventions (Dunlap, 2002: 2-4). The mentioned method of warfare is used to label other as an enemy for making senseless the principles on which the law is based and to justify the consequent aggressive reaction against it, allegedly for the purpose of affirming the law. It is an increasingly widespread aspect of hybrid warfare that exerts an impact that is analogous to physical effects (Mosquera, 2016: 72-73).

The examples of cyber violence cited in the literature confirm the intertwining and conditionality of the presented concepts, subjective approach and crucial role of the war narrative in their interpretation. Thus, in 2007 in Estonia, after the riots caused by the Russian minority due to the demolition of monument to Soviet soldiers, the internet structure of the government and banks were attacked with malicious software. Sources of harmful activities were widespread, including the territory of Russia, and caused economic and social damage.

In 2008, the American-sponsored media Radio Free Europe was attacked in a similar manner in Belarus, and the domestic government was suspected of endangering the basic human right to freedom of expression by not fulfilling its duties. In the same year, after the adoption of the Law Banning the Display of Soviet Symbols, the government infrastructure in Lithuania was damaged, and a Russian nationalist hacker group was suspected. At the same time, during the armed conflict between Russia and Georgia, numerous harmful effects on the cyber structure of Georgian institutions were reported and possible causers from the territory of Russia (Tikk, Kaska, Vihul, 2010: 14-89). In 2010, a computer virus called Styxnet was discovered in an Iranian nuclear plant, and suspicions were directed at Israel and the United States (Roscini, 2014: 6-7). Recent examples include allegations that a virus of American origin was spotted in the software of the Russian power grid[2] and that China is hacking the governments of the countries of the Asia-Pacific region.[3]

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1 „As inquisitorial or investigative technique is abandoned, only adversarial or prosecutorial procedures apply. The search for truth has been replaced by the classification of objects and the perfection of fight. In legal warfare (...) a duel is fought with words, not swords. Is that enough?" (Carlson, Yeomans, 1975: 5)

2 Sanger, D. E., Perlroth, N. (2019, June 15th) U.S. Escalates Online Attacks on Russia's Power Grid, The New York Times, available at: *https://www.nytimes.com/2019/06/15/us/politics/trump-cyber-russia-grid.html* accessed on 05.06.2020.

3 Kharpal, A. (2020, May 7th) New cybersecurity report says China-based group is hacking Asia-Pacific governments, CNBC, available at*:* *https://www.cnbc.com/2020/05/07/chinese-hacking-group-naikon-reportedly-spyingon-asia-governments.html* accessed on 05.06.2020.

On the day of writing this paper, according to the expertise of the business entity CheckPoint Software Technologies, which publishes data in real time, over 14 million cyber attacks were recorded.[4] It is pointed out that cyber attacks have great advantages over classical ones, because they are cheap, long-range, fast and powerful tactics of coercion or destruction, often without the possibility of prosecution (Gervais, 2012: 579). War rhetoric, concern about the enormous destructive potential of the Internet, and frequent new accusations against unidentified perpetrators and states, sketch a disturbing landscape of escalating confrontations that are dispersed in all spheres of public and private life.

When the concepts presented are analyzed in the light of traditional theories of international relations, the dilemma between the *status quo* and the need for the progressive development of this branch of law – seems more difficult, but still somewhat clearer. Any proponent of realism in international relations – especially those states seeking to maintain global leadership positions – would in principle consider that cyber warfare opens up new possibilities for strengthening of state power, while liberal internationalists would insist on legal regulation of international cooperation.

In short, cyber violence in contemporary international relations is as much more present as it is increasingly controversial. The dominant theoretical approach to this problem is colored more realistically than internationalistically liberal, as states prioritize the search for possibilities to use the Internet to strengthen their positions in the global competition for resources in a new area of communication. That is why the traditional notions of war, peace, military intervention and the function of law have changed beyond recognition. The question is whether this is a perversion that should not be accepted, or still be practical and seek benefits in the dominant interpretations of violent use of the Internet?

## 3. International regulation of cyber violence

After enlightening the status and development of cyber warfare in contemporary military doctrines and international relations, this part of the Paper analyzes the responses of international law and science to this phenomenon. We will first talk about the sources of international law related to cyber violence, and then about their place in the legal system.

The social danger of cyber violence is recognized and criminalized in the internal rights of many states. Moreover, the international character of computer

4 Live Cyber Threat Map, available at: *https://threatmap.checkpoint.com/* accessed on 04.06.2020.

crime has contributed to the globalization of law, as it has initiated the process of transposing legal solutions from international law into national legislation (Dabović, 2007: 52-53).

However, this process has left little trace in regulating relations between states. One universal and one regional treaty are cited as the only international sources in this regard. First, the UN Convention against Transnational Organized Crime (Palermo, 15.11.2000)[5] in Articles 14 and 29 obliges states to train law enforcement agencies and to cooperate with other states against transnational organized crime perpetrated by using computers.

The Council of Europe Convention on Cybercrime and the Additional Protocol on the Punishment of Racist and Xenophobic Acts through Computer Systems are in force in the European theatre (Budapest, 23 November 2001).[6] This exemplary regional instrument obliges signatory states to criminalize the illegal use of computer networks and electronic systems, and to cooperate in criminal prosecution. Therefore, the states are in charge of suppressing computer violence, and criminal law repression and international cooperation have been chosen as an adequate remedy.

For now, the only attempt to compile a comprehensive catalogue of applicable international rules that apply in both war and peacetime circumstances is the Handbook on International Law Applicable to Cyber Operations (hereinafter: the Tallinn Handbook), compiled by a group of eminent international law and technical experts, under the auspices of the NATO Cooperative Cyber Defense Center of Excellence (CCDCOE) in Tallinn (Schmitt, 2017). This unofficial document, drafted under the auspices of a military-political regional organization, certainly does not belong to the formal sources of international law defined in Article 38 paragraph 1 of the Statute of the International Court of Justice, but has some international legal relevance due to the ambition of drafter to express relevant rules in the field of international public law by the authority of legal profession. In this sense, the claims that this is an interpretation of the *lex lata* by independent experts who have impartially expressed and harmonized their opinions on which customary and contractual law is applicable to the Internet can be taken seriously (Schmitt, 2017: 3-5). Therefore, this document can be used as a useful and reliable additional means of concretizing the principles of international law, filling legal gaps and interpreting applicable norms. At the same time, it should not be forgotten that it does not express the legal views and opinions of a large part of legal experts and subjects of international law.

5 Ratified in BiH („Official Gazette of BiH-International Treaties", Number 03/02).

6 Ratified in BiH („Official Gazette of BiH-International Treaties , Number 6/06).

So, at the moment, we can talk about international law applicable to the Internet or about emerging international cyber law, which for now contains rare and mostly regional contractual norms governing cyber violence. When this violence crosses the borders of peace, cyber warfare law should be classified under the umbrella term Operational Law. This legal discipline, which is almost unknown in our country, has been developed in the Western tradition of the rule of law, which has as its subject the legality of military command in decision-making and execution of military operations (Rašević, 2017: 25-26).

The application of the general rules of international law leaves a wide space for the creative application of law, but creates legal uncertainty due to the lack of knowledge about a new type of communication. The question is to what extent is this *status quo* appropriate when the cyber damage is so great that it undermines state sovereignty or has a detrimental effect on the political, economic and social life of both individual states and the international community?

## 4. Cyber violence in the grey zone of international law

Clear legal qualifications and reactions of subjects of international law are needed to solve the problem of spreading of cyber violence and its international legal consequences. In order to be legitimate, those reactions should be appropriate and proportionate to the degree of social danger. In the case of cyber violence, this challenge seems to be too difficult for current international law due to erasing of the boundaries between peace and war.

When violence undermines the foundations of the community, two sets of rules come into force, according to the division established by Grotius: the first determines when the state can resort to armed force (*ius ad bellum*) and the second one how to use that force (*ius in bello*). In short, the modern *ius ad bellum* is contained in Artice 2 paragraphs 4 and 51 and Chapter VII of the UN Charter (1945): the threat of force and its use in international relations are prohibited, with the exception of self-defense and an explicit order of the Security Council. Moreover, aggression is criminalized as a crime against peace by the Amendment to the Rome Statute of the International Criminal Tribunal, Kampala 2011 (Rašević, Vlajnić, 2020: 661-681).

On the other hand, *ius in bello* is contained in international humanitarian law, which limits the use of armed violence in accordance with the principles of humanity, distinction between combatants and civilians, proportionality between violence and expected military advantages (Henckaerts, Doswald-Beck, 2005: 3-80). The norms of international humanitarian law give closer indications of the

problematic line of demarcation between peacetime circumstances, non-international and international armed conflict (Edlinger, 2016: 39-45). Below, on the applicability of these norms to the field of the Internet.

### *4.1. Between war and peace*

The transition of violence to the sphere of war, from which the modern *ius ad bellum* in principle distracts by the prohibition of aggression, is defined by the provisions of joint Article 3 of the Geneva Conventions (1949) and Article 1 of Protocol No. II on Protection of Victims of Non-International Armed Conflicts (1977).[7] In short, the threshold of war is crossed if an armed conflict is fought in the „territory of the High Contracting Party between its armed forces or other organized armed groups which, under responsible command, exercise such control over a part of its territory that allows them to conduct continuous and directed military operations..." On the other hand, there can be no talk of armed conflict if the violence is limited to „situations of internal riots and tensions, such as rebellion, isolated and sporadic acts of violence and other acts of a similar nature..."

This distinction is particularly important for the purposes of this analysis, as the possibility has been accepted in the literature that cyber violence may meet these criteria (Sanders, 2018: 521). The Tallinn Book proposes the threshold for transition from peace and war as follows: "... when there is prolonged armed violence, which may include or be limited to cyber operations, between government armed forces and organized groups, or between such groups. Confrontation must reach a minimum level of intensity and the parties involved in the conflict must have a minimum level of organization." The criterion defined in this way is not very helpful due to the use of broad and vague terms, and the expert group that formulated this rule could not agree whether threshold is crossed when non-destructive activity on the Internet is carried out in circumstances of civil riots. There was also no consensus when discussing whether the criterion of a minimum level of organization was met when cyber operations are conducted by virtual groups and mutually uncoordinated individuals (Schmitt, 2017: 385-391).

The consequences of crossing this threshold are really severe, because the act of internet-mediated violence can be qualified as an armed attack[8] that authorizes

7 "Official Gazette of FNRY" Number 24/50 and „Official Gazette of SFRY-International Treaties" Number 16/78.

8 "The term 'attacks' means acts of violence against opponents, whether offensive or defensive. "Article 49 of Additional Protocol 1 to the Geneva Conventions for the Protection of Victims of International Armed Conflicts.". (See also Schmitt, Garraway, Dinstein, 2006: 7).

the state to resort to cyber and even physical force by invoking self-defense from Article 51 of the UN Charter.[9] In other words, violence caused by the use of the Internet ceases to be subject to a peacetime set of rules that treats it as a crime and moves into the domain of regulation by international humanitarian law. Then, a peacetime criminal becomes a fighter, because such acts lose the character of illegality if they are characterized as a means or method of warfare that are not explicitly prohibited by the norms of humanitarian law. As suggested in the Tallinn Book, such qualified internet fighter can also become a war criminal.[10] This is quite understandable, because the provisions of international and domestic criminal law are set wide enough to cover both these means and methods of warfare.

Legal uncertainty regarding the choice to apply the norms of peacetime or war law is a logical consequence of contradictions and unsystematization of international law, which on the one hand prohibits war, and on the other regulates its outbreak and conduct by widely set institutes of humanitarian law. This uncertainty is further deepened in the case of Internet-mediated violence, because there is no universally competent international institution with necessary technical knowledge to set global standards, and in specific cases to impartially determine the causality and responsible perpetrator. In the absence of such an institution, biased expertise and arbitrary accusations dominate the public discourse. This raises a justified fear that any violent activity via Internet may be qualified as war operation, aggression or war crime. Moreover, such a qualification may provoke a reaction by armed force against individuals, groups, or state that are labelled as enemies for their alleged responsibility for Internet-mediated activity.

The danger of cyber violence is that it can be easily misused as a motive and means of conducting hybrid and legal war. Unlike universally established institutions and mechanisms for monitoring and controlling conventional, nuclear, chemical and other weapons, the Internet as a weapon continues to exist in an international legal vacuum. There are no clear criteria for assessing whether a certain internet-mediated action is a peacetime crime or a way of warfare, nor whether the state should react according to peacetime or war rules. A wide space is open for arbitrary and subjective interpretations to the extent that everything comes down to the question: „is it in your interest to declare that this is an act of war?" (Libicki, 2009: 182).

9 "A state that is the target of a cyber operation that reaches the level of an armed attack can use its inherent right to self-defense. Whether a cyber operation is an armed attack depends on its severity and effect." (Schmitt, 2017: 339).

10 "Cyber operations may be various war crimes under individual criminal responsibility according to international law." (Schmitt, 2017: 391-396).

### *4.2. Between international and internal armed conflict*

The cited norms of humanitarian law also outline the lines of demarcation between international and non-international armed conflict. This is also important in this context, because "conflict classification determines specific sets of rules that apply to the conduct of military operations" (ICRC, 2013: 55). The dilemmas that arise by the use of cyber violence in undoubtedly confirmed war circumstances are no easier. Namely, military cyber or physical reaction to Internet-mediated violence can escalate into an international armed conflict only if the enemy state is clearly identified, i.e. a certain act of cyber violence is attributed to a certain state.[11]

The trouble is that there are no universally accepted and binding international norms regarding the responsibility of the state for illegal actions. It remains to refer to the provisions of the Rules of State Responsibility formulated by the International Legal Commission and recommended by the UN General Assembly.[12] This is done by the Tallinn Book, faithfully transposing the provisions of this document into Rules 14-19 regulating the responsibility of states for cyber violence committed by state bodies and non-state actors and exceptions in the form of consent of the attacked state, self-defense, countermeasures, necessity, *force majeure* and trouble (Schmitt, 2017: 79-111).

In addition to the difficulties in proving the causality between the action of a state body and the damage caused by use of Internet, it is especially problematic to attribute responsibility to the state for cyber operations of non-state actors in Rule 17. According to this rule, a certain state becomes an enemy of war if the perpetrators have operated according to instructions, guidelines or under the control of the state, and the state recognizes and accepts that operation as its own. The mentioned provision opens space for contradictory interpretations, such as those related to the responsibility of the Kingdom of Serbia for the murder of the Archduke in 1914 in Sarajevo. Without arguing that such an imprecise rule is better than none, the question arises as to how to prove doubts about a state's connection to hacker groups when an independent and impartial investigation can hardly be conducted in circumstances of growing tensions with a state labelled in advance as hostile.

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11 It is proposed to characterize an international conflict as follows: "... when there are hostilities involving or limited to cyber operations between two or more states." (Schmitt, 2017: 379)

12 The Articles on State Responsibility. UN General Assembly, GA Res. 56/83, UN Doc. A/ RES/ 56/83 (12 December 2001)

### *4.3. Status quo or progressive development of international cyber law?*

There is no resolute answer to the question in the title, given that convincing but contradictory arguments are presented here. They have been re-evaluated here to suggest an answer based on the need to affirm the fundamental values of international law.

The disturbing landscape of global cyber confrontations is further complicated by legal uncertainty both in terms of its legal qualification in different public order regimes and in terms of the legality and legitimacy of states' response to this increasingly dangerous phenomenon. In other words, in this legally unarticulated space, there are no resolute answers to the questions when a certain activity on the Internet becomes a means of internal or interstate conflict (*ad bellum*) and which rules should apply in that case (*in bello*). In addition, the instrumentalization of the Internet for influence, pressure and coercion over states can be carried out in ways that evade the regulation of traditional international legal regimes. In covert and visible hybrid wars, the Internet is becoming a means of warfare, and international law is being abused to justify it.

On the other hand, it can be reasoned that the existing international law has risen to this challenge. Namely, the Internet could just be considered as one new area of communication in which relations that are already regulated by international law are manifested. The problem of uncertain legal qualification of cyber violence, due to the possibility of being placed under different regimes of public order – is not new either, because it can be pointed out for other violent activities as well. Thus, for example, murder in peacetime is treated in war as a permissible method of warfare or as a war crime, if it is committed in violation of humanitarian law. New technological achievements are happening everyday anyway, so it may be more advisable to interpret existing law progressively and broadly by applying analogies, filling legal gaps, and consulting legal and other experts.

The answer to the question – how it should further go – should respect the reality of contemporary competitive and conflicting international relations, but it is more important to affirm basic ethical values on which international law is based. In this sense, a solution should be chosen that is in the function of strengthening the foundations of international law, i.e. peaceful coexistence and sovereign equality of states. This approach indicates that we should opt for progressive development in this area and the establishment of international cyber law, by adopting and concluding international agreements that would provide adequate responses to the dangers of cyber violence.

The fact that there is no universally accepted interpretation of existing international law that can be applied to the Internet also speaks in favour of the necessity of adopting and concluding of cyber international agreements. The Tallinn Book is a praiseworthy attempt to express *lex lata* and a reliable consultant to legal practitioners, but this unofficial document made under the auspices of a regional military-political alliance does not express the views of legal experts from a number of developing countries. Some of them are leaders in the technological development and use of Internet because of truly unique ability of Internet to provide equal access to all, by destroying dominant notions of someone's intellectual, economic, political, military or other superiority.

Finally, in addition to universal norms, international law needs universal institutions on this issue. Under the auspices of the UN, there are already a number of specialized agencies, which represent forums for international cooperation on important global issues, such as the World Health Organization or the International Atomic Energy Agency. Following their example, a universally established international institution should therefore be a central place for systematizing knowledge about the Internet, formulating legal standards for its use, international cooperation and control.

Starting from the ethical and legal premises that the restriction of war is the beginning of peace (Volzer, 2010: 40) and that the legal contribution to the achievement of this noble goal consists in the criminal prosecution of war criminals (Kelsen, 1944: 102-112), the treaties proposed here would trace two paths of progressive development of international cyber law. These are the pacification of the Internet and the criminalization of cyber violence. The fiths one would consist in the demilitarization of this new area of communication and in strengthening of international cooperation, analogous to the legal regimes agreed for space or the Earth's poles. A good start to that path would be to ban and control the use of certain means and methods of warfare by using Internet, such as legal regimes already established for chemical and nuclear weapons. The second path would be to prescribe international criminal offenses that would sanction the abuse of Internet against sovereignty of states in the Rome Statute of the International Criminal Tribunal.

## 5. Conclusion

Placed in the context of contemporary hybrid and legal warfare, cyber violence is changing the perception of contemporary international relations. Instead of the idea of global peace spoiled by exceptions in the form of local and regional armed conflicts, a vision of a global hybrid war is emerging in which

covert or visible Internet-mediated violence, alone or in combination with other military and non-military means and methods of warfare, plays an increasingly destructive role.

Applicable international law can be applied analogously to this new area of communication, but there are no universal norms and institutions that would enable the harmonization of different approaches and traditions to the problems of cyber violations. Particular and regional initiatives are certainly useful, but also insufficient to formulate a unified global approach to this problem that knows no national borders. The problem is all the more difficult due to the instrumentalization of international law, which is increasingly used as a means of confrontation instead of as a means of resolving disputes between the states. Therefore, there is a certain danger that the function of international law will become meaningless to the extent that the legal regulation of war will turn into war with law.

Cyber violation is becoming increasingly socially dangerous and calls into question the adequacy of applicable international legal norms. That is why the pacification of the Internet and the criminalization of cyber violence with the instruments of international legal contracting are proposed. If this does not happen, the risk of cyber violation will soon harm not only international legal entities and the international community, but also international law, should be taken seriously.

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# REGULATING THE NON-MILITARY USE OF DRONES AND PROTECTION OF PRIVACY

*In last few years we are witnesses of strong development of drones' capacity not only for military purposes but also for civilian use, particularly for police surveillance, investigations, arrests and search and rescue operations. Up until now not even United States of America adopted unified laws considering the use of drones and their impact on privacy but it is obvious that legal, administrative and justice framework for balancing these two conflicted interests and demands will soon be developed. This article will give the review of legal problems and solutions from literature covering countries which are the leaders in this field of technology and law.*

**Key words: drones, privacy rights, regulations**

## 1. Introduction

It is beyond doubt that, except for military purposes where they have proven to be effective weapons, drones seek their place in civilian use. The first future beneficiaries of civilian government institutions are the police and other similar

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agencies, but pressure and lobbying to liberalize the use of drones also comes from numerous private and commercial users. The notoriety of military use of drones has led to public distrust that much cheaper and smaller aircraft than those who are more technologically advanced could be used massively by numerous civilian entities. It is true that civilian aircraft have less technological capacity, but are physically smaller and less visible, and thus easily used for universal surveillance of citizens and their privacy. The focus of the paper is to analyze two areas of application and two tracks for the legal regulation of the use of drones. The first concerns is the use of drones by police for criminal investigations and other police activities, and the second concerns is the civil (positive or negative) use of drones, which may also have criminal repercussions. The main hypothesis of the paper is that: existing legal regulations are not sufficient to cover the new technologies that drones bring along and affect the privacy and freedoms of citizens. The auxiliary (second) hypothesis is that drone regulations must take into account, in addition to technology, certain other factors that limit the ability, duration and quality of surveillance carried out by drones.

## 2. Legal Aspects of Using Drones

### *2.1. Technological specifics and preconditions for legal regulation*

The drones changed the warfare because they made it easy to find and eliminate people posing security threats without endangering the lives of soldiers on the ground. Today's drones are not much different from earlier radio-controlled planes, as they do not have full autonomy, but today they are automated. This means that they can do some of the work on their own, but are generally operator dependent. Unmanned aerial vehicles will soon be able to operate independently and make decisions. Already in some countries, drones are being used to guard prisoners or provide care to patients (Marra, Mcneil, 2012: 5). Drones are specific by the technology which is drastically changing, and current legal solutions based on current technology may not be valid and effective tomorrow. Autonomy is a keyword for robots and drones and is defined most commonly from the point of view of human nature as a combination of freedom and responsibility on the basis of which it operates, as an equal and free rational being with respect for all differences arising from gender, beliefs, status and overall attitude towards life including death (Observe, Orient, Decide, and Act) (Marra, Mcneil, 2012: 10). The robot must make a decision that is limited most by the existing built-in technology. Autonomy

versus automation is measured by the frequency of external operator interactions or independence from it, a measure of how the machine cope with the uncertainty of the environment, and the degree of reliability of decisions that the machine can make on its own (Marra, Mcneil, 2012: 18-19).

### *2.2. Development of drones and basic issues in their application and legal regulation*

It is indisputable that technological capabilities have given capacity to drones for different purposes, but the different sizes of their platforms give them different opportunities to stay in the air. Their purpose ranges from combat missions to various forms of reconnaissance, transport, search, scientific exploration and rescue (Office of the Privacy Commissioner of Canada, 2014:5). It is the convenience of drones to be equipped with different and numerous sensors that enables them to track changes from a distance through the visible spectrum, electromagnetic spectrum, biological and chemical changes, with the ability to automatically detect target objects, to track positions through GPS systems, to register changes in real-time high-resolution cameras, giving huge potential for police use. This refers primarily to monitoring the condition of objects and their security, the movement of masses and individuals, to the point that they can be armed with different weapon systems (Schlag, 2013: 8). Drones, thanks to their unique sensors, represent a good platform that can be used even in operations, especially where it is dangerous or impossible to reach for humans or in times of extreme weather. The expansion of the potential and use of drones is a challenge for legislators, first and foremost, to protect the privacy interests of citizens, but also to regulate the use of these platforms by the police for their purposes. Almost identical situations of the use of surveillance devices are treated differently. In situations involving the use of human-powered airplanes and helicopters where extreme technological reconnaissance facilities are deployed, they are permitted without a court order, and at the same time, the use of drones is restricted to some routine police activities such as environmental monitoring and surveillance (McNeal, 2014: 2). Basically, countries that have regulated the use of drones prohibit the use of surveillance devices from drone platforms, while allowing the use of these assets in situations where they are not on the platform of the drones, e.g. cameras on the streets (McNeal, 2014: 2). Fear is a major driver for these kinds of solutions, because it suspects that the use of drones, that are much cheaper than human-operated aircraft, will result in widespread use of surveillance. Those opposed to these solutions state that in most cases these aircraft can carry less intrusive equipment than large

aircraft. Smaller aircraft, on the other hand, are cheaper than helicopters and human-powered aircraft, but unmanned aerial vehicles used by the military have powerful sensors are much more expensive than these classic human-operated aircraft, requiring not only the high cost of aircraft but also the fixed costs of many crews on land. Supervision of individuals and groups within society takes place on two tracks and with two patterns specified and diffused. Specific surveillance is performed on individuals who may be aware that they are in control or completely unaware of this fact, while diffuse control is exercised over a wider area or a wider range of subjects and more attributes that are collected to detect possible differences between normal patterns of behavior and those who can be described as deviants, in the case of traffic and crime control. Mostly the debate is over whether drones should be used for pro-active or post-event surveillance. There is agreement that they should not be used to proactively monitor and collect information about individuals and groups, and that they should not be armed (Office of the Privacy Commissioner of Canada, 2014: 45-46). The acceptability of drones as an intelligence tool is that they can integrate a great deal of data and behavior patterns of the individuals they follow. The data collected by the algorithms are linked by integrating data of private and public character. The question arises not only of public use but also of private use. The extent to which drones, by their presence, register only the outward-visible phenomena in one's life, as if one from a high hill observed behavior in public space, and to what extent they entered into the essence of one's life, intimacy and privacy, remains unanswered and unknown. In any case, whether looking at a specified individual as an object, or viewing an individual as a randomly selected object within a group to create a picture of a situation at a particular place at a particular time, there must be legal justification for both targeted and diffuse surveillance. Otherwise, it leads to an impact on the individual's right to assembly, the right to speak, and other freedoms in society, because it leads to an excessive intrusion of power into the individual's privacy. Private entities also have an interest in using and developing their own unmanned aerial platforms, which gave impetus to this industry which in 2012 force the US Congress to enact an act seeking to integrate the use of drones in airspace and their air control. This limits internal security to the use of drones for situations where police surveillance can be reasonably expected, such as at public meetings and events. However, similar surveillance of public space by a police officer from a tall building or helicopter is not prohibited, nor is surveillance of those same streets with fixed cameras. In addition to this technology-focused approach, there are proposals to create another approach that has ownership of the property or space in focus. Intention is to limit the duration of surveillance or time during which the drone may be in a particular space, to create measures of openness in

terms of insights in recorded materials, liability measures for those who use the drone, to protect privacy much more than in situations where human-powered aircraft use same technology (McNeal, 2014: 4). Comparisons are often made in relation to a closed system of television surveillance over a public space that is in the function of creating "situational awareness" and surveillance, but in practice they are a source of operational awareness of the behavior of people that are collected, stored and reused, although the attitude is that these cameras are for the purposes of public safety, not privacy collection. This was accepted by the public and there was no significant opposition to it. It is to be expected that when drones reach a certain critical point in both public and private use, the necessary "reasonable level of privacy expectation" with respect to the use of drones will be defined. However, unlike cameras set up in the streets or in a private area where citizens are aware that they are under surveillance, in most situation of drones' use where this is not the case, they will be conscious only post-facto, which is a completely different situation when it comes to adjusting their own behavior and legal consequences. The main difference between drones and closed camera surveillance systems is that drones can go anywhere, can change locations as well as real-time technology for recording and positioning. That makes much more difference from a legal and real point of view at drones than from a public space view line of optical visibility (Engelberg Center on Innovation Law and Policy, 2015: 7). Drones provide another advantage in multiple-positions and multiple-drones visual monitoring processes and the ability to integrate this technology with other technologies and exchange information in accordance with data management practices. The basic question in regulating the use of drones is the question of how far drones can go in collecting individual data in relation to the function of generating general awareness of the state of what is being observed. The question is also whether the drones move the quality of individual data collection over other systems and platforms, how it is managed, and whether that data complies with the law governing the protection of personal data (Office of the Privacy Commissioner of Canada, 2014: 6).

## 3. The legal question of usable drones

The right to privacy, or protection against unauthorized search of a person, apartment, correspondence and seizure of these items, is under the guarantee of the Fourth Amendment according to the United States Constitution. The US federal government has a history of regulating surveillance by police agencies through statutes / laws regulating wiretapping and recording that will be updated

with drone use regulations. This statute will guarantee the minimum privacy protection and will define, at the federal level, the level of protection that individual states will have for police use of drones. These statutes will be much less relevant for the private use of drones for the same purposes. It is likely that the private use, which involves video recording, photographing with the drones (which are much more complex for legal regulation), will be left to the federal states (Kaminski, 2013: 59). When it comes to the private use of drones in America, the most relevant regulation is the First Amendment of the US Constitution. The federal government and some countries agree that a court order is required for police use of drones, while private use involving traditional activities such as face recognition via drones, tracking the location and location of certain persons, and video recording is much more complex and harder to regulate (Kaminski, 2013: 60). Although the Fourth Amendment of the US Constitution has been sufficient to protect privacy so far from unauthorized intrusion, the development of technology has called into question its substance, since it was not intended for any technology that is present now or it would be present in the future. The Supreme Court has considered the issue of privacy through several cases (Schlag, 2013: 12-15), of which the significant case is Katz v. United States of 1967, which defined the perimeter within which an unjustified search could occur. In this case, it was an eavesdropping on a public payphone used by a person who reasonably expected the payphone to give her privacy in communication because the subject of control was person, not property, which in this case was public. In this case, the police violated the privacy provisions. The second case concerned aerial surveillance and concerns was the case of California v. Ciarolo in which police used aerial surveillance without an express court order and the object of the observation was the courtyard of the house, which was not visible from the outside and cannot be said to be accessible to the public. However, in this case, the court ruled that the landlord cannot reasonably expect that there was a right of privacy for aerial observers who could clearly see that he was growing marijuana in his yard and therefore had no right to protects himself using the Fourth Amendment. In the case of Dow Chemical v. The United States, Supreme Court has assessed that police had the right to conduct an aerial inspection in accordance with the Air Cleanliness Act, and that the filming of a chemical plant complex is not a search and interference with privacy under the Fourth Amendment. Search involves a physical search of space, and an insight into what is already visible as an open area is not a search. The very act of reconnaissance was carried out from public air traffic, which does not seem to be illegal. In the case of Kyllo v. The United States court found that using sensitive intrusion technology inside one's home to gather information is subject to the Fourth Amendment and it was treated as a

search. These actions also include the use of thermal cameras to read what is happening inside one's home. The use of the Katz test can also be applied to the use of radar to scan someone's home. This equipment is not intended for general use in public places, and therefore citizens are not expected to take measures to protect themselves from such intrusion into privacy. In the case of United States v. The Jones, Supreme Court concluded that the placement of Global Positioning and Vehicle Tracking Equipment was a search protected by the Fourth Amendment, with the addition that in this case the court invoked not only the right to expect privacy but also the very importance of property ownership. In this case, the installation of such a device is also a wrongful entry into possession. In the case of California v. Ciraolo (McNeal, 2014: 7) police reported that someone was growing marijuana in the yard of Mr. Ciraolo's house. Because the courtyard is enclosed by a fence and there is no way of seeing the inside of the garden, the police hired a private jet to make a 1,000-foot observation with the naked eye, which, according to FAA regulations, is a public flying area. The court held that the landlord could not expect privacy protection from public view and gave an example on which the decision was based. E.g. that climbing a two-story bus and looking over the fence would not violate privacy, and thus, even from public airspace for the purpose of navigation, privacy could not be violated. In the case of Dow Chemical Co. The Supreme Court analyzed the use of air reconnaissance helicopters, and in the case of Florida v. The Riley Supreme Court ruled that police did not need a court order to conduct aerial reconnaissance and naked-eye surveillance from public air traffic from a height of more than 400 feet to see what was already visible to the naked eye. The conclusion is supported by the fact that flying at that altitude it leaves no sound, no dust, wind, threat or injury to the property below, and that no detail of privacy regarding the use of that property was observed. The opinion of one of the court rulers was that a helicopter flight below 400 feet altitude, although safe under the regulations of the air navigation agency, would violate the expected privacy of those on the land being flown. By these judgments, the court allowed police to observe private and public property from the air under the aforementioned conditions in the same way that a passenger of any commercial aircraft can observe objects on the ground. In the United States, the Supreme Court based its reconnaissance position at an altitude from which the earth's position could be viewed with the naked eye. He went on the logic that when one sees what is clearly visible from the public space does not constitute a violation of the right to privacy and the Fourth Amendment. However, for police use, drones would technically have to fly below 500 feet and thus would obviously violate the adopted privacy principle and the principle of flying in public airspace. In the case of United States v. The 1946 Causby, Supreme

Court considered the case of a farmer whose land was located near a local small airport used by the military and whose planes were flying at low altitude of 80 feet over a farm. Those flights caused the death of the hen he kept on the farm. The court has applied a common law doctrine that says that if someone has the land he is also entitled to the heaven (air) above that land. Although in modern conditions this principle cannot be absolutely applied, the court has nevertheless found that the height above the land over which the landowner is entitled depends on the type of activity carried out on it and the landowner must be enabled to carry them out without adverse consequences. This created the doctrine of two types of airspace. One concerns public airspace in which air traffic is permitted and one below a certain height at which the owner has the right to exclude the use of aircraft (McNeal, 2014: 7-8). Thus, the average height of a dwelling is 35 feet and in the Causby case the court ruled that the aircraft must fly above 83 feet, as damage to the farm owner was inflicted below that height. In the case of Riley, the limit was 400 feet in which aircraft models were permitted because above that altitude, the public air traffic space, defined by the FAA's air navigation agency, begins. A height of 1000 feet has been defined as permitted for surveillance in the Ciraolo case as well as by the FAA (McNeal, 2014: 9). The disparity of court rulings is a consequence of resolving the issue in a particular case. There is obvious unevenness, but enough to gain a single limit for the use of drones and surveillance from the airspace. Since the minimum is 500 feet high for the flight of aircraft, the drones used by the police from that height are unusable because of their size and technology. They are small aircrafts that can only operate effectively from 40 feet high (McNeal, 2014: 9-10). This height is a space that belongs to the landowner and he can exclude the aircraft from disturbing its possession. The question is whether the police have the right to use the drone at that height above the street, which is a public area and to look inside a private property close to street, much like a police officer who is observing someone's property located in the valley from a hill could observe property in a valley, and that question remains. The ambiguity of the legal solutions shows the very essence of the problem, as Judge O'Connor said in a dissenting opinion that if we assume that the police have a marvelous aircraft that does not create noise or any damage and disturbance on earth, it can see not only what individuals on earth do but also in much more detail, e.g. they read the book. Even though the standards regarding the altitude from which they are allowed to fly have not changed in accordance with the requirements of the FAA, then we can certainly ask whether the logic of plurality of court decisions then works to claim that human rights to privacy have not been violated (McNeal, 2014: 10). As can be seen from the above, government activities are quite regulated while cases where private use of drones does not

clearly protect someone's privacy can be found in court. The problem is that the scope of the First Amendment should be clearly specified. Countries such as Texas that released the Texas Privacy Act into procedures, H.B. 912 prohibit recording without the consent of the property owner, as well as the collection of images or other information by civilians. Banning civilians from using drones leads them to be denied legitimate and crucial information in whose collection they have an interest in and right, thereby denying the First Amendment and their right to speak. There is a conflict of two rights, one to privacy and the other to speak. Specifically, there is a tension here similar to the right to privacy and the First Amendment right to record police activities in a public area without their permission. In some countries, police arrest people who shoot without the permission of other citizens, but also uses the same law to arrest people who shoot police activities without their consent. So instead of protecting privacy, we have a limitation on insight into government activity (Kaminski, 2013: 61). The US courts have divided in ways how to treat these issues from the First Amendment angle. The First Circuit Court considers that this amendment gives a clear right to be recorded by the police. The Eleventh Circuit Court finds that recording in the public interest is subject to restrictions on the time, space, and modes of recording. The Seventh Circuit Court considered the crime of recording a conversation when all parties to the conversation did not consent to the recording, and held that the statute regulating this crime limited significantly more freedom of speech than is necessary under the First Amendment interpretation of these freedoms. The court considered and concluded that the police, recording in public, depends on the context and that they are public servants, so the recording depends on the public interest, but it is not said how broad the First Amendment right is (Kaminski, 2013: 62). Obviously, these two amendments depend on where the recording takes place and where the right to privacy correlates with the memory and experience of others. So private things happen in a public place, but public things also happen in a private place (Kaminski, 2013: 63). Countries that take ownership as a principle for protecting privacy, prohibit any recording and spying on private property without the owner's consent, but also limit the right of the press to cover political and other events, e.g. the amateur is not allowed to record visible pollution from a local factory that pollutes the air with its exhaust. Under pressure from interest groups, some countries have banned agricultural farms from being filmed. The First Amendment does not prevent a person from being arrested for unauthorized entry into someone else's property, but prevents a person from being arrested if they are legally located and recording material of public interest (Kaminski, 2013: 63). Countries have different standards in terms of privacy breaches as well as breaches of confidentiality. Complex states like the US have a federal

minimum level of protection at the first level, and states are allowed to strengthen and better protect privacy. Thus, at the federal level, the use of drones by the police is regulated by the Electronic Communications Privacy Act (ECPA), which provides the basis for requests and orders of the police surveillance court.

This covers person location tracking, video surveillance and biometric identification, or other emerging technologies. However, the private use of drones is more complex because the regulation is split between the federal level and the states (Kaminski, 2013: 65). There is not one single privacy law at the US federal level but sectoral regulations exist, e.g. one act regulates the sharing of health information; financial information, third party video recording etc. (Kaminski, 2013: 65). Privacy lawsuits can be divided into four types: public disclosure of private facts, intrusion into privacy whether physical or electronic, portraying a person in public in a light that does not correspond to reality, or false light, which is also a defamation, then the unauthorized use of someone else's name with the likelihood of some gain (Kaminski, 2013: 65). The emphasis is on the type of information, whether the information is as private as the way it was obtained. State laws apply to the private recording of tone and image and are subject to arrest and prosecution. Through the licensing process, the FAA should provide the most important role in privacy protection, which is transparency, so that those under surveillance are aware that they are subject to privacy breaches. Unlike street cameras, when citizens are aware that they are under surveillance, in the case of drones the role of the FAA is to prescribe who uses the drone to collect data by issuing a statement of where and when is going to record, how long it will collect data etc. The task of the government is to help those who request information on whether they have been subject to surveillance to obtain recordings and other information form the drone users. Each drone would carry radio identification similar to the plates on the car so that it could be identified. In this way, a drone that violates one's privacy could be identified by radio frequency identification ("RFID") "license plates" (Kaminski, 2013: 67). Many countries prohibit the wearing of masks that cover their faces in public for anonymity, but in the case of extensive use of drones, this practice would decriminalize and allow persons wishing to be anonymous to wear a mask on their faces (Kaminski, 2013: 67).

The states have laws that partially regulate particular areas, but they could also cover the issue of drones, and these are the following laws: state eavesdropping law, Peeping Tom laws, video voyeurism laws, paparazzi laws that regulate privacy breach through photography, video recording and sound recording (Kaminski, 2013: 68). Peeping Tom statutes criminalize observation through a keyhole or other hole, but in order to be punished the perpetrator must be caught in action. Video voyeurism statutes criminalize viewing, video recording and photographing

another person without their consent or knowledge and when done for sexual arousal. Some of the statutes require the entity to be disclosed in whole or in part, and some merely require that there was a reasonable expectation of privacy. Paparazzi statutes prohibit the use of special technology to invade celebrity privacy and personal celebrity space. The drone control laws provided with the certain procedures consolidate these laws and serve the courts to strike a balance between privacy and free speech (Kaminski, 2013: 68). And it follows that countries will not completely ban drone shooting, but will limit it in a socially acceptable way, that is, in certain situations. States may decide to ban certain forms of surveillance of certain locations, that is, the certain forms of surveillance can only be allowed at a certain time, then that the basis of defense in a press court will surely be the character of a public event or public figures, and that secret recording will be banned, etc. Some courts have found that even in a public place, individuals can reasonably expect privacy, e.g. if a person is in their underwear and is on the street, or in the case of a survivor of a car accident that took place in a public space (Kaminski, 2013: 70). The Federal Video Voyeurism Prevention Act of 2004 ("VVPA") indicates that persons have a legitimate right to expect the privacy of their shameful places, whether in a public or private place, and that they will not be subject or exposed to viewing. The Fourth Amendment, unlike the First Amendment, does not expect privacy in a public place, but legislators may also accept that persons in these places are also entitled to privacy. It can be clearly seen from the law as well as from judgments when surveillance is secret, when it is intrusive, or when it uses technology that is pervasive and impedes privacy, but does not say when it is random and when it is continuous. Drone surveillance laws will certainly cover and punish shootings that are targeted, not accidental, continuous, or involve specific entities and / or events that are realistically expected to have private nature. There are ideas that, instead of focusing on technology that is clearly not fixed in time and that represents citizens' fear, other criteria are the focus of legislation (McNeal, 2014: 4). Thus, the author whose work we have used recommends that the height at which the drones are located be used as criteria, which is the height on which public air traffic above private property is permitted and where the possibility of intrusion into privacy and damage to property on earth due to overflight is minimal. This has already been stated in court judgments. Another way to limit aerial surveillance is to limit the dwell time of the aircraft above a specific location or person, which should limit the total time for monitoring the facility and therefore the amount of information that can be collected. Then, the legislator must define the storage time for the recorded and collected material. All data should be deleted after a certain period of time, and those data that are to be preserved should be given adequate access, which would

in itself require suspicion and validity of the request. For the sake of transparency in the collection of data by drones and their flights, public services using drones should, on a periodic basis, publish all data on these flights in order to identify possible omissions and responsibilities. Also, geofencing should be included in drone technologies as a program, which should activate the alarm as soon as the drone exits a given path of motion, as well as auto-sequencing which automatically blacks out all material or portions of the image that are not relevant. The reason is ownership of the property and therefore an important focus of drone use, because this right is easy to determine, while flight altitude issues are subject to change and this is debatable. Because, as was said in the Causby case, a low-flying aircraft, but an untouchable one, also made an intrusion on it as a person who had been uninvited and illegally taken possession of it. The second question is whether the right to use drones from public lands can be exercised, but from that height as if viewed from a lofty public place on private property. If the answer is positive, it should also be possible and legally allowed to the property owner to exclude the public from accessing his property. Although helicopters can fly above 400 feet and as such can carry sophisticated surveillance equipment without a court order and sometimes lower, but never below 350 feet, the question is why there is a problem that drones from that height can fly without a warrant. The answer is that they are almost imperceptible at this altitude and also because they carry GPS devices and at any moment they can be accurately located. In the future balloons or airships that can stay in the air for a long time will be used and lawmakers should focus on harm from aerial surveillance rather than the type of platform being used (McNeal, 2014: 17). It is recommended that the legislator focuses on the timing of oversight so as not to allow the use of constant oversight. The authors we used as reference recommend that it is still better to define the exact time for all types of aircraft, since in this case the court has no problem finding violations. The third proposal is to adopt procedures for storing data and recordings as well as their access to that information. Later on, the basis of a high level of doubt e.g. there is a reasonable suspicion that the government might keep the footage of a person it has been monitoring for a long time and draw conclusions about the most intimate details of a person's life. The purpose of the procedures is to prevent or impede the subsequent use and access to this data. All data would be destroyed after a certain period of time and there would be no possibility of it being made public except in criminal proceedings, so that these materials would be treated as any CCTV camera footage on the street for these purposes. The data are kept up to 30 days, including the possibility of appeal during this period. After this period the data would be removed from the server accessible to the police and its access would only be possible under a court order and with a

level of reasonable suspicion. A further new proposal is that the legislator should establish accountability and transparency of data so that on a periodic basis, and should publish information on the platforms used for surveillance, whether or not they have a crew. The information should be published on the agency's website with a restriction on disclosure regarding ongoing criminal investigations (McNeal, 2014: 20). What scares citizens is that drones are invisible, autonomous and powerful platforms for various means of surveillance, and since they are not common in the everyday use of citizens, this then requires the protection of the Fourth Amendment. Many citizens in the United States and in other countries around the world are not familiar with the details of the application and capabilities of drones with regard to intrusion into privacy, so legal protection of that privacy must be made. That is the logic of the Supreme Court of America's judgments in the cases cited as well as the following principles and tests. As a basis for search and seizure or seizure of things, there is a test of reasonable treatment. The test of reasonable treatment of drones and new technologies for surveillance and invasion of privacy is very difficult to define. In reality, there is a gap between knowledge of a particular technology and its real capabilities and application. Individuals from general audiences who do not understand the application of technology do not expect its application to their lives and are unable to take privacy measures. In Katz's case, the main principle was a test of reasonable expectation of privacy, while in Kyllo's case it was the gap between the availability of technology information and the actual capacity to apply it in relation to privacy breaches (Schlag, 2013: 15). In relation to the use of drones by police and private entities, if citizens were aware of the capacity of drones and the fact that there are no measures they can take to protect themselves from high resolution cameras, from infrared cameras, from GPS tracking of movement, from other electronic actions to the individual, trust in privacy would be completely destroyed on a reasonable basis even inside their homes (Schlag, 2013: 16). The mere fact that drones used by police are much cheaper and more widespread than those used by the military seeks privacy protection through the Fourth Amendment. The basic point so far is that an order is only required from a court if the information being collected is required as evidence in criminal proceedings and for other purposes not. It is reasonably expected to limit the use of drones for longer monitoring purposes. The use of technical solutions that should be used is geofencing and auto redaction, which would be more effective in limiting invasion of privacy than using human crews (McNeal, 2014: 21-22). Geofencing implies that data is collected from specific locations, whereas the other information would automatically be blacked out or unavailable. By recording the soil at a particular location, the person's face present on that location would be covered and could only be discovered by court order

on valid reasonable grounds or probable suspicion. Integrating drones into everyday life involves integrating drones into a set of values such as privacy, trust, security, freedom of expression, community, etc. The design of these aircrafts must reflect precisely the attitude towards these values. Privacy protection, especially in light of potential opportunities of the UAS requests that the government take steps to ensure privacy, and agencies it that sense will, review existing policies and procedures regarding the collection, use, retention, and forwarding of information collected to protect civil rights and freedoms and will improve those procedures in accordance with privacy law to meet the following conditions: (i) collection and use will be for an approved purpose; (ii) the retention of information collected by the UAS that may contain identifiable information will not be retained for more than 180 days; (iii) the dissemination of information will not be made outside the agency that collected it unless the dissemination is required by law.

## 4. Conclusion

There is a big difference in how drone market themselves and what their actual use is. The advertising and sale of drones is based on two aspects, price and cost as well as the ability of drones to meet customer requirements based on the technological solutions offered in their background. In drone marketing, manufacturers represent their use in neutral terms as "imaging and monitoring, " leaving room for numerous applications. The civilian use of drones is controversial and there is ongoing debate whether to allow and for what purpose their use and under what legal restrictions. In some countries that have enacted laws and allowed drone use for police purposes, a court order is required as a condition, and their use is treated as any other significant police or investigative activity. The paper, on the other hand, provides opportunities to limit the misuse of drones through legal solutions and with the use of technology that would itself be a brake on the misuse of drones, without limiting the number and purpose of drones only because of the fear of them. Solely because of the fear, society may impose a restriction on itself not to exploit the full potential of drones. This paper deals with the case law of the US Supreme Court as well as other courts related to the use of surveillance technologies that have been reported in the literature. This case law also becomes the benchmark for drones. In addition to reviewing the Fourth Amendment from the US Constitution, the use of drones under the First Amendment in the same constitution is also highlighted, in light of the use of drones for the purpose of journalism, hobbyists and other private initiatives that may lead to citizen surveillance not now by the government and its agencies but by other individuals or companies.

The existing legal regulations and case law are uneven and poorly adapted to the new technology, i.e. to the use of existing technology from new flying platforms such as drones. Various forms of their use make them far more dangerous to the privacy of citizens from whose use they have no real protection. This is why numerous factors need to be taken into account when it comes to limiting their use, as well as the factors that prevent hindering of privacy, if it is not based on a court order and a justifiable purpose.

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# LEGAL NATURE AND MAIN PROCEDURAL DETERMINANTS OF CRIMINAL PROCEDURE IN BOSNIA AND HERZEGOVINA

*In this paper, the authors analyse the legal nature of criminal procedure in Bosnia and Herzegovina, with the special emphasis on reform processes of criminal procedure legislation and adoption and acceptance of new legal solutions over the past two decades, acknowledging the aspiration for effectiveness and protection of basic human rights and freedoms. For the purpose of effective criminal procedure, it identifies the main and secondary actors in criminal proceedings whose role is crucial from the aspect of shedding light on and resolving a certain criminal matter, as well as issuing a judicial decision. To that end, the role and importance of those actors in taking procedural actions to carry out a criminal procedure task is emphasised for the purpose of understanding the legal nature, structure and course of the criminal*

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*procedure, and achieving the scope of legally prescribed rights of the suspect, that is, the defendant. In addition, special attention is paid to the specific procedural situation and status of an underage person in the criminal law as the perpetrator and injured parties in a criminal case, taking into account their age as the basis for the differentiation and protection in relation to adults.*

**Key words: criminal procedure, criminal matter, actors in criminal proceedings, Bosnia and Herzegovina.**

## 1. Legal nature of reform processes of criminal procedure laws in Bosnia and Herzegovina

Intensive and dynamic processes in the criminal procedure laws in Bosnia and Herzegovina have over the past two decades focused primarily on several very important aspects among which we need to specifically emphasise the effectiveness of criminal proceedings, tendency to humanise the contemporary criminal procedure law, efficient and energetic fight against crime, and especially the specific forms of organised crime as the plague of the modern age (crimes in human trafficking, drug abuse, terrorism, economic and financial crime, cybercrime, etc.). In that regard, the question is posed even today if it is possible to imagine a human society without crime, which many prominent humanists and specialists in social sciences all give a negative answer to (Horvatić, Derenčinović, Cvitanović, 2016: 39). Apart from that, the continental – European system is sometimes denoted as inquisitorial, which is specifically characteristic of Anglo-Saxon authors of legal literature, while the Anglo-Saxon is denoted is accusatorial, but such terminology is basically incorrect, because even though the continental – European system contains certain inquisitorial elements, it is actually a mixed system, just like numerous Anglo-Saxon systems are no longer purely accusatorial (Stojanović, Škulić, Delibašić, 2018: 33).

With the general reform of the criminal procedure laws in Bosnia and Herzegovina from 2003, adoption and entry into force of the new criminal procedure codes at all levels[1] brought about major or radical changes in criminal

1 Criminal Procedure Code of Bosnia and Herzegovina (Official Gazette of BiH, 3/03, 32/03, 36/03, 26/04, 63/04, 13/05, 48/5, 46/06, 76/06, 29/07, 32/07, 53/07, 76/07, 15/08, 58/08, 12/09, 16/09, 93/09, 72/13, 65/18); Criminal Procedure Code of the Federation of Bosnia and Herzegovina (Official Gazette of FBiH, 35/03, 37/03, 56/03, 78/04, 28/05, 55/06, 27/07, 53/07, 09/09, 12/10, 08/13, 59/14); Criminal Procedure Code of the Republika Srpska (Official Gazette of RS, 53/12, 91/17, 66/18) and Criminal Procedure Code of the Brčko District of Bosnia and Herzegovina (Official Gazette of BDBiH, 10/03, 48/04, 06/05, 12/07, 14/07, 21/07, 27/14, 3/19).

procedure primarily related to the acceptance and adoption of the new concept of investigation and an amended role of actors in criminal proceedings in the investigation, the simplification of the form of action, application of special investigative actions, etc. However, it is exactly the concept of investigation and the changed role of the actors in criminal proceedings (prosecutor's office, court) with a clearly defined accusation that the biggest changes refer to.

It is evident from the adoption and entry into force of the new concept of investigation in the criminal procedure laws of Bosnia and Herzegovina that the preliminary criminal investigation and preliminary proceedings are joined into a single investigation that is launched and carried out by the prosecutor. The prosecutorial concept which the scientific and expert community dubs the prosecutorial-police concept of investigation replaced the former judicial concept in the criminal procedure laws of the neighbouring countries too (Serbia, Croatia, Montenegro, North Macedonia), given the very proactive role of authorised officers in investigations, with the exception of Slovenia, where the judicial concept of investigation sustained certain modifications. On the other hand, the role of the court is passive when it comes to launching and conducting an investigation, as is the aspect of gathering evidence and conducting the investigation in its entirety, as well as the presentation of evidence, that is, defining the presence of a certain criminal offence and criminal responsibility.

Accordingly, respecting the accepted and adopted criminal procedure solutions from 2003, as a result of general reform, it is safe to conclude that the role of the court is passive and mainly controlling, and that it primarily refers to the control of legality with respect to immediate action of law enforcement agencies (prosecutor's office, police and other law enforcement agencies) and limitation of fundamental human rights and freedoms of the suspect or accused, this in the context of the application or performance of certain criminal procedure actions (presentation of evidence, special investigative actions, etc.). However, the limitation of freedom by prohibiting certain behaviours is justified only when such behaviours undoubtedly represent socially harmful behaviours (Stojanović, 2016: 38).

When it comes to secondary actors in criminal proceedings, the role of the defence counsel has been changed in relation to the former legal solutions, given that the new legal solutions allow the defence counsel to take certain actions from the moment of learning about a certain criminal investigation, establish all facts and gather evidence for the benefit of the accused, as well as all other actions in terms of the practical usage of securing the catalogue of rights to the accused. In addition, for the purpose of criminal prosecution, authorised officers as the secondary actor of the criminal proceedings, have a crucial and proactive role in

criminal proceedings in terms of timely detecting criminal offences as the primary or basic police activity, as well as the investigative and the role of presenting evidence manifested as the practical realisation of orders and requests of the prosecutor's office and court as the main actors gathering the necessary evidence about a certain criminal offence and the accused or the defendant. The detection role of authorised officers is an initial activity necessary for the existence of reasonable grounds as a necessary condition for the prosecutor to launch and conduct an investigation with respect to the presence of the specific criminal offence (Karović, Orlić, 2020: 114).

Apart from the effectiveness of criminal proceedings which is the main interest of all reform processes not only in Bosnia and Herzegovina but in the neighbourhood and the region, it is important to emphasise a very prominent tendency for humanising the contemporary criminal procedure law from the aspect of the protection of fundamental human rights and freedoms of every individual, irrespective of their national, ethnic, religious or racial background. Analysing the valid legal provisions, it is evident that the position of the suspect or accused in a criminal proceeding in terms of the provision of their rights and freedoms has significantly improved as the right to defence is manifested in all stages of action for the purpose of shedding light on and resolving a certain criminal matter and making a proper judgement. The catalogue of rights and universal guarantees for the suspect or accused in the criminal proceeding is direct and practically implemented in terms of execution through the component of humanisation which is incorporated in a number of international legal documents as well. It can be concluded that the application of criminal repression by law enforcement actors or agencies with respect to the limitation of certain human rights and freedoms is conditioned by restrictive legal requirements and reduced to the smallest or proportionately necessary measure in order to satisfy the legally justified goal – an efficient and effective fight against crime. The wave of reform processes of the criminal procedure legislation over the past two decades has bypassed neither the neighbouring countries (countries of the former Yugoslavia), nor the regional countries, given the global processes at the international, global level regarding the definition and implementation of international standards at the level of execution including the position, status and treatment of the suspect or accused, especially a juvenile as the perpetrator, as well as an injured party in a criminal proceeding.

Development of the contemporary criminal procedure law which is still ongoing given that, by its destructive nature and consequences, and especially some new forms, crime requires due attention of legislators in terms of timely and proportionate amendments to the criminal procedure codes with respect to

timely, efficient and legal detection, investigation and proving of crimes, as well as the prevention of crime in general. However, from the aspect of the rights of the injured party or victim as a secondary actor in a criminal proceeding, we may conclude that they are marginalised, knowing that the commitment of a certain crime jeopardises or violates a certain good (personal or property right) of the injured party themselves. This prompts a reasonable, justified and purposeful need for legislators in some future interventions in amending the laws to recognise the need for further improving the position, status and treatment of the injured party in terms of achieving their rights and remedying the harmful consequences.

## 2. Specific position and status of a juvenile in the criminal legislation of Bosnia and Herzegovina

Intensive and dynamic reform processes in Bosnia and Herzegovina, the neighbourhood and the region have especially become prominent when it comes to the development of the juvenile criminal law and adoption of certain international legal standards which determine the action of law enforcement actors or agencies with respect to this specific age group. It is exactly due to age as the core parameter or criterion that legislators have absolutely justifiably and purposefully recognised the need to isolate legal regulations, that is, provisions of the law from the general part of the law, thus accentuating the difference and different position, status and treatment of juveniles as opposed to adult perpetrators. With respect to the general form, the treatment of juveniles by its structure is not "defective," no stage or stadium is missing; rather, its structural elements are significantly modified in order to adjust the physiognomy of the procedure to the personality of the minor (Orlić, Pehlić, Tufekčić, 2019: 494). With the adoption and entry into force of the law on the protection and treatment of children and juveniles in criminal proceedings at the level of the entities[2] and Brčko District[3] legal provisions related to the criminal position of minors have been isolated, which is significant progress. That is how the juvenile criminal law gains its independence and autonomy, even though these provisions related to

2 The Law on the Protection and Treatment of Children and Juveniles in the Criminal Procedure of the Federation of Bosnia and Herzegovina (Official Gazette of FBiH, 7/14) and Law on the Protection and Treatment of Children and Juveniles in the Criminal Procedure of the Republika Srpska (Official Gazette of RS, 13/10, 63/11, 61/13).

3 The Law on the Protection and Treatment of Children and Juveniles in the Criminal Procedure of the Brčko District of Bosnia and Herzegovina (Official Gazette of BDBiH, 53/11).

juveniles at the state level are still contained in the general part of the Criminal Code of BiH[4] and Criminal Procedure Code of BiH.

On defining legal norms for the provisions related to the action of law enforcement actors or agencies, the legislators showed specific sensibility to juveniles and directed their attention to the use of certain terms for juveniles in order to prevent or make impossible the stigmatisation of juveniles as perpetrators of certain criminal offences. In terms of terminology too, the legislators avoided the usage of certain legal terms characteristic for adult perpetrators of crimes. Thus, the procedure against juveniles is not called "criminal" but "procedure against juveniles," unlike the general procedure conducted against suspects or accused persons (M. Simović, M. Simović, 2015: 26). On the other hand, action of law enforcement actors or agencies is conditioned by an appropriate specialisation of experts of various profiles with professional capability to respect the personality of juveniles in the broadest sense (e.g. conducting an interview, etc.). Hence, the legislators demonstrated a special feeling for juveniles as perpetrators, as well as the injured parties, that is, victims of a certain crime.

Juveniles as injured parties or victims of a certain crime require special protection so as to avoid their further, secondary victimisation. They require special attention given very prominent negative and long-term effects on the mental state of juveniles, especially when it comes to various forms of sexual exploitation (e.g. human trafficking crimes) where it is necessary to ensure appropriate help and support even after the conclusion of the proceedings. Namely, numerous pieces of research show that children who were victims of abuse get frustrated and get emotional scars, which is often a strong impulse for developing their own aggression and growing to abuse others (Škulić, 2011: 348).

One of the contemporary trends in criminal law, which is especially prominent when it comes to juveniles in conflict with the law is the encouragement of the development of alternative forms of response to delinquent behaviours by youth, which, apart from searching for alternatives to the institutional treatment, encompass also the efforts to try and resolve cases of juvenile delinquency outside criminal proceedings, and using the trial as *ultima ratio* for juvenile perpetrators of criminal offences (Gurda, 2011: 178). In that respect, a major novelty in treating juveniles in Bosnia and Herzegovina is the acceptance and introduction of alternative or different measures of diversion which are actually a replacement for repressive measures. It is their goal to divert the criminal proceeding and apply alternative (diversion) measures aiming to resocialize juveniles instead of punishing them.

4 Criminal Code of Bosnia and Herzegovina (Official Gazette of BiH, 3/03, 32/03, 37/03, 54/04, 61/04, 30/05, 53/06, 55/06, 32/07, 8/10, 47/14, 22/15, 40/15, 35/18).

## 3. The main and secondary actors in criminal proceedings

Respecting the statutory legal status, actors in criminal proceedings as legal or natural persons do not have the same procedural position or significance from the aspect of commencing, conducting and finalising the criminal proceedings. Given the procedural position and significance, we may divide actors in criminal proceedings into main and secondary. The main actors in criminal proceedings are: The court (independent and autonomous state authority performing the function of trial), the prosecutor (function of criminal prosecution) and the suspect or accused (function of defence) without whom it is impossible to initiate, conduct or finalise the criminal proceedings. The secondary actors in criminal proceedings are the injured parties, a legal or natural person and the body of guardianship.

The procedural roles of the main and secondary actors in criminal proceedings differ and are achieved or ensured exclusively on the basis of a consistent application of the legal provisions regulating and establishing the norms for their roles in criminal proceedings. Nevertheless, the significance of the main actors in criminal proceedings is primarily formal and procedural given that without a prosecutor it is not possible to initiate an investigation, issue an indictment or act as a legal representative before the court; without the suspect or accused there would be no one to prosecute, and without the court there would be no one to issue the decision (Halilović, 2019: 110).

It is primarily the criminal and legal nature of the concept of investigation that the role of actors in criminal proceedings and the position of the prosecutor in the investigation in the context of their jurisdiction depends (Karović, 2019: 67). Regarding the launch and conduct of criminal proceedings, the prosecutor appears as the only legal authority who can in every specific case autonomously assess whether there are grounds to suspect that a certain criminal offence has been committed (a substantive condition). Practically, without the prosecutor it is impossible to imagine launching and conducting an investigation regardless of whether they autonomously carry out their prosecutorial assessment and make a decision ordering an investigation. In addition, the acting prosecutor leads the investigation and has a supervisory role in relation to the authorised officers regarding the performance of certain criminal procedure actions. To that effect, they make an autonomous decision about the selection of criminal procedure actions (evidentiary proceedings, special investigative actions) which have to be applied in every specific criminal case, depending on the nature of a certain criminal offence, the way it was committed and other criminal procedure specificities which directly determine the entire procedure.

The prosecutor has the right and duty to: a) immediately upon learning there are grounds to suspect that a criminal offence was committed, take the necessary

measures to detect it and conduct an investigation, find the suspect, manage and supervise the investigation, and manage the activities of authorised officers including finding the suspect and collecting statements and evidence, b) conduct an investigation in line with this law, c) grant immunity in accordance with the law, d) request information from state bodies, enterprises, legal and natural persons in Bosnia and Herzegovina, e) issue summons and orders and suggest the issuance of summons and orders in accordance with the law, f) order the authorised officer to carry out the order issued by the court in accordance with the law, g) establish the facts required for settling a property claim and seizing of property gain obtained through criminal offence in accordance with the law, h) propose the issuance of a warrant in accordance with the law, i) issue and defend the indictment before the court, j) submit legal remedies, k) perform other duties prescribed by the law (Article 35, para 2 of the Criminal Procedure Code of Bosnia and Herzegovina).

One of the main actors in criminal proceedings is the suspect or accused, as a natural or legal person. The position of the suspect or accused in the law depends on the stage of the proceeding, provided that they are always an actor and party in the proceeding (M. Simović, V. Simović, 2011: 116)**.** In Article 20 of the Criminal Procedure Code of Bosnia and Herzegovina, the legislator defines, that is, determines the meaning of these terms in the catalogue of the basic terms of this law. The suspect is a person with respect to whom there are grounds for suspicion that the person may have committed a criminal offence.[5] The accused refers to a person against whom one or more counts in an indictment have been confirmed.[6]

The suspect or accused in criminal proceeding performs the function of defence. Practically, the function of defence is achieved by undertaking certain procedural actions to refute the charges. There are also procedural actions of negating the presence of a criminal offence and criminal responsibility, where facts are presented and evidence proposed in favour of the person against whom the criminal proceeding is held, and such procedural actions are also functionally related and make up the function of defence (Stanojević, Ignjatović, 2007: 70).

It is possible for the prosecutor to launch and conduct an investigation against an unknown person as well but, on the other hand, it is impossible to issue an indictment without defining the identity of the person the indictment refers to. As regards the procedural status of the suspect or accused, it is compatible with the standard of proof, that is, the degree of suspicion in the commitment of a certain criminal offence. The status of the suspect exists when the standard of proof of grounds to suspect that a certain criminal offence has been committed is

5 Article 20, item a) of the Criminal Procedure Code of Bosnia and Herzegovina.

6 Article 20, item b) of the Criminal Procedure Code of Bosnia and Herzegovina.

met, unlike the procedural status of the accused for which it is necessary to meet a greater degree of suspicion that a certain criminal offence has been committed, and that is reasonable grounds.

For the purpose of achieving the protection of citizens from ungrounded or unlawful action in terms of the violation or threat to the fundamental human rights and freedoms, that is, the disrespect of the axiom of legal security, the criminal procedure code stipulates certain guarantees for the suspect or accused in criminal proceedings. In addition, this law also stipulates a catalogue of rights for all persons with the procedural status of the suspect or accused in criminal proceedings. However, aside from the universal guarantees and rights of the suspect or accused, certain obligations in criminal proceedings are also stipulated (the subject of proof, response to court, compliance with the court and procedural discipline).

The court is an independent and autonomous state authority performing the function of adjudication. The criminal court appears within the courts of general jurisdiction over criminal jurisdiction, that is, the judicial function in criminal matters (Jekić, Škulić, 2005: 47). Given the accusatorial principle, the concept of investigation and legal nature of criminal proceedings in Bosnia and Herzegovina as a compact whole, the role of the court is passive and mainly refers to the aspect of actions of the preliminary proceedings judge who, on the basis of their competences, controls the legality of establishing and adjudicating on the justification of the application or performance of certain criminal procedure actions by law enforcement agencies (prosecutor's office, police and other law enforcement agencies) limiting the fundamental human rights and freedoms (evidence gathering, special investigative actions). In addition, the court is very passive in terms of evidence given that the presentation of evidence is generally left to the parties (the prosecutor and the defendant, that is, the defence counsel), while the court ultimately issues a judicial decision (judgement) on the basis of an autonomous assessment.

Apart from the main actors, an important role in shedding light on and resolving a certain criminal matter is that of secondary actors in criminal proceedings. One of the main secondary actors in criminal proceedings is the injured party, that is, the victim of the committed criminal offence. The Criminal Procedure Code defines the procedural status of the injured part in criminal proceedings, while the term victim is used in victimology, criminology, psychology, substantive criminal law, and other social sciences. As a rule, the injured party appears as a witness given that their personal or property right is violated or jeopardised by a certain criminal offence.

The defence counsel also appears in the function of defence and achievement of the catalogue of statutory rights of the suspect or accused. It is practically

impossible to imagine the function of defence in criminal proceedings without an active participation of the defence counsel in carrying out formal defence. The suspect or accused may not exercise the right to defence by themselves regardless of the fact it is a person who is the immediate actor or witness of a certain criminal event. The defence counsel creates operational tactics and defence strategy in every specific case, and with their participation directly allows for taking proportionately necessary procedural actions in using the right to defence by the suspect or accused in all stages of criminal proceedings.

In terms of the timely detection, investigation and proving of criminal offences, the primary role and significance is that of authorised officers. The primary or main activity of authorised officers is the detection of criminal offences, and timely reporting to the prosecutor's office on the existence of grounds to suspect that the crime was committed. Furthermore, in the prosecutorial-police concept of investigation, major activities concerning the gathering of evidence are entrusted with authorised officers in particular, under the managing and supervisory role of the acting prosecutor. Authorised officers are an operative service of a kind to the prosecutor's office in terms of carrying out its orders and requests for the performance of appropriate investigative actions and evidence-gathering. In terms of establishing the presence of a certain criminal offence and individual criminal responsibility, authorised officers very often appear as witnesses in the presentation of evidence at the proposal of the prosecutor, regarding the circumstances of taking certain investigative actions and gathering evidence (evidentiary proceedings, special investigative actions, etc.).

A very important role in shedding light on and resolving a certain criminal matter is that of expert witnesses too. When it is necessary to establish certain important facts, which are directly related to a certain criminal matter, expert witnesses are engaged, who with their expert knowledge, skills and competences from a certain scientific field provide their findings and opinions which allow the prosecutor and court to issue a correct court decision.

Significant is also the role and participation of legal representatives, judicial associates, witnesses, experts, etc.

## 4. Definition of a certain criminal matter and standards of proof

The main subject of criminal proceedings is a certain criminal matter which is directly and closely tied to and conditioned by the standards of proof which make the basis for the definition and differentiation of the criminal matter in a

proper sense and the criminal matter in an improper sense. However, aside from the criminal matter as the main subject of criminal proceeding, other issues may also be reviewed and adjudicated upon in such proceedings which are part of the secondary elements of criminal procedure, as follows: property claim, procedural costs and preliminary issues.

With the adoption and entry into force of the new criminal procedure codes in Bosnia and Herzegovina, the prosecutorial concept of investigation which minimises the degree of suspicion necessary for launching and conducting an investigation has been accepted. Namely, in order to launch and conduct an investigation, that is, to issue an order for conducting an investigation by the acting prosecutor, it is necessary to meet the lowest degree of suspicion or likelihood that a certain criminal offence has been committed, and that is reasonable grounds. In cases like this, when the legally prescribed standard of grounds to suspect that a certain criminal offence has been committed is met, it is automatically a criminal matter in an improper sense. Thus, reasonable grounds are the lowest level of likelihood that a certain criminal offence has been committed by a certain person and therefore, there is a criminal matter in an improper sense when this standard of proof is met. However, for the criminal matter to exist in a proper sense, it is necessary to meet a higher degree of suspicion that a certain criminal offence has been committed by a certain person, and that is grounded suspicion. Criminal matter in a proper sense exists when there is grounded suspicion, when there are facts and circumstances justifying the suspicion that a certain person has committed a certain criminal offence (Bejatović, 2019: 29).

The presence of the standard of proof of grounded suspicion that a certain person has committed a certain criminal offence makes obligatory the presence or the provision of necessary evidence collected in the investigation from which the standard of proof derives, which is confirmed by the presence of the objective and subjective features of the body of the specific criminal offence. Such differentiation of criminal matter in the criminal matter in a proper and the criminal matter in an improper sense is justified and purposeful since the presence of the criminal matter in an improper sense which is conditioned by the presence of the lowest level of likelihood that a certain criminal offence has been committed or the standard of proof of reasonable grounds does not necessarily mean that it will "turn into" a criminal matter in a proper sense after the investigation because the investigation may also be terminated by suspension. Reasonable grounds are a standard of proof in criminal proceedings which needs to be met for the acting prosecutor to draft and issue an indictment and then for the preliminary proceedings judge to uphold it, in which case it is a criminal matter in a proper sense.

## 5. Conclusion

The overall development of criminal procedure in Bosnia and Herzegovina over the past two decades has resulted in the adoption and acceptance of certain new legal solutions of procedural nature characteristic of the Anglo-Saxon legal tradition, therefore in major amendments to the criminal procedure, especially in terms of investigation where the role of actors in criminal proceedings of the prosecutor's office and court has evidently been changed. The prosecutorial and prosecutorial-police concept of investigation, which replaced the former judicial concept of investigation, recognises the prosecutor as the only legal authority authorised to launch and conduct an investigation, while the role of the court is passive and mainly refers to the control function of the preliminary hearing judge related to the limitation of human rights and freedoms of the suspect or accused (issuing orders for certain evidence gathering and special investigative actions).

The complexity of establishing the presence of a certain criminal offence and criminal responsibility is either directly or indirectly manifested through activities of the main and secondary actors in criminal proceedings, given that restrictive legal requirements have to be met in every specific criminal case. Evidentiary hearing is a "duel" between two opposing sides (parties), on the one hand the prosecutor on the side of the prosecution, and on the other the suspect or accused on the side of the defence. The role of the court is mainly passive.

The issue of an efficient criminal procedure and adequacy of the state reaction to crime has to be observed from the aspect of professional capability, procedural discipline and personal professional responsibility and interest of the persons entrusted with certain public powers in terms of consistent enforcement of the law. It has to be pointed out that the burden of proof lies with the acting prosecutor, as well as authorised officers who directly gather evidence upon which depends the outcome of the criminal proceeding and issuance of the judicial decision. Acquittals in certain criminal cases, most often due to the lack of evidence or some other procedural reasons, and especially in case of specific forms of organised crime, produce very negative reaction of the scientific and general public. It represents an extra burden, professional challenge and responsibility for the acting prosecutor in terms of conducting an efficient investigation and gathering the necessary evidence, issuing and defending the indictment, presenting evidence, as well as acting in line with legal remedies. On the other hand, the court has a passive, yet very important and responsible role from the aspect of issuing a correct judicial decision (judgement) which sheds light on a certain criminal matter and ultimately resolves it.

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# ESPOZ – AN ELECTRONIC SYSTEM SUPPORTING THE POLISH POLICE IN THE SEARCH FOR MISSING PERSONS[****]

*The Police Academy in Szczytno has been carrying out a research project entitled "Development of a database and tools for semantic search for information and knowledge management in the area of missing persons and search for persons", financed from the funds of the National Centre for Research and Development for national defence and security.*

*The objective of the conducted research project is to prepare a database and a tool for semantic search for information and knowledge management in the area of missing persons and search for persons, as well as to equip the Polish Police with a technologically advanced tool for semantic and contextual search for information on standards, rules,*

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[****] This article is prepared as part of the project entitled " Development of a database and tools for semantic search for information and knowledge management in the area of missing persons and search for persons", No. DOB-BIO9/12/01/2018. Project is financed by the National Centre for Research and Development under the competition 9/2018 for the execution and financing of projects in the field of scientific research or development work for the benefit of national defence and security. The project is carried out in a consortium by the Police Academy in Szczytno (leader), Jarosław Dąbrowski Military University of Technology and the entrepreneur Transition Technologies S.A.

*good practices and specific patterns of behaviour in the area of searching for missing persons.*

*The final effect of the mentioned research project is the eSPOZ system of searching for missing persons, which is described in the article.*

**Key words: search for missing persons, semantic search, search process, Police, search and rescue groups.**

## 1. Introduction

In order to precisely determine the scope of the publication in question, it is reasonable to separate the notion grid relating to the search for persons. Clarification of the term *search* is necessary because the phrase "search for a person" in the language layer can be interpreted in two ways: as searching for a missing person or searching for a person hiding from law enforcement agencies and the judiciary. The legal basis, procedure and scope of activities undertaken by law enforcement authorities with regard to the above mentioned categories of persons are different. This is not only an apparent problem, as often the use of the term "search for a person" may evoke connotations with a person who is not missing, but is hiding from law enforcement agencies. There is also the term 'enforced disappearance', which is used in the context of methods used in Latin American countries in the 1960s and 1970s to fight political opponents. In the countries of this region, mass kidnappings of people suspected of opposition activities were carried out on behalf of the authorities (Domagała, 2017: 45). This kind of disappearance in international law[1] is the sum of violations of fundamental rights such as the right to life, freedom and torture and is treated as a crime (Baranowska, 2017: 49). Therefore, it should be clearly stated that the subject of this publication is the search for missing persons in the Polish legal system.

According to the International Convention for the Protection of All Persons from Enforced Disappearance (ICPPED), "enforced disappearance is considered to be the arrest, detention, abduction or any other form of deprivation of liberty by agents of the State or by persons or groups of persons or groups of persons acting with the authorization, support or acquiescence of the State, followed by a

1 The European Court of Human Rights on enforced disappearances concerning Bosnia and Herzegovina, Croatia, Russia, Spain and Turkey has held that enforced disappearances amount to violations of Articles 2 (right to life), 3 (prohibition of torture), 5 (right to liberty and security of person) and 13 (right to an effective remedy) of the European Convention on Human Rights. For more on this, see: G. Citroni, *Missing persons and victims of enforced disappearance in Europe*, Council of Europe 2016, s.6, https://rm.coe.int/missing-persons-and-victims-of-enforced-disappearance-in-europe-issue-/16806daa1c, accessed on: 5.07.2020.

refusal to acknowledge the deprivation of liberty or by concealment of the fate or whereabouts of the disappeared person, which place such a person outside the protection of the law"[2]. The presented definition clearly highlights the difference between missing persons (as commonly understood) and missing persons who are victims of the practice of enforced disappearance. Bearing in mind that the problem of enforced disappearances is a very important in the modern world, it should be pointed out that the eSPOZ system is to cover all missing persons whose status and fate is unknown. This approach is in line with the definition of a missing person in Polish law, according to which any person who, as a result of an event that makes it impossible to determine his or her whereabouts, must be found in order to ensure the protection of his or her life, health or freedom, is considered a missing person[3].

## 2. Missing persons in Poland – statistics

Undertaking research on searching for missing persons was dictated by the scale of recorded cases. Every year, the Polish Police register about 20,000 reports of missing persons, of which about 6,000 concern missing children. Alarming statistics on missing persons make us reflect on the causes of missing persons and on the effectiveness of the searches conducted by the Polish Police. The following are the statistics (in tabular terms) of missing persons in Poland in 2013-2017[4].

**Table 1.** Number of reported missing persons in the year

| Year | Total |
|---|---|
| 2017 | 19 563 |
| 2016 | 19 445 |
| 2015 | 20 458 |
| 2014 | 20 845 |
| 2013 | 19 617 |

2 International Convention for the Protection of All Persons from Enforced Disappearance, United Nations, https://treaties.un.org/doc/Publication/CTC/Ch_IV_16.pdf, accessed on: 9.11.2020.

3 Zarządzenie nr 48 Komendanta Głównego Policji z dnia 28 czerwca 2018 r. w sprawie prowadzenia przez Policję poszukiwania osoby zaginionej oraz postępowania w przypadku ujawnienia osoby o nieustalonej tożsamości lub znalezienia nieznanych zwłok oraz szczątków ludzkich, https://isp.policja.pl/isp/aktualnosci/prawo/13434,Zarzadzenie-nr-48-Komendanta-Glownego-Policji-z-dnia-28-czerwca-2018-r.html, accessed on: 9.11.2020.

4 The Polish Police statistics, http://statystyka.policja.pl/st/wybrane-statystyki/zaginieni/50885,Zaginieni.html, accessed on: 17.07.2020.

**Table 2.** Missing children reported to the Police

| Year | Up to 7 years | 7-13 years | 14-17 years |
|---|---|---|---|
| 2017 | 443 | 953 | 5 362 |
| 2016 | 490 | 980 | 5 475 |
| 2015 | 535 | 1 022 | 6 232 |
| 2014 | 525 | 964 | 6 615 |
| 2013 | 481 | 951 | 6 121 |

## 3. Challenges and difficulties in searching for missing persons

Despite this high number of disappearances, nearly 90% of missing persons are found in the first hours immediately after receiving a report. Finding the remaining 10% takes more than one day. Nevertheless, the scale of missing persons in Poland forces many different initiatives aimed at increasing the effectiveness of the Police. Within the structures of law enforcement bodies there is no database system for analysing the cases of missing persons carried out so far. Thus, the existing state of affairs results in the lack of possibility of quick, automatic and systemic correlation of data and information from current cases in relation to previous cases. There is also a lack of technological solutions facilitating decision making in situations of missing persons, which are characterized by many difficulties and challenges.

The main problems identified in the area of searching for missing persons concern the formal and legal aspects of these activities, including determining the level of the search, determining the cause of a missing person and indicating the appropriate methodology of the planned activities.

As far as formal and legal aspects are concerned, it should be emphasized that the Polish legal system has three levels of searching for a missing person depending on the risk of threat to life, health or freedom of a person. The search level is the degree determining the urgency and scope of undertaking search activities depending on the identified risk of threat to life, health or freedom of a missing person. The level of the search is determined by many factors. Factors that imply a given category of search are: age of a person, condition of health, suspicion of committing a crime against life, freedom, suicidal intentions, weather conditions. Formal determination of the search level adequate to the circumstances of a person missing helps to plan and carry out search activities so that they are as effective as possible.

The level of the search shall be assigned according to the degree of threat to the life, health or freedom of a missing person. And so in the case of :

- Level I – the threat to the life, health or freedom of a missing person must be real and direct,
- Level II – there is a reasonable suspicion of risk to the life, health or liberty of a missing person,
- Level III – a person missing is not connected with an immediate and justified threat to his life, health or freedom.

The common element in all the cases mentioned above is the existence of a threat to life, health and freedom of a missing person. However, the above premise requires clarification. The occurrence of a threat can be interpreted as the occurrence of a situation, a condition threatening the loss of life, health, freedom and should be associated with a situation in which there is a high degree of probability of specific consequences for a missing person. There must therefore be circumstances which, when assessed objectively and reasonably, are such as to indicate the existence of a threat. The existence of a threat should be confirmed by specific information gathered in the case. There are no restrictions on the sources of a threat. These can be both third parties and environmental (including weather) conditions.

With regard to the determination of the cause of a person missing and the search methodology, it is necessary to use expert opinions of specialists on the behaviour of particular groups of people suffering from mental dysfunctions in a situation of getting lost, loneliness and ways of establishing contact and communication with these people. For the purposes of the eSPOZ system (Polish system of searching for missing persons), an expert's report has been developed, which describes mental disorders, which are known to determine the occurrence of specific behaviours of a missing person. The expertise was prepared taking into account the international classification of disorders and diseases of ICD-10[5].

## 4. Polish system for searching for missing persons eSPOZ

The answer to the identified challenges and difficulties in searching for missing persons in Poland is the eSPOZ system being developed, which is a systemic solution to the problem. Although the system is intended solely for the Police, it can also be considered a social project which will bring tangible benefits

5 https://icd.who.int/browse10/2016/en, accessed on: 20.07.2020.

to the whole society. Therefore, the development of the eSPOZ system is part of the catalogue of system solutions which, in the opinion of (M. Henderson, P. Henderson, Kiernan, 2000: 6), are particularly important in case of searching for missing persons. It is also expected that this system will significantly contribute to the reduction of social and economic costs connected with searching for missing persons.

Works on the eSPOZ system have been preceded by extensive consultations with experts as well as representatives of search and rescue groups, which support the Police in conducting search for missing persons in the open area. It has been decided that such an approach will allow to determine the needs of users in the scope of the created technology and will allow to highlight the decision-making processes at various stages of the process of searching for missing persons. (K. Harrington et. al, 2018: 674) confirm that the approach taken is correct. It provides knowledge of best practices in searching for missing persons and can be a valuable source of information on the design of tools to support decision making and identify the needs of future users of technology supporting the tracing of missing persons.

### *4.1. Description of the eSPOZ system*

Officers and employees of organizational units of the Polish Police, competent in matters of searching for missing persons will be the users of the eSPOZ IT system. The system will enable them to enter data from current proceedings as well as information from archival cases. From the end user's point of view, the basic application will be the system (actually an interface) used for entering and administering data in cases related to missing persons. From this level, an application user will be able to call up other advanced services provided by separate system components, such as the semantic search module, geolocation inference module and network analysis module. A detailed functional division of the application and its components is shown in the figure below:

The scope of data processed by the eSPOZ system has been defined by individual components of the graphical user interface. Due to the extensive range of data collected and processed in each case, the graphic interface was divided into four main parts (screens). Individual application screens contain specific sections and data range fields. The eSPOZ application interface enables entering data concerning current issues, managing issues saved in the system, optimal planning of searches and management of dictionaries containing values processed by the system. The necessity of entering data in particular parts of the graphical interface will depend on the type of a search case. The main interface of the eSPOZ application is presented in the figure below:

**Figure 1.** Components of the eSPOZ system.

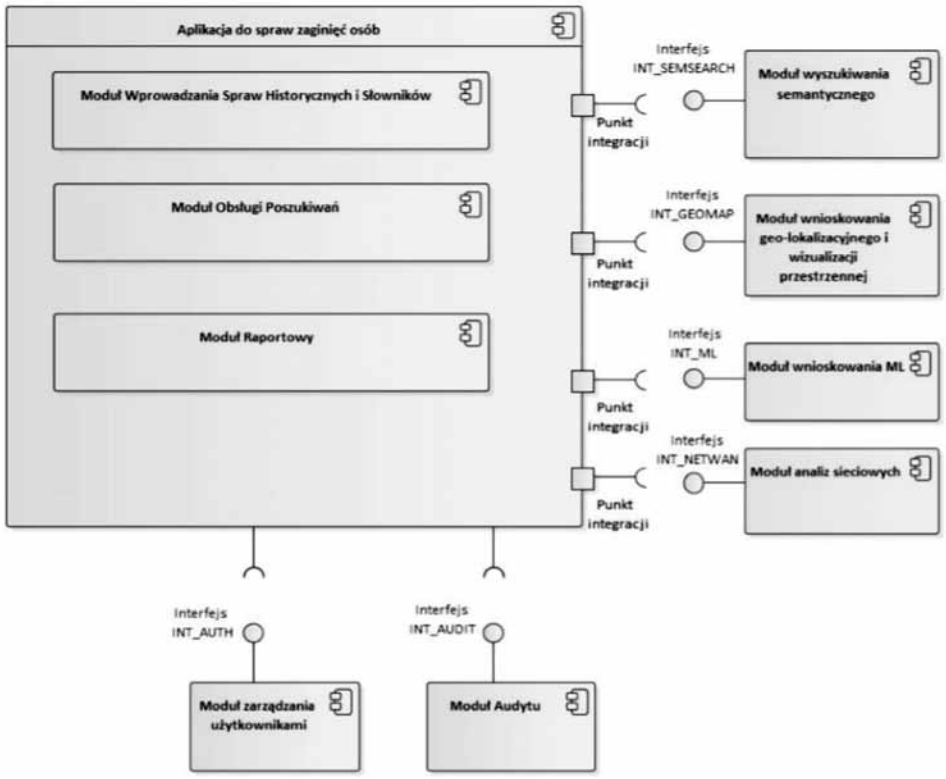


**Figure 1 description:**

- Aplikacja do spraw zaginięć osób – Missing Persons Application
- Moduł wprowadzania spraw historycznych – Module for entering historical cases
- Moduł obsługi poszukiwań – Search Processing Module
- Moduł raportowy – Reports module
- Moduł zarządzania użytkownikami – User authentication module / INT_AUTH interface
- Moduł audytu – Audit module – INT_AUDIT interface
- Moduł wyszukiwań semantycznych – Semantic search module / INT_SEMSEARCH Interface
- Punkt integracji – Integration point
- Moduł wnioskowania geo-lokalizacyjnego i wizualizacji przestrzennej – Geo-mapping request and spatial visualization module / INT_GEOMAP interface
- Moduł wnioskowania ML – ML request module / INT_ML interface
- Moduł analiz sieciowych – Network analysis module / INT_NETWAN interfact

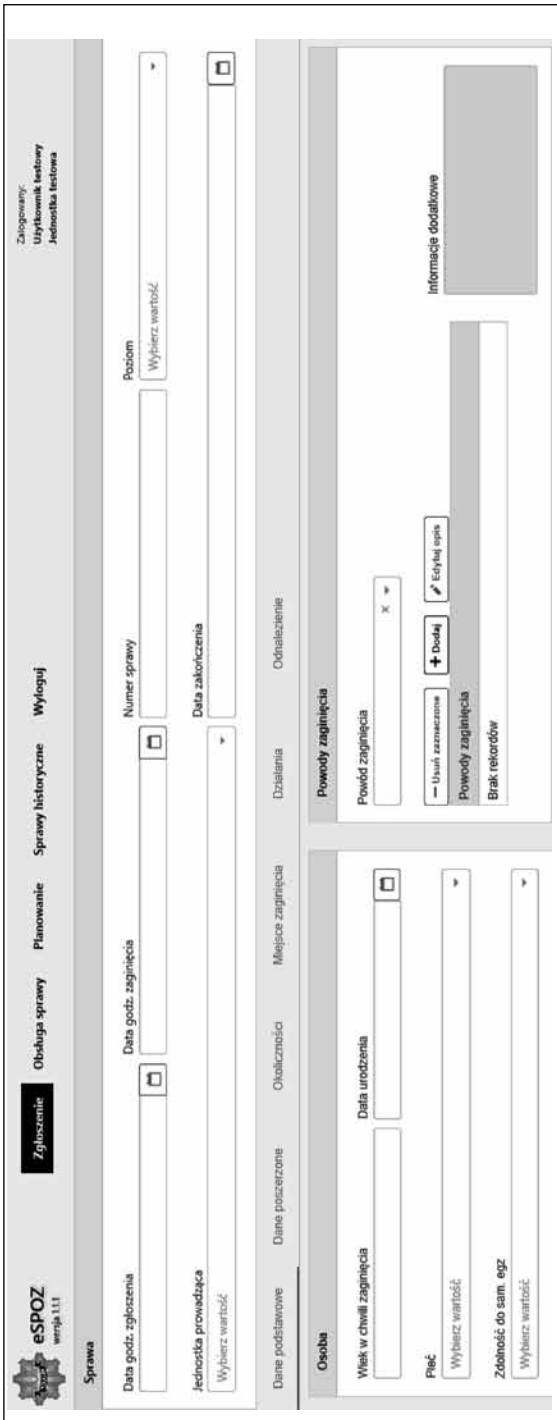


**Figure 2.** Graphical interface of the eSPOZ application.

## Figure 2 description

- eSPOZ, version 1.1.1.
- Zgłoszenie – Report
- Obsługa sprawy – Case processing
- Planowanie – Planning
- Sprawy historyczne – Historical cases
- Wyloguj – Log out
- Użytkownik testowy – Test user
- Jednostka testowa – Test unit
- Sprawa – Case
- Data / godzina zgłoszenia – Day, time of report
- Data, godzina zaginięcia – Date, time of a person missing
- Numer sprawy – Case number
- Poziom – Level
- Jednostaka prowadząca – Unit searching for a missing person
- Data zakończenia: End date of searching
- Dane podstawowe – Basic data
- Dane poszerzone – Extended data
- Okoliczności – Person missing circumstances
- Miejsce zaginięcia – Place of a person missing
- Działania – Action taken
- Odnalezione – Missing persons fund
- Osoba – A missing person
- Wiek w chwili zaginięcia – Age at the time of a person missing
- Data urodzenia – Date of birth
- Powody zaginięcia – Reasons for a person missing
- Powód zaginięcia – Reason for a person missing
- Usuń zaznaczone – Delete marked
- Dodaj – Add
- Edytuj opis – Edit description
- Powody zaginięcia – Reasons for a person missing
- Brak rekordów – No records
- Informacje dodatkowe – Additional information

On the basis of data collected and processed in the eSPOZ system, concerning both the current case and historical data, the system will offer hints that will help a system user to make a decision on further actions concerning a given exploration case. The hints obtained by a system user should contribute to optimization of the process of searching for a missing person and, as a result, to finding him/her in the shortest possible time. Immediate making of the right decisions is particularly important as the first hours are extremely important for a missing person who may be in danger. As time goes by, the accuracy of evidence provided by a person informing about as missing person decreases as well (Jacobo, 2018).

### *4.2. Searching for a missing person planning in the eSPOZ system*

As a rule, law enforcement authorities have appropriate procedures in place to deal with the missing person information. They first verify the information received and then decide how to allocate appropriate forces and resources (Jacobo, 2018). However, such a procedure involves a subjective assessment of the situation and the possibility of making mistakes at the stage of preliminary actions.

In order to completely eliminate the above mentioned situations, the eSPOZ application has been equipped with the functionality of requesting the level of search for a missing person. The eSPOZ system also makes a selection of the cause of a person missing based on the assessment of potential causes of a person missing (murder, suicide, getting lost, kidnapping, escape).

In order to make an appropriate decision on the follow-up of searches for missing persons, the eSPOZ application will contain appropriate procedures to be displayed to a system user on the basis of keywords entered or specific data contained in the search case questionnaire. It is assumed that these procedures will be continuously adapted and improved. Presently, the procedures contained in the eSPOZ system are in line with the principles contained in the Guiding Principles for the Search for Disappeared Persons adopted in 2019 by the UN Committee[6]. According to these rules the search for a person should be inter alia conducted under the assumption that the missing person is still alive. The search should respect the right to participation, human dignity, follow a differential approach and be coordinated, interrelated, carried out safely, independent, impartial, governed by a public policy and protocols. All these requirements, and others contained in the document, were taken into account

6 Guiding principles for the search for disappeared persons, https://www.ohchr.org/_layouts/15/WopiFrame.aspx?sourcedoc=/Documents/HRBodies/CED/CED_C_7_E_FINAL.docx&action=default&DefaultItemOpen=1, accessed on: 09.11.2020.

when developing the system. It is important that the eSPOZ system will have the functionality of previewing the history of changes in particular procedures, together with a description of changes made, date of a change and its author.

### *4.3. Knowledge base of the eSPOZ system*

The basis for the operation of the eSPOZ system will be current information concerning each new case of a person missing and a knowledge base containing instances describing historical cases of a person missing. Each new reported case of a person missing will require a search of the ontology and search for identical cases based on a description of the current case in the following order:

1. Formulation of a question consisting of one or more basic concepts.
2. Designation of cases written in the ontology, matching the current case.
3. Determining an extent to which cases fit.
4. Defining a ranking of case descriptions in the resultant set.
5. Building a resultant set.

However, searching for identical cases requires a large collection of information. Therefore, the vast majority of instances recorded in the knowledge base will describe the cases in which a missing person was found and the reason for missing.

### *4.4. Reporting in the eSPOZ system*

The eSPOZ system has the functionality of generating reports and statistical data on conducted search cases. For this purpose the system uses a specific information range in the form of a set of analytical objects, facts and dimensions and links between these objects. It is assumed that generating statistical data in the scope of searching for missing persons in Poland will allow to get to know precisely the scale of the phenomenon and to improve search procedures. As Henderson writes, the frequency of occurrence of missing persons is at least as high as the frequency of other issues, which usually arouse much greater interest of the media and public opinion (M. Henderson, P. Henderson, Kiernan, 2000: 2). It should therefore be recognised that the functionality of generating reports and statistical data is a key element of the eSPOZ system.

## 5. Future research work

There is generally little information available on the course of search activities and their effectiveness. There is therefore a critical need to monitor,

investigate and evaluate these activities in order to minimise the impact and consequences of persons missing. Henderson claims that recurring incidents, relationship between homelessness and missing persons and the effectiveness of educational programmes are important areas to be investigated in the future (M. Henderson, P. Henderson, Kiernan, 2000: 6). Finding ways to reduce, or preferably avoid, social and economic costs associated with search for missing persons must be undertaken by a community, government, NGOs, organisations, business sector, media, but also by missing persons themselves who have been found.

## 6. Summary

There are various solutions in the world supporting search for missing persons. For example (Ferreira et al., 2018: 241) describe the Myosotis system, and indicate other technologies used in the search of missing persons, which take into account the specifics of individual countries and meet certain formal and institutional requirements.

In Poland, until now, the search for missing persons has been carried out without the support of advanced IT systems. However, specialised police departments dealing with the search for missing persons need to quickly update their knowledge on the actions taken (Ferreira et al. 2018: 239). According to the authors, the eSPOZ system developed in Poland is such a solution. We expect that this system will eliminate the problems and difficulties identified so far in searching for missing persons:

- will help to avoid mistakes during the classification of missing persons, which affects the scope of undertaken actions,
- will allow for the observance and implementation of all activities that are elements of the existing rules, including, among others, publishing images of missing persons, carrying out checks in hospitals, collecting biological material
- will improve cooperation with other entities whose activities have an impact on the effectiveness of search, in particular with municipal guards and voluntary search and rescue groups,
- will enable effective supervision of the exploration activities carried out
- will improve cooperation between the Police and the prosecutor's office in identifying the dead body,
- will optimize the circulation of information on disappearances outside the country by promoting the electronic exchange of information,
- increase the competence of police officers in searching for missing persons.

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# COURT STATISTICS – A TOOL FOR MANAGEMENT AND STRATEGIC PLANNING

*Court statistics developed over the time from bureaucratic data collection to monitoring and evaluation of court performances and judicial reforms. In the Europe, the Council of Europe CEPEJ contributed to the promotion of court statistics as a tool for management over judiciary and evaluation of judicial performances.*

*Modern use of statistical reporting requires setting of performance indicators, which tracking will enable monitoring of court performance and inform decision making on further actions. Some of performance indicators are recommended by the CEPEJ and are widely accepted, like clearance rate and disposition time. However, court statistics could include information beyond court cases, like financial data per court and human resource data, which could inform interventions in the area of human resource management and financial resource management, i.e. equalization of workload among courts and judges, as well as calculation of cost per case.*

*The use of information and communication technologies (ICT) in the courts and court statistics contributed significantly to improvement of administration of justice, through development of automatized case management systems, automatic export of relevant reports on court performance based on predefined indicators. However, few preconditions are required for successful deployment of the ICT in judiciary.*

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*Countries were putting efforts to strengthen court statistics and some good practices were developed over time. Slovenia dashboard for improvement of disposition time and Serbian court maps for tracking backlog reduction are good examples that could be used replicated in countries with similar challenges and goals.*

**Key words: court statistics, case management, ICT, decision making, administration of justice**

## 1. Introduction

The institutional framework within which courts historically operated placed little emphasis on management and administrations, however over the last few decades a variety of management principles and practices have been introduced into the court systems.[1]

Many countries across the world have undertaken judicial reforms as part of broader public administration reforms. Despite the growing demand there is not sufficient quantitative data to make assessment of judicial reforms (Dakolias, 1999: 2). Reasons for that are twofold: national judiciaries were not historically concerned with performance data and comparative law scholars prioritize qualitative to quantitative comparisons.

Change in the approach influenced on introduction of a systematic approach to improve organizational performance by using statistics and statistical thinking in justice reforms and is the base for many success stories. Private entities and modern public sector agencies alike use data and data analysis for decision-making, to link different segments of organizational performance, and predict future performance and plan for desired outcomes (Dransfield, Fisher, Vogel, 1999: 122).

One of the key preconditions for successful reforms in the justice sector and management of judiciary is existence of the robust evidence and analysis underpinning the design of reforms. Stakeholders are now interested if policies, programs and projects led to desired outcome and results (Kusek, Rist, 2004: 3). It is widely accepted by all relevant stakeholders that for building results-based monitoring and evaluation systems and making necessary decisions in the process of justice reforming there should be necessary statistical data which would be strong ground for doing reforms in right directions (Matić Bošković, 2017: 80). Statistical data should be valid, verifiable, transparent and widely available to the government and interested stakeholders.

1 See: UNODC (2011) *Resource Guide on Strengthening Judicial Integrity and Capacity.* Vienna: UNODC, pp. 39-59.

Judicial management is becoming increasingly important. How advanced countries are in using statistics to inform and steer reforms and change management efforts vary. Technological innovation and the use of big data systems allow all sorts of analyses from resource allocation and investment planning to tracking of impact of legislative changes. The use of the information and communication technologies (ICT) is considered as one of the key elements for improvement of administration of justice that opened opportunities for efficient management (Velicogna, 2007: 129). Although potential benefits of the ICT use are not disputable, the adoption of new technologies in the justice sector in many countries has been slow, inefficient, expensive and poorly designed (Cordella, Contini, 2020: xii). Introduction of ICT in the justice sector has lagged behind other sectors due to the organization of judiciaries, resistance to the introduction of new processes, politically complex interaction between different actors, government and judiciary.

Judiciaries around the globe are held more and more accountable for state funds devoted to their functioning and quality of service delivery. However, without a clear data analysis strategy a lot of hard work of individuals can be either lost or not valued appropriately. The efficiency and quality of different judicial systems is more and more debated and compared through different organizations and models.

The Council of Europe's (CoE) European Commission for the Efficiency of Justice (CEPEJ) has identified three main uses of data according to its "Monitoring and Evaluation of Court System: A Comparative Study". One: jurisdictions where data is collected (and stored) but no analysis is undertaken, and no actions taken based on analysis insights. Two: countries, like France, the Netherlands and Italy, are using – in differing degrees – data collected to hold courts to account for spending or to allocate resources and to make the judiciary more transparent. Three: countries, like Slovenia, use data to track progress in the organization of judiciary and to adjust policies and reform efforts accordingly.

## 2. From Reporting to Managing

The main change in using judicial statistics is from statistical reporting, which is characteristic of bureaucratic data collection, to strategic management (Hodzic, 2017: 7). Bureaucratic data collection takes place outside of monitoring and evaluation purposes. Vast amount of human and financial resources is spent on manual collection of data for purposes of usually late reporting, with no evidence of use of data for policy decision making. Examples for courts include the registration of cases in paper and electronic registers, data collected in case tracking systems. These basic forms of data collection are ingrained in traditional court

procedures and regulations. Such data is usually collected according to standards and procedures individual to the court or according to data entry methodologies which are also individual to the court. Such data can be adapted for internal monitoring and evaluation purposes at court level.

Use of statistical data for monitoring and evaluation purposes requires benchmarking of data against set standards at the global level. Statistical system based on the available court data should be established to enable stakeholders to monitor the performance of the justice sector and courts, monitor the impact of legal and judicial reform aimed at improving performance, enable evidence-based decision making, allocate financial and human resources among the court fairly. Use of statistical data are especially relevant in the area of criminal procedure due to significant reform changes across Europe with the aim to improve efficiency of criminal proceedings (Simović, Šikman, 2018: 38).

To make the move from tracking cases towards managing court performance requires identification and setting of performance indicators (Hammergren, 2014: 93). Performance indicators can be used for snapshot comparisons (cross-sectional) or tracked over time to examine trends and the effects of changes (time series). Comparisons should be made with care and treated with caution, however. Statistical data need evaluation to add meaning as they do not take account of the variety or complexity of individual cases, the legal instruments available (including simplified procedures) or wider socio-economic factors such as increases in criminality or a tendency to litigate, the introduction of new laws, etc. Hence, the value-added of performance indicators stems from their interpretation and any comparison should always be made with care and caution.

A judiciary's ability to identify such performance indicators and set realistic, yet ambitious performance targets is linked to its level of court automation as well as staff skills and capacity to analyze data and statistics from various sources in real-time. In some countries, for example Slovenia, Romania, and the Netherlands, the judicial branch has made significant advances in introducing and interlinking case management, human resource and financial management systems, often in collaboration with the executive branch.

Overall, information and communication technologies (ICT) have revolutionized data collection and data use. Instead of the old paper-based system, completed by hand and posted to a central location for manual entry into a database, ICT allows each court to submit information directly and automatically subject to statistical quality control. ICT can facilitate dynamic and flexible data processing, mining and manipulation to deliver analytical reports on demand. To get most out of ICT systems, strong analytical skills and clearly defined staff roles and responsibilities for court statistics are required.

The demand for business intelligence in the justice sector builds, major case management software vendors are replacing standard static reports with interactive, easy-to-use performance dashboards integrated with their automated case management systems (Keilitz, 2010: 76). Use of business intelligence in the statistics turns existing data into actionable knowledge by for example calculating position of individual courts in one of the following categories: green color – good performance and use of resources; yellow color – good performance due to surplus resources; beige color – low performance probably due to insufficient resources; red color – low performance despite sufficient resources. This model and use of business intelligence should guide policy-making processes and managerial decision at the courts level.

- There is consensus and empirical evidence in the affirmation that the application of the ICT in courts carries with it a multitude of benefits, among which it should be mentioned (Cerrillo, Fabra, 2009: xiii):A more efficient judicial system in the way it increases productivity and diminishes costs of transaction from the system which is highly information intensive;
- A more effective judicial system by reducing the duration of procedures;
- Increasing the citizens' level of access to judiciary by providing the best information available and a better understanding not only the way courts work but also of the legal instruments in their reach to ensure recognition of their rights;
- Improved transparency of the way the judiciary works in the technologies facilities an improved control of cases and allow a better qualitative evaluation of outputs;
- Increase in the confidence of citizens and business in the judicial system;
- Greater legitimacy of judicial power.

### *2.1. Use of court statistics in daily operations*

Regardless of its enhanced scope any e-justice system will need to rely on quality statistics to monitor and manage court performance. To enable smooth application of statistical data in decision making process the statistical data should be generated automatically and summarized in a user-friendly format. Potential users of statistical reports depend on organization of the justice system in the specific country and could range from the judicial councils, courts, the Ministry of Justice (MoJ), the Government to media, court users and the general public. In addition, public information on court cases is also available online.

Usually on line system have information on court hearing schedule, enables search for cases similar in specific parameters, and search for legal cases by case

type, case number, court name, judge name, plaintiff name, defendant name, filling date, matter of litigation, date of verdict, law article, etc. as well as for cases with similar features, other applications, such as "online applications" are frequently the next step in the system development.

Court performance measurement is the discipline and the process of monitoring, analyzing and using organizational performance data on regular and continues basis for the purpose of improvements in organizational efficiency, effectives, in transparency and accountability, and in public trust and confidences in the courts and the justice system (Keilitz et al, 2018: 6).

In addition to the focus on court performance, jurisdictions have begun to use statistical data and performance indicators as objective tools to evaluate the work of judges. With the help of statistical information, bottlenecks in performance and areas for improvement can be identified, and feed into promotions and disciplinary actions against judges. Reliable and timely data will facilitate improved outcomes.

### 2.1.1. Use of statistical data beyond cases

Reliable and uniform registration of cases, proper case differentiation, and periodic data collection are also a precondition for an effective budgeting approach. Supporting software tools, staff capacity and authority over statistics are preconditions for effective budgeting and expenditure control. Judiciaries with well-developed formulas and means of data collection for determining output levels, such as the Netherlands and the US State of New Jersey, are better positioned to plan their operations, allocate funding appropriately and timely and request additional resources based on gaps identified or mitigate against any efforts to reduce their funding. Other jurisdictions, such as Slovenia, may not use a formula-basis for court budgeting and instead consider performance in building the budget and making allocations.

Frequently, increased transparency in judicial operations has a positive impact on judicial accountability as links between judicial bodies, other branches of government and society overall are strengthened, and reform efforts can be assessed with the help of feedback loops. In acknowledgement of this potential, public accountability and transparency, in the form of publishing of reports and performance statistics are included in the judicial strategic documents of many countries. It is also recognized as priority in the EU accession process and as such included as an impact indicator of improved perception of data transparency in the relation to the efficiency of judiciary and in the related activities.[2]

2 Action plan for Chapter 23 in Serbia and Montenegro.

## 2.2. Statistical Data

Each country decides on type of data that will be collected, depending on the organization of judiciary, competences for the case management, but also human resource and financial resource management. The CEPEJ Guidelines on Judicial Statistic[3] recommend collecting broader performance data. In specific, the following data categories should be collected to facilitate performance management of courts:

- general information concerning the court, i.e. budget implemented and available human resources in full-time equivalents (judges, judicial assistance and non-judicial staff);
- workflow information per case category
  - number of cases pending as of 1 January of the year;
  - number of cases registered during the year;
  - number of cases resolved during the year;
  - number of cases pending as of 31 December of the year;
  - number of appealed decisions;
  - number of quashed or modified decisions;
- age of pending cases.

Not all of this broader performance data is available in the national statistics, so countries are not in the position to develop enough indicators to measure all relevant aspects of court performance. For example, many countries missing data on the age of pending cases or the cost per case. The first would help to mitigate (an increase in) backlog, while the second ensures best use of scarce resources and proper budget planning. The minimum data set that should be readily available for meaning court performance management is outlined below:

- General information concerning the court:
  - Judicial assistants per judge ratio
  - Non-judicial staff per judge ratio
  - Total number of staff per judge ratio
  - Incoming, resolved, pending per judge ratio
  - Incoming, resolved, pending per staff ratio
  - Cost per case

3 CEPEJ (2008) *CEPEJ Guidelines on Judicial Statistics*, available at: https://rm.coe.int/1680747678, accessed on 26.10.2020.

- Workflow information per case category:
  - Clearance rate
  - Disposition time in days
  - Ration regarding the structure of incoming, resolved, pending cases
  - Information on appeals per case category – appeals ration and quashed or modified decisions ratio

- Age of pending cases, i.e. aging list

Expanding the data collection and analysis with performance data would put court administrations into the position to eventually calculate and set a broad set of performance targets and steering desired change on the way judicial services are delivered today (Buscaglia, Dakolias, 1999: 7).

The introduction of indicative timeframes could help to increase timeliness of court proceedings. Lengthy judicial proceedings are frequently an issue in member states of the Council of Europe and may infringe Article 6 of the European Convention of Human Rights requesting courts to deal with cases within a reasonable time. Timeframes help to measure to what extent each court and the justice system pursue the required timeliness of case processing. The current situation should be diagnosed, and possible bottlenecks be identified in order to set appropriate timeframes, which would be informed by the case law of the European Court of Human Rights. The identified timeframes could then be piloted, monitored and evaluated, discussed and adjusted as per the pilot's outputs before scaling-up. The CEPEJ 2016 Implementation Guide on Timeframes[4] could serve as a guidance for judicial stakeholders in this process. The existence of a robust case management system and accurate statistical data are preconditions for introducing timeframes.

Improvement of court statistics would also impact cooperation with CEPEJ, as the Council of Europe's responsible body for the performance of justice sector entities. CEPEJ requests its members to regularly report on performance via a standardized questionnaire. For the judiciary and prosecution this means every two years following a specific procedure.

4 CEPEJ (2016) *Towards European Timeframes for Judicial Proceedings Implementation Guide*, available at: https://rm.coe.int/16807481f2, accessed on 26.10.2020. See: "*Timeframes should be set not only for the three major areas (civil, criminal, administrative), but they should progressively be set for the different Case categories dealt with by the court. Timeframes should be tailored to each case category (e.g. family matters, bankruptcy, labor etc.), and local circumstances, depending on procedural issues, resource available, and legal environment*".

## *2.3. Use of ICT in Courts*

Introduction of ICT aimed at increasing judicial efficiency and reducing the cost of administration and management of the judiciary are common all over the world. ICT could also help courts to achieve values of legality, transparency, economy and access to justice. ICT could be used for introduction of automated case management system to support work and daily operations of courts, as e-filling and electronic exchange of procedural documents and interoperability platforms that are mostly relevant for criminal justice.

Statistics requires use of the ICT, however it requires sufficient financing from the state budget to ensure modern hardware, internet connections across the country to include all courts and server capabilities. ICT literacy generally should be high across the judiciary, and basic computer training has to be provided for judges, prosecutors and court staff to ensure proper use of the software. In addition, courts should have ICT support staff, who are well trained.

In relation to the ICT use in court statistics many countries relay on donor support, which influence on update and maintenance of the system. Many system include the automated case management system for case management and case allocation; document circulation; budgeting, and human resource. These automated systems usually include opportunity to search and analyze by case type, by court and by individual judge. The poor quality of the data entered in case management system (CMS) is another common problem, which is addressed through CMS functionalities for standardization data entry.

The automated case management systems usual have options to export statistical reports. Frequently data filters enable the options for using available data, while convenient and process-facilitating functionalities such as a calendar with automatic and customized notifications removes the burden from court staff.

Many systems lack interoperability and does not facilitate electronic data exchange with other institutions. Interoperability of systems and readily available data help to speed up data exchange between units and entities and hence to reduce average time for case processing and costs of mail services. Ideally, data is electronically exchanged between justice sector institutions, such as courts, prosecution, enforcement and notaries, as well as registers and records at the Ministry of Justice and Minister of Interior and other relevant institutions, as necessary.

## *2.4. Publication of Statistics*

Transparency of judicial system generates an increased flow of information from the judiciary to society, enabling the public to learn about its performance

(Herrero, Lopez, 2010: 9). Even when statistical information are publicly available, it should be published in a user-friendly format and empower the (lay) audience to understand courts performance. Challenges to understand are likely to negatively impact trust among citizens and businesses into the court system on the one hand. On the other hand, organizing and presenting the collected data in forms tailored to various target audiences, such as judges, court staff, partners of the judicial system, businesses and the general public would go a long way in increasing transparency around court performance and increasing access to information.

Ideally these efforts are built into an overall communication plan to inform and educate, in particular business and the general public about courts and effectively share key messages, including about reform initiatives, goals and achievements. Elements of particular interest to court users, such as 'how long will it take the court to consider my case (i.e. average length comparable cases are under examination)?', 'why does it take the court so long to summon me?', 'if the decision is not in my favor, what are my chances to win an appeal?', should also be included and highlighted given their frequency and relevance. New technologies and social media such as Facebook, YouTube, and Twitter, are transforming the way (potential) court users seek out information and understand the world. These communication tools provide opportunities for courts to promote openness and accountability, and can encourage conversation between the judiciary, journalists, citizens and businesses. Most importantly, they present opportunities for courts to listen to public concerns and enable a feedback loop.

## 3. Good practices – use of statistics for management purposes

Most of the EU Member States are using statistical data for management purposes, by identifying efficiency indicators to assess the proper functioning of their courts. Some of the efficiency indicators are the following: number of incoming cases; length of proceedings; number of closed cases; pending cases and backlogs; and productivity of judges and court staff. The efficiency of the court system can be assessed by calculating two composite metrics from the number of incoming, resolved and unresolved cases, namely clearance rates and disposition times. Practices presented from Slovenia and Serbia are useful for any judiciary as examples of use of statistical data to plan and improve efficiency, decrease backlog and improve exchange of information.

### *3.1. Slovenia – Judicial Data Warehouse and Performance Dashboard*

The court system in Slovenia is collecting and capturing performance information in its data warehouse, to improve planning, decision-making at all levels, and human resources management. Apart from the instantaneous access to the latest data, the visualization of key performance indicators through the Judicial Data Warehouse and Performance Dashboard project increased transparency.[5] By monitoring the efficiency of court operations, the system has helped to raise productivity, and helped to drive down the number of pending cases and disposition times.

Improvement of statistical reporting in Slovenia was part of the package of reforms focused on backlog reduction which should enable monitoring of the courts' work based on uniform criteria. The Court's Act prescribes a number of reports and documents, which are to be prepared by court presidents and directors as part of their court management duties and responsibilities for the performance of their courts.

Before 2008, court registers in Slovenia were managed for individual types of procedures, and not on the level of whole court, and were filled manually every three months, with only basic data – new, solved and unresolved cases, and the start and end date of the procedure. Data was submitted in the static form of statistical spreadsheets. The work of the courts was measured, but it did not determine causes, reasons for the situation, or improve operations.

To generate better quality and more reliable information, the Supreme Court of Slovenia developed and implemented a new approach to court management by combining business-intelligence technology with managerial know-how. A Data Warehouse project[6] and reporting system was initiated to allow information to be collected electronically, centrally and automatically, to permit enquires against a range of indicators such as disposition time, clearance rate, age of pending caseload and to enable reports to be produced on demand and facts to be presented in a user-friendly format.

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5 The project was a finalist in the CEPEJ and European Commission "Crystal Scales of Justice Competition" in 2012.

6 Data warehousing is a process which turns raw data into potentially valuable information assets by: applying standards and consistency to the data; integrating the data; enforcing data consistency over time to provide meaningful history; organizing the data into subject areas crossing business functional lines acting as a stable and reliable source; and providing easy accessibility.

The Data Warehouse project improved decision-making and productivity by shortening the decision-making time and eliminating backlogs.[7] The system enabled gaining a better overview of the work of courts and allowing benchmarking between courts, enabling a more efficient resolution of old cases, allowing effective planning and equalization of human resources in different courts, rationalizing the costs and removing burdening from judges of preparing statistical analysis.

Additional tool developed in Slovenia, the President's Performance Dashboard was created to enable presidents to manage work of the court. The Dashboard is user-friendly and graphically effective way to present court performance.

One of the key factors for success was communication and cooperation between the top leadership regarding demands and expectations and the technical team regarding possible opportunities and challenges. The Supreme Court of Slovenia was champion of change and was leading whole process of development, introduction and monitoring of Data Warehouse project. In addition, the regular trainings were provided for court managers to ensure unified application in the practice. The Supreme Court was using information collected through statistics and data from Wearhouse to develop strategic documents – Slovene Judiciary in Europe 2020 – Strategy for the Sustainable Independent Judicial Branch of Power.

The Data Wearhouse enabled Supreme Court to achieve implementation of priorities set in 2013. The Slovenian judiciary achieved to clear cases within prescribed timeframes; solve the oldest unresolved cases; reduce the burden on judges and leveling human resources. For the human resource management purposes, the Supreme Court was using information tool to assess the burden and productivity of judges and other personnel within different courts and assign resources to avoid imbalances in relation to caseload.

### *3.2. Serbia – Centralized Statistical Database*

The centralized statistical database represents business intelligence tool for statistics and reporting regarding work of courts of general jurisdiction. It collects data from decentralized databases of basic and higher courts (AVP system). From October 2017, it is in operation, and enables use of data concerning courts, research and analytics for most of the basic courts. Primary users are statistics

7 More information are available at: https://rm.coe.int/judicial-data-warehouse-and-performance-dashboards-supreme-court-of-sl/168078b0cb, accessed on 30.10.2020.

analysts in MoJ, Supreme Court of Cassation, and High Judicial Council. Furthermore, it is the instrument for control of compulsory reporting by courts.

The Centralized statistical database is a pioneering effort to enable 'one click' centralized performance statistics for all basic and higher courts in the Republic of Serbia. The aim of the initial project was to solve a long-standing problem with collection of court statistical/performance reports from the AVP case management system, which is distributed by its nature (i.e. every court hosts a separate server which records its case data). In addition, the initial version of the centralized statistics served as a "proof of concept", that it is possible to implement such a solution for collection, aggregation, and processing of court case data.

Before the implementation of the centralized statistical system, the only way to obtain a statistic for entire system of basic and/or higher courts, was to request individual reports in Excel format, and then manually combine/aggregate these reports into cumulative report. This process was extremely error-prone and time consuming, so basically performance reporting was limited to 6 months and High Judicial Council, Supreme Court of Cassation and Ministry of Justice to monitor performance of the courts and observer red-flags in some of them (i.e. sudden inflow of new cases, or dramatic decrease in disposition ratio).

The implementation of centralized statistics was conducted in close cooperation between Ministry of Justice, High Judicial Council and the Supreme Court of Cassation. The concept of the system relied on nightly replication of the AVP data from individual courts to the centralized server hosted in the Supreme Court of Cassation, aggregating the data into data warehouse and then crunching and processing these aggregate information and presenting them in the form of tabular reports and various data visualisations (bar charts, pie charts etc.). The system offers predefined reports by number-of-cases criteria of at court registers, and on other hand, this platform contains modern tools for creating customized reports by every possible criteria and filters, enriched with high variability of graphic data visualization.

The system has been further developed by the Ministry of Justice and is currently in production use, with all basic and higher courts being provided with user accounts for access to the centralized statistical database.

The backlog reduction related data from the centralized statistical tool is being used for update of the Interactive Court Map. The map is an online publicly accessible tool for monitoring of the individual courts backlog reduction progress on monthly basis. Based on data on backlog reduction the Supreme Court of Cassation can work with individual court on development of their individual backlog reduction plan or its revision to address challenges identified through statistics.

## 4. Conclusions

Although performance of judiciary historical was not a concern, last few decades approach was changed both in the USA and Europe. Council of Europe CEPEJ introduced comparative, multi-country approach of measuring judicial efficiency and influenced on Council of Europe countries to improve national statistics and data collection processes to be enable collection of needed data for CEPEJ reporting. CEPEJ working groups influenced on defining different performance indicators that could support monitoring of progress in efficiency, but also in deployed resources (financial, human and ICT resources).

Examples form Slovenia and Serbia showed how strengthening of statistics and introduction of business intelligence tool improves monitoring and evaluation of justice reform efforts. Both countries set improvement of efficiency as priority and collection of specific data as well as introduction of monitoring mechanism though dashboards in Slovenia and court map in Serbia enabled improvement of disposition time in Slovenia, and in Serbia reduction of backlog as one of the main obstacles for the efficiency of Serbian judiciary.

Court statistics is most often use for monitoring and improvement of judicial efficiency through improvement of disposition time, setting timeframes, collecting aging list, reducing number of old cases, tracking of cases from initial act to final decision, etc.

However, as it was discussed above, the statistics is valuable tool for equalization of workload across the judiciary, courts of same jurisdiction and same level and judges within the one court and across courts network. Equalization of workload ensures optimal use of available resources and employment satisfaction. In using of statistics to ensure equalization of workload there should be taken into account number of cases, but also complexity of cases.

Improvement of court statistics could also support financial management in judiciary, through evaluation of used financial resources, better planning and execution of budget. The robust statistical system can enable calculation of cost per case which could indicate differences in costs across the system and identify which specific cost contributed to inequalities.

To enable success in strengthening of court statistics there is a need to have clear vision of the goals and willingness to improve statistics, both quality and accuracy of data and scope of data that are collected. In addition, there should be readiness among key stakeholders to use statistics as monitoring and evaluation tool that will inform decision making. In addition, there is a need to have leadership of the process as well as strong commitment of all judicial authorities (i.e. Supreme Court, Judicial Council, courts and court presidents) as well as other

judicial stakeholders whose involvement is critical, depending on the organization of national system (i.e. Ministry of Justice).

Strengthening of court statistics requires investment in resources, both human resources and ICT. It is clear that development of the automated case management system, as well as introduction of business intelligence enable better utilization of courts statistics. Precondition for introduction of ICT in court statistics is allocation of sufficient budget resources for development of software and purchase of adequate hardware, as well as existence of stable internet connections in all courts. When it comes to human resources, employment of ICT experts in the courts and judiciary is necessary to ensure internal know-how and maintenance of the system, but also it is important to increase ICT literacy of court's staff and judges.

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# ANALYSIS OF TRAFFIC ACCIDENTS IN THE REPUBLIC OF NORTH MACEDONIA IN THE PERIOD FROM 2010 TO 2019

*Road safety in the Republic of North Macedonia is the primary social responsibility of all organizations and individuals whose ultimate goal is to achieve optimal traffic safety. The increased number of vehicles, the traffic intensity on all roads, as well as the degree of traffic indiscipline among certain traffic participants, are the main factors that affect the safety situation both in terms of the volume of accidents and the consequences arising from them.*

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*The subject of the research are the traffic accidents that occurred in the period from 2010 to 2019 on the territory of the Republic of North Macedonia, the factors that influence their occurrence and the criminal acts against the safety of the public traffic in the mentioned period. The purpose of this paper is to research the statistical indicators for the number of traffic accidents and those accused of crimes against public traffic safety in the period from 2010 to 2019 and on their basis to determine the reasons for their occurrence and propose measures and activities that will affect their reduction in the near future according to world trends.*

**Key words: safety, traffic accidents, traffic violations, crime, multisectoral approach**

„ *Prevention is the first imperative of justice***"**
(United Nations document S/2004/616, para. 4).

## 1. Introduction

Traffic is an integral part of people's daily lives. It is considered that there is no person who at least once in his life will not become the cause, victim or witness of a car accident. Danger and endangerment in road traffic are an integral part of it, and the causal link for a traffic accident is the subjective factor.

Crimes against public traffic safety are a specific group of crimes incriminated in the Macedonian Criminal Code whose criminal protection starts, and is focused on the final result of the action of traffic participants (Камбовски, Тупанчески, 2011: 395). These are acts that by their nature are acts against the safety of people and property, they are acts of specific endangerment committed in a specific area of traffic. These acts are characterized by great material damage, injuries or death of people involved in traffic. There are differing opinions of many scientists about the causes of accidents, but according to (Moodley, Allopi, 2008), accidents are associated with a number of shortcomings related to the human factor, road infrastructure, vehicle defects and environmental factors.

According to the World Health Organization, about 1.35 million people worldwide are killed in road accidents each year, and between 20 and 50 million are injured or become permanently physically disabled. More than half of all fatalities and injuries in traffic accidents involve vulnerable road users, such as pedestrians, cyclists, bikers and their passengers (WHO, 2018: 94).

Young people are particularly vulnerable on the world's roads and traffic injuries are the leading cause of death for children and young people aged 5 to

29. Young men under the age of 25 are more likely to be involved in a car accident than women. Of all traffic deaths, 73% occurred in young men of that age. Emerging economies have higher rates of road traffic injuries and 93% of deaths are from low- and middle-income countries (WHO, 2018: 152). The mortality rate is three times higher in low-income countries than in high-income countries (WHO, 2018: 21). Data on the costs of traffic accidents are rare, especially for low- and middle-income countries, it is obvious that the economic impact of these injuries on individuals, families, communities and It is huge and costs countries 1 to 2% of their gross domestic product (WHO, 2004: 181) .The heavy and tragic burden of those directly affected, both physically and psychologically, is not negligible. Health facilities with their meager budgets are heavily involved in road accident survivors, and although significant progress has been made in recent years in reducing the number of injuries and deaths, their numbers are still high on world roads.

## 2. Characteristics of criminal offenses against the safety of public traffic

According to the Criminal Code of the Republic of Macedonia[1], criminal offenses against public traffic safety are presented in Chapter 27, with Articles 297 to 304 and according to the division in the chapter they cover two groups of offenses: criminal offenses against the safety of people and property in traffic (Articles 297-301) and criminal offenses against air traffic safety (Articles 302-304). For the, purpose of this paper we will review and elaborate only the articles that refer to the criminal acts against the safety of people and property in traffic.

1. Endangering traffic safety (Article 297). This is an act of concrete endangerment, with two forms. The first form is an act of endangering road traffic, whereas the second form is an act of endangering bus, rail, air and sea traffic, cable car traffic or other means of public transport. In both forms, the endangerment of safety consists of non-compliance with traffic regulations, resulting in danger to the life or body of people or property of significant size. This article sets as a condition for incrimination: the bodily injury of a person or the occurrence of significant property damage. The law criminalizes, in terms of the subjective nature of the act, both deliberate and negligent execution. The objective condition of incrimination is outside the legal nature of the crime and it does not have to be covered by the intent of the perpetrator (Камбовски, Тупанчески, 2011: 405-407).

1 For more details see Chapter 27, in articles 297 to 304 of the Criminal Code of the Republic of Macedonia (*Кривичен закон, пречистен текст*), available at: https://www.pravdiko.mk/wpcontent/uploads/2013/11/Krivichen-zakonik-integralen-prechisten-tekst.pdf , accessed on 22.09.2020.

2. Endangering the traffic safety with a dangerous action or means (Article 298). This criminal offense covers actions that cannot be covered by violation of traffic regulations, and which are generally dangerous in nature. According to this article, no objective condition of incrimination is provided, and both forms of guilt are punished: intent and negligence (Камбовски, Тупанчески, 2011: 399-402).

3. Unconscientious performance of traffic supervision (Article 299). This act is an act of concrete endangerment because the perpetrator can only be a person whose duty is to take care of the safe flow of traffic. Incrimination covers two basic forms, the first of which is performed by the person in charge of supervising the traffic and its facilities, who performs such a duty recklessly, causing a specific danger to the life or body of people or property of significant size, while the second form is performed the responsible person who issues the driving license and allows it even though that the driver for certain reasons cannot drive the vehicle safely or that the vehicle is defective and the like. In terms of the subjective being, deliberate execution of the act is punished (Камбовски, Тупанчески, 2011: 405-407).

4. Serious acts against the safety of people and property in traffic Article 300. This article covers the severe forms of acts from articles 298, 297 and 299 where serious bodily injuries, death or large-scale property damage have occurred. Given that some of the basic works already provide an objective condition of incrimination, some authors call these criminal offenses, criminal offenses qualified with a more severe condition of incrimination (Камбовски, Тупанчески, 2011: 407).

5. Failure to provide assistance to a person injured in a traffic accident (Article 301). This incrimination is specific in many respects. First, it is one of the rare acts of failure to act incriminated in the Macedonian Criminal Code. Second, this act is a special act of danger. Third, the perpetrator of this crime has a specific capacity, and that is the person (persons) whose vehicle / vehicles injured the person to be assisted. The subjective side of the crime is imaginary, and the incrimination contains a more severe form that includes the occurrence of severe bodily injury or death of the injured as a result of failure to provide assistance. Regarding the more serious consequence, it is necessary for the perpetrator to act out of negligence, otherwise it would be an act of grievous bodily harm or murder (Камбовски, Тупанчески, 2011: 408-409).

Guilt in this category of criminal offenses is a rather complex issue. By definition, guilt or criminal responsibility is an individual and subjective responsibility of the perpetrator for his action that meets the legal characteristics of the crime (Камбовски, 2011: 246). Guilt appears in two basic forms: intent and negligence, where intent is predominantly punished, unlike negligence, which is punished by exception, only when the law explicitly prescribes it. In the case of traffic offenses, negligent guilt is provided in almost all cases.

According to the available literature, theorists and practitioners point out the difficulties they encounter, which is especially in the case of distinguishing possible intent from conscious negligence, which is criminally relevant to both the correct legal qualification and, consequently, the type/amount of punishment (Камбовски, Тупанчески, 2011: 398). Intention exists in the case when the perpetrator was aware that due to his act or omission a harmful consequence might have appeared, but he agreed with its occurrence (Каневчев, 2010: 16). Conscious negligence, according to Article 14 of the Criminal Code[2], exists when the perpetrator was aware that due to his act or omission a harmful consequence could occur, but he thought lightly that he could prevent it or that it would not occur. There are two elements in its structure: awareness of the crime and a frivolous attitude towards the consequence[3].

In these acts, too, the criterion of recklessness is used to distinguish one form of guilt from another. There will be a possible intention if the perpetrator extremely recklessly thinks that there will be no harmful property. He does not base his desire on something certain. This group includes the cases when the perpetrator was driving a vehicle in an alcoholic state. (Камбовски, Тупанчески, 2011: 398).

Criminologists observe these acts through the prism of negligent execution, noting that "in this phenomenon, the criminal is not as noticeable as in other types of crime" (Арнаудовски, 2007: 401).

## 3. The trends regarding traffic accidents and criminal acts against public traffic safety in the period from 2010 to 2019

Traffic accidents are most often the consequence of an action that is prohibited and is a violation of a material regulation that regulates either traffic in general or a particular segment or form of traffic (Арнаудовски, 2007: 401). In the police statistics and the statistics of the State Statistical Office, traffic accidents are most often referred to as traffic accidents, so in this paper, in the part of statistical processing, we will use the same terminology.

Traffic accidents that include victims represent traffic offenses, because the fact that a person was injured or lost his life meets the objective condition of

2 For more information see article 14 of the Criminal Code of the Republic of Macedonia (*Кривичен закон, пречистен текст*), available at: https://www.pravdiko.mk/wp-content/uploads/2013/11/Krivichen-zakonik-integralen-prechisten-tekst.pdf , accessed on 22.09.2020.

3 You can find more details in Камбовски, В. (2011) *Казнено право-општ дел*. Скопје: Универзитет "Св. Кирил и Меодиј", pp. 574-579.

incrimination. According to the available literature and statistical data, their number in the world and in our country is declining, and is due primarily to frequent controls, built-in modern systems in vehicles, etc., but traffic disorganization and non-compliance with traffic rules and regulations have a negative impact on the efforts to achieve a greater reduction in traffic accidents.

The presented data represent the trend regarding traffic accidents for the period from 2010 to 2019, and are retrieved from the Ministry of Interior of the Republic of North Macedonia and the State Statistical Office.

## *3.1. The number of traffic accidents in the period from 2010 to 2019*

**Table No. 1**. *Traffic accident by types of consequences in the period from 2010 to 2019*

| TYPES OF TRAFFIC ACCIDENTS | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| TRAFFIC ACCIDENTS WITH KILLED PERSONS | 134 | 148 | 124 | 170 | 115 | 135 | 150 | 137 | 118 | 109 |
| TRAFFIC ACCIDENTS WITH INJURED PERSONS | 4.089 | 4.314 | 3.984 | 4.060 | 3.737 | 3.719 | 3.752 | 3.882 | 3.622 | 3.124 |
| TRAFFIC ACCIDENTS WITH GREAT MATERIAL DAMAGE | 3 | 1 | 3 | 6 | 1 | / | 2 | / | / | / |
| TOTAL | 4.226 | 4.463 | 4.111 | 4.236 | 3.853 | 3.854 | 3.904 | 4.019 | 3.740 | 3.233 |
| PEOPLE KILLED | 162 | 172 | 132 | 198 | 130 | 148 | 165 | 155 | 133 | 132* |
| INJURED PERSONS | 6.375 | 6.853 | 6.149 | 6.484 | 6.056 | 5.913 | 5.971 | 6.224 | 5.860 | 5.164 |

*Source:* Ministry of Interior

As can be seen from Table No.1[4], the total number of traffic accidents in the period from 2010 to 2019 has a downward trend. Namely, in 2019 we have a significant reduction in the total number of traffic accidents by 27.6% compared to 2011, when the largest number of traffic accidents was recorded in the analyzed period. Also, the number of dead and injured persons in traffic accidents has a declining trend.

The Ministry of Interior is organizationally divided into 8 sectors that cover the territory of the Republic of North Macedonia. To see what are the key factors that affect traffic accidents, we will analyze the available statistical data published on the website of the Ministry, relating to 2017 and 2018.

4 During 2019, on the highway Skopje-Tetovo (near the village Laskarci), a traffic accident occurred in which 15 people died (passengers in a bus).

**Table No. 2**. *Traffic accidents with more serious consequences by interior departments for 2017/2018*

| Police Departments | traffic accidents with severe consequences | | | traffic accidents with fatalities | | | traffic accidents with injured persons | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2017 year | 2018 year | decrease/ increase% | 2017 year | 2018 year | decrease/ increase% | 2017 year | 2018 year | decrease/ increase% |
| SKOPJE | 1.652 | 1.452 | -12,1 | 35 | 32 | -8,6 | 1.617 | 1.420 | -12,2 |
| BITOLA | 398 | 371 | -6,8 | 27 | 18 | -33,3 | 371 | 353 | -4,9 |
| VELES | 280 | 288 | 2,9 | 11 | 4 | -63,6 | 269 | 284 | 5,6 |
| KUMANOVO | 337 | 306 | -9,2 | 5 | 7 | 40 | 332 | 299 | -9,9 |
| OHRID | 330 | 314 | -4,8 | 10 | 12 | 20 | 320 | 302 | -5,6 |
| STRUMICA | 228 | 211 | -7,5 | 18 | 11 | -38,9 | 210 | 200 | -4,8 |
| TETOVO | 473 | 451 | -4,7 | 9 | 15 | 66,7 | 464 | 436 | -6 |
| SHTIP | 321 | 347 | 8,1 | 22 | 19 | -13,6 | 299 | 328 | 9,7 |
| TOTAL | 4.019 | 3.740 | -6,9 | 137 | 118 | -13,9 | 3.882 | 3.622 | -6,7 |

*Source:* Ministry of Interior

According to the data shown in the Table No. 2, it is concluded that we have a reduction of traffic accidents with severe consequences in 2018 by 6.9%, the number of dead has decreased by 13.9%, and the number of injured has decreased by 6.7%. Most of the traffic accidents with more serious consequences occurred on the territory of the Sector for Internal Affairs-Skopje[5], as follows: 41.1% in 2017 and 38.8% in 2018 of the total number of accidents which shows a decreasing trend.

According to the statistics of the Ministry of Interior of the Republic of North Macedonia, the most common causes of traffic accidents include: speeding, non-compliance with the rules of right of way, not keeping to the side and direction of movement, driving under the influence of alcohol, illegal movement and turning, mistakes of pedestrians etc. (see Table No. 3)[6].

**Table No. 3**. *The most common factors for traffic accidents in the period from 2010 to 2019*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| Fast driving | 1.219 | 1.260 | 863 | 929 | 830 | 788 | 820 | 759 | 638 | 590 |
| Non-compliance with the rules of the right of way | 745 | 738 | 602 | 652 | 671 | 608 | 572 | 574 | 515 | 430 |
| Non-holding side and direction of movement | 492 | 551 | 649 | 682 | 577 | 539 | 441 | 462 | 390 | 340 |
| Irregular movement and turning | 511 | 432 | 435 | 480 | 474 | 447 | 391 | 462 | 356 | 293 |
| Driving under intoxication | 132 | 160 | 138 | 144 | 86 | 123 | 332 | 300 | 361 | 344 |

*Source:* Ministry of Interior

5 The large number of accidents on the territory of P.D. Skopje in relation to other sectors is due to the density of the population covered by the sector.

6 For more details at: https://mvr.gov.mk/analiza/soobrakjaj/56

**Graph No. 1.** *The most common mistakes of drivers to cause accidents with severe injuries*


*Source:* Original Graph from Ministry of Interior, 2019

If we look at the Graph No.1 in more detail, we will notice that every sixth traffic accident occurs due to speeding and every tenth happens driving under the influence of alcohol[7], i.e. these two parameters account for 27% of traffic accidents committed in 2018.

It is estimated that between 5 and 35% of all deaths in road accidents are related to alcohol abuse (Vissers, Houwing, Wegman, 2018: 8)[8]. Driving after consuming alcohol significantly increases the risk of an accident and the severity of the accident. Any amount of alcohol has an impact on driving behavior, and there is a rapid and exponential increase in risk for levels exceeding 0.05 g / dl for the general driving population. Reducing blood alcohol levels from 0.1 g / dl to 0.05 g / dl may contribute to a 6 to 18% reduction in alcohol-related fatalities (Fell, Voas, 2006: 233).

7 On day 11.10.2020 year the news where a vehicle BMW driven by a 72 year old male in an alcoholic state with blood alcohol content of 1,78 $\%_0$ per mile and alcohol content in the urine of 2,43 $\%_0$ per mile. The driver went of the road, killed a biker, continued to move, hit a bus stop and a 9 year old kid witch at the time being was at the bus stop, who later succumbed to his injuries, the driver continued to move off the road, hit a traffic light and a traffic sign and the vehicle just stopped. The perpetrator was charged with serious acts against the safety of people and property in traffic under Article 300 paragraph 2 in conjunction with article 297 paragraph 1 in the Criminal Code. See more details at: http://jorm.gov.mk/povedena-istraga-za-teshkata-soobrakajna-nezgoda-vo-trubarevo/ .

8 According to this study, official data from the countries surveyed shows an average of 21.8 % of deaths in road accidents related to alcohol.

**Table No. 4**. *Traffic accidents caused by alcohol management by sectors*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|
| P.D. SKOPJE | 40 | 47 | 31 | 30 | 27 | 29 | 97 | 107 | 95 |
| P.D. BITOLA | 13 | 12 | 12 | 9 | 4 | 15 | 47 | 43 | 64 |
| P.D. VELES | 9 | 20 | 21 | 30 | 8 | 13 | 29 | 30 | 43 |
| P.D. KUMANOVO | 16 | 15 | 19 | 23 | 5 | 19 | 29 | 7 | 33 |
| P.D. OHRID | 6 | 11 | 8 | 9 | 13 | 7 | 32 | 22 | 29 |
| P.D. STRUMICA | 20 | 30 | 27 | 27 | 23 | 24 | 39 | 33 | 33 |
| P.D. TETOVO | 7 | 5 | 3 | 3 | 3 | 6 | 15 | 13 | 8 |
| P.D. ŠTIP | 21 | 20 | 17 | 13 | 3 | 10 | 44 | 45 | 56 |
| TOTAL | 132 | 160 | 138 | 144 | 86 | 123 | 332 | 300 | 361 |

*Source:* Ministry of Interior

Although we notice a decreasing trend in the total number of traffic accidents, the data given in Table No. 4 show that the number of traffic accidents caused by driving under the influence of alcohol in the period from 2010 to 2018 increased by 2.7 times, i.e. from 132 accidents in 2010 to 361 accidents in 2019. The increase in the number of traffic accidents caused by driving under the influence of alcohol is evident for all sectors except the Sector for Internal Affairs Tetovo.

## *3.2. Statistical presentation of crimes against public traffic safety in the period from 2010 to 2019*

According to the data presented in Table No. 5, we can conclude that the number of reported, charged and convicted adults according to the basic courts in the Republic of North Macedonia, crime and crimes against public traffic safety tend to decline significantly in the analyzed period. Namely, there is a stagnation in the period from 2010 to 2013 with certain variations from year to year, then an increase in 2014, and from 2015 to 2019 the numbers are constantly declining. In 2019, the number of reported crimes compared to 2010 decreased by 20%, the number of accused persons decreased by 52.2%, and the number of convicted persons decreased by 48.6%. If we analyze the data on the reported adults for crimes against public traffic safety, we will notice that there is a stagnation in the number with small variations from year to year and the decrease in the number of reported persons in 2019 compared to 2010 by 7.6%. The number of persons accused of crimes against public traffic safety in 2019 compared to 2010 decreased by 56.6%, and the number of convicted persons decreased by 56.8% in

**Table No. 5.** *Number of reported, charged and convicted adults according to the basic courts in the Republic of North Macedonia for the total number of crimes and for crimes against public traffic safety*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total reported | 15.383 | 14.627 | 15.480 | 15.012 | 16.113 | 15.408 | 11.866 | 10.603 | 11.609 | 12.255 |
| Total defendants | 11.239 | 12.219 | 11.311 | 12.297 | 13.669 | 11.951 | 9.320 | 7.423 | 6.829 | 5.370 |
| Total convicted persons according to the basic courts | 9.169 | 9.810 | 9.042 | 9.539 | 11.683 | 10.312 | 8.172 | 6.273 | 5.857 | 4.712 |
| Reported to KD against public traffic safety | 2.687 | 2.706 | 2.665 | 2.723 | 2.707 | 2.626 | 2.595 | 2.505 | 2.400 | 2.482 |
| Defendants | 1.878 | 1.901 | 1.724 | 1.839 | 1.858 | 1.538 | 1.373 | 1.215 | 1.009 | 815 |
| Guilty | 1.764 | 1.770 | 1.595 | 1.670 | 1.708 | 1.432 | 1.322 | 1.165 | 975 | 762 |
| They have not been found guilty | 114 | 131 | 129 | 165 | 150 | 105 | 51 | 50 | 34 | 16 |
| Security measures | / | / | / | 4 | / | 1 | / | / | / | 37 |
| Prohibition of management with a vehicle | 89 | 70 | 102 | 95 | 97 | 104 | 72 | 65 | 41 | 37 |

*Source:* State Statistical Office

the observed period. The percentage of convicted persons in the adult population for crimes against public traffic safety in relation to the total number of convicted persons participates with 19.2% in 2010, 14.7% in 2014 and 16.2% in 2019. We can conclude that traffic offenses participate with less than 20% in the total number of offenses in the period from 2010 to 2019 and there is a tendency of slight decrease in their participation in the total number of convicted persons.

**Table No. 6.** *Reported children in conflict with the law for the crime against public traffic safety according to the type of decision*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total reported after all crimes | 1244 | 1163 | 1001 | 1005 | 972 | 772 | 587 | 578 | 554 | 525 |
| CD against public traffic safety | 61 | 43 | 50 | 28 | 29 | 33 | 25 | 38 | 38 | 45 |
| Submitted a proposal for imposing a penalty-measure | 54 | 42 | 40 | 23 | 22 | 17 | 19 | 28 | 21 | 26 |
| The procedure has not been initiated | 6 | 1 | 10 | 4 | 7 | 14 | 5 | 6 | 15 | 18 |
| The preparatory procedure has been stopped | 1 | / | / | 1 | / | / | 1 | 4 | 2 | 1 |

*Source:* Data from State Statistical Office

According to the data given in Table No. 6, it is noted that the number of reported children for all crimes is constantly declining by 57.8% from 2010 to 2019. The share of reported children for crimes against public traffic safety in the total statistics of reported crimes is 5% in 2010, and 8.4% in 2019 and there is an

increase in their share. But what is evident is that the number of cases for which no procedure has been initiated is growing.

**Table No. 7.** J*uveniles*[9] *convicted for crimes against public traffic safety and imposed criminal sanctions*

| | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Smaller minors | Disciplinary measures | 2 | 1 | 3 | 3 | / | 2 | / | 2 | 4 | 1 |
| | Intensified surveillance measures | 5 | 5 | 6 | 1 | 3 | 3 | / | 9 | 4 | 4 |
| | Institutional measures | / | / | / | / | / | / | / | / | / | / |
| | Total | 7 | 6 | 9 | 4 | 3 | 5 | / | 11 | 8 | 5 |
| Older minors | Juvenile prison | / | / | / | / | / | / | / | / | / | 1 |
| | Disciplinary measures | 5 | 6 | 1 | 6 | 5 | 11 | / | 7 | 8 | 18 |
| | Intensified surveillance measures | 23 | 24 | 16 | 14 | 5 | 12 | 2 | 14 | 9 | 5 |
| | Institutional measures | / | 3 | / | / | 1 | / | / | / | / | / |
| | Total | 28 | 33 | 17 | 20 | 11 | 23 | 2 | 21 | 17 | 24 |
| Juveniles convicted under CD against public traffic safety | | 35 | 39 | 26 | 24 | 14 | 28 | 2 | 32 | 25 | 29 |
| Total convicted juveniles | | 547 | 722 | 556 | 473 | 461 | 348 | 468 | 368 | 330 | 304 |

*Source:* Data from State Statistical Office

From Table No. 7, it can be concluded that the number of convicted juveniles is quite constant and their share in traffic offenses is up to about 2.2% in the period from 2010 to 2015, with 0.15% in 2016. Since 2017 there is tendency to increase and the share is up to about 3.8% in 2019. Also, the number of convicted juveniles for crimes against public traffic safety in relation to the total number of convicted juveniles tends to increase from 6.4% in 2010 to 9.5 in 2019. In 2019, an older juvenile was sentenced to up to 2 years in prison. In the period from 2010 to 2019, disciplinary measures, measures of intensified supervision, and institutional measures were imposed.

## 4. Conclusion

In the period from 2010 to 2019, over 103000 traffic accidents or about 10.3 thousand accidents per year occurred on the territory of the Republic of North Macedonia. The highest percentage of accidents occurred during 2010 – 12% of

9 Minor juvenile is a juvenile who at the time of committing the action defined by law as a criminal offense or a misdemeanor was 14 years old and had not been 16 years old. An older juvenile is a juvenile who by the time of committing the action defined by law as a criminal offense or misdemeanor, has reached 16 years of age and has not reached 18 years of age. For more details look at Article 12 of the Juvenile Justice Act (*Закон за малолетничка правда*), available at: https://www.pravdiko.mk/wp-content/uploads/2013/11/Zakon-za-maloletnichka-pravda-04-07-2007.pdf , accessed on 25.09.2020.

the total number or 12,253 accidents, after which their number decreased from 2012 to 2017 to an average of about 10400 accidents, and from 2018, traffic accidents have decreased significantly by about 20%. In the same period, almost 27 thousand (26976) crimes related to public traffic safety were registered, committed by 28860 traffic participants.

In order to alleviate the traffic situation and the consequences of the traffic accidents, the Ministry of Interior, in cooperation with the Republic Council for Road Traffic Safety, has implemented / is conducting several preventive campaigns[10], the primary goal of which is to raise the awareness of traffic participants ~~for~~ about the need to comply with regulations and at the same time to point out the consequences of unwanted traffic accidents. Conducted campaigns have a specific target group to which they are targeted. For example, the „You're not a dude if you die at prom" campaign calls upon young drivers not to drive a motorcycle during prom parties because of the cheerful atmosphere, the abundance of alcohol and the desire to prove themselves, because the risk of causing a traffic accident is extremely high.

To improve the traffic situation, cooperation is needed that arises from the different nature of the problem of road traffic injuries. The problem has multiple determinants, affects many people and sectors, and requires action from different sectors. Many sectors need to be involved in road safety: government, legislators, police, the media, citizens, industry, non-governmental organizations, the private sector and stakeholders. It is important for them to work together to try and influence the likely success of road safety and the initiatives taken nationally, regionally and internationally.

The multi-sectoral approach in the Republic of North Macedonia would enable the use of the strengths of different partners, sharing knowledge and technologies, better balanced project design, increased access to resources and their more efficient use, innovation development, accountability improvement, expanded awareness, lasting relationships, etc. It would also enable capacity building for sustainable safety management and leadership, coordination and funding, which would support better performance and goal adoption following the example of **Vision Zero**[11] – a new long-term goal and strategic road safety framework. The purpose of this vision would be to create a shared responsibility for better

10 Other campaigns that we would single out are: „Let's protect the children in traffic" and the Summer campaign by distributing propagandas, flyers to drivers under the motto „Driving fast kills", the project "watch out radars", etc.

11 Vision Zero is a traffic safety policy developed in Sweden aimed at preventing casualties and more serious injuries in road accidents. It is based on four elements: ethics, responsibility, security philosophy and creating mechanisms for change. It was adopted in 1997 and several countries have followed since then.

management of all parts of the road traffic system in order to highlight common mistakes and human vulnerabilities, thus avoiding serious accident consequences. Further improvement of the situation requires institutional management with a multi-sectoral approach, which should provide:

1. access to a safe, accessible and sustainable transport system for all, improving road safety, especially by expanding public transport, with special attention to the needs of those in vulnerable categories (women, children, people with disabilities and the elderly);
2. establishment of a comprehensive multi-sectoral national road safety plan with time-limited objectives;
3. lowering the number of accidents in half, injuries and deaths related to drivers who drive under the influence of alcohol and reducing the number of those who use psychotropic substances;
4. establishing and achieving national goals in order to minimize the time interval from the moment of the traffic accident to the provision of professional emergency assistance to the injured;
5. setting and implementing a speed limit appropriate to the function of certain roads;
6. enacting and enforcing laws requiring cyclists and two-wheeled motorists to wear helmets;
7. setting and enforcing blood alcohol concentration limits for drivers by testing sobriety checkpoints;
8. improving law enforcement programs with public information and education campaigns (For example, on the dangers of speeding or driving under the influence of alcohol and the social and legal consequences of such behaviour. law restricting or banning the use of mobile phones while driving a motor vehicle, etc.

Road safety is the right and responsibility of every participant in traffic, which means that if we take care of ourselves we take care of other participants. Only then can we say that we are moving forward together, towards the achievement of the ultimate goal, and that is traffic without accidents (zero traffic accidents and zero severely injured).

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# MODERN USAGE AREAS OF UAV TECHNOLOGY

*In the past century, aviation has been one of the biggest technological advances that changed people's lives. Especially in recent years in addition to being used in passenger transportation and war technologies, unmanned aerial vehicles have been carrying out important activities in many parts of life. These devices, which can be used as an integrated camera and weapon systems that can be controlled wirelessly and have superior mobility, have become one of the most important actors in defence. In addition to security services, unmanned aerial vehicles are used in many activities such as agriculture, search and rescue, cartography and fire. Unmanned aerial vehicles are also frequently used by law enforcement agencies due to their size and mobility, especially in areas such as monitoring and tracking. Unmanned aerial vehicles are used in many security needs such as traffic inspections, monitoring, social events and tracking around the world. Besides all these, unmanned aerial vehicles are frequently used for natural disasters, crime scene investigation studies and cargo transportation. However, in addition to all the advantages, these tools are also used by some malicious individuals and groups due to their low cost and easy accessibility. Many crimes such as smuggling, terrorist attacks, or illegal*

*image recording have been committed using this technology. For this reason, while developing unmanned aircraft technologies, studies are carried out on anti-drone technologies in order to combat these crimes. The use of unmanned aerial vehicles worldwide is controlled by laws and penal sanctions are imposed in case of improper use.*

## 1. Historical Development of Aircrafts

Aviation activities have been one of the most important factors in ensuring international security and ending wars. In 17 December 1903 Wright Brothers has realised the first flight of a motorized aircraft and made one of the most important turning points in human history. The invention of airplanes and their use in wars changed the course of wars and caused the emergence of new power balances between countries. After planes were of such vital importance in terms of security, in 1940 a Russian-born American engineer Igor Sikorsky invented the first helicopter in 1940 and another effective player took the stage. After the invention of the first modern helicopter, helicopters have begun to provide significant benefits in the field of military and security due to their mobility advantage and vertical landing and take-off capabilities.

The security benefits of aircraft are provided not only by piloted aircraft and helicopters, but also by unmanned aerial vehicles and drones in the last period. Unmanned aerial vehicles are defined as devices that have the ability to move and operate without a pilot. In military terminology, drones are seen as a subset of unmanned vehicle systems. These vehicles, which stand out with their observation and monitoring capabilities, are controlled by radio frequencies and wireless technology. The idea that devices can be controlled with radio waves was first put forward by Serbian scientist Nicola Tesla and was patented by Tesla in 1895. At that time, as the navigation technology was not developed yet, gyroscope technology was used in the control of aircraft. The first flight of an aircraft using gyroscope technology took place in 1909 (Roche et al., 2014).

Although the idea of using unmanned aerial vehicles is very old, the first effective attack of these vehicles on the battlefield in 1849 is accepted by the Austrians using balloons with time-adjusted fuse bombs on Italy. However, some of these balloons burst within their borders due to the inability to calculate the wind (Kahveci ve Can, 2017).

According to the definition in the Chicago Convention, unmanned aircraft are defined as vehicles that do not have a pilot and have ability to move with GPS control. Unmanned aircraft can be controlled by a pilot on the ground or automatically

fly within a preloaded schedule and route. Drones provide significant benefits to support teams, security forces and firemen during interventions. Protection of valuables and important areas is provided by security cameras and security guards controlled by people by many institutions. Drones that we use can be specially programmed in these areas and have night vision features will help to reduce the margin of error (Kahveci ve Can, 2017).

Unmanned aerial vehicles are used for searching and finding missing people, detecting and tracking animal populations, determining the source of destruction in nature, crime scene investigations, and imaging and determining major accidents on highways. In addition to these, drones are also used to enter and exit forest fires, agriculture and inaccessible areas (Roche et al., 2014). Thanks to ability of high-resolution integrated camera systems, they play a critical role in situations that require surveillance and monitoring. With their cameras, drones provide great convenience in tracking any object or monitoring the area (Kardasz et al., 2016).

Day by day development and progress of technology shows that definition of crime will be different than today's crime definition. Although it is known that crimes committed today will continue to be committed in the future, it is not known exactly how developing technology will change the way these crimes are committed. İt seems likely that the developing of technology will provide some advantages for criminals. For this reason, technologic advantages should also be used to solve crime cases (Schmalleger, 2015).

## 2. Advantages and Disadvantages of Drone Technology

Drones are not only accoutred with camera equipment, but when equipped with gas detectors and radio frequency identification (RFID) devices, they can provide much more benefits with low cost. Unmanned aerial vehicles used in crowded and public areas can be used to control the crowd and traffic. After the necessary programming is done, drones can provide simultaneous information flow in detecting traffic jams and risky activities in crowded areas. In case of fire and similar situations, drones carrying thermodynamic cameras not only provide information about the incident, but also allow the people who need help and need to be rescued to be identified quickly (Culus, Schellekens ve Smeets, 2018).

Using drones for tracking suspects is hundreds of times cheaper than renting a helicopter or using it for tracking. In addition to being inexpensive, drones are effective in both short- and long-range tracking and monitoring events thanks to their agility. Considering their physical superiority in patrol duties, most experts think that drones are more effective than humans. In the event of an intrusion

detected by sensors, unmanned aerial vehicles can reach the region much faster than humans. A drone with thermal vision can get much more efficient results than a security guard working with a flashlight in the area. Although drones do not need water and food and are not affected by distractions, they make drones excellent security guards, but these devices have much more fuel and energy needs than a person's need for water and food. If the energy and fuel needs are not met, they become useless (Connecting the Security and Fire Communities, 2017: 9).

The rapid rise in technology, especially in recent years, makes it necessary for the criminals to benefit from technology, and the security forces closely follow this rise and stay one step ahead of the criminals. The use of technology to record images and provide security in cities has contributed greatly to the security of law enforcement officers in recent years. In this context, the widespread use of electronic control systems has led to a decrease in crime rates and the beginning of a new era in effective fight against criminals. Not only the visual systems, but also the vehicles, weapons and all systems used by law enforcement in the field of aviation have become an integral part of the criminal struggle today.

The fact that unmanned aerial vehicles are easily accessible and inexpensive makes these technologies attractive to malicious individuals and groups. With the advancing technology of unmanned aerial vehicles, both the increase in the image quality they can record and the increase in their flight range have brought the problem of using UAVs that pose a threat to the privacy of private life. In addition to the threats about privacy of private life any illegal activities such as terrorist attacks, smuggling and unauthorized surveillance are carried out using UAVs. For this reason, in terms of security, developing anti-drone technologies as well as developing drone technologies and updating security measures is one of the most important issues today.

## 3. Anti-Drone Technologies

There have been many cases around the world where reports were reported that images captured by drones violate the right to privacy. For this reason, even in hobby use, it is possible to evaluate the sounds and images recorded by UAVs as an attack on the privacy of private life and therefore penal sanctions can be imposed. Considering such reasons, it is necessary to take security measures and develop defence mechanisms against UAVs, as well as having great advantages in ensuring security with UAVs.

In addition to activities such as illegal audio and video recording, smuggling, and the delivery of illegal substances to prisons, the uncontrolled use of

unmanned aerial vehicles also negatively affects airline safety. The possibility of drones flying uncontrolled near airports to crash into the cockpit window of the planes or to enter the aircraft engine endangers the lives of many people on the plane and at the airport. In addition to all these, the risk of UAVs hitting people also endangers human life. However, more important than these is that UAVs can be used in terrorist activities. These vehicles, which have load carrying capacity and can be accessed quite easily, bring the risk of bomb attacks. The fact that explosives can be loaded into these devices instead of cargo and they can be controlled remotely have caused them to become a major terrorist threat. In recent years, many people have been caught in the world with a plan to organize a bomb attack using UAVs. It seems clear by malicious people that this useful technology can turn into extremely dangerous and life-threatening weapons (Karaağaç, 2014).

Due to the fact that UAVs create a security gap, many technologies that can be called anti-UAVs are now being produced. UAV repellents generally include all kinds of technologies used to drop unmanned aerial vehicles, lose control and render them dysfunctional. In addition to the use of some signal jamming factors in neutralizing the UAVs, there are also systems where the UAVs are neutralized by physical effects. The physical advantages of drone technology and the ease of access to this technology have brought the need to develop many defence systems both in the military sense and in the field of protecting the privacy of private life.

Technologies developed against drones are widely used today. These technologies, which are called anti drones, are frequently used in cases such as protecting the airspace at airports, ensuring security in large sports activities and congresses, protecting land units and convoys. In addition, anti-drone technologies are also used in the protection of sensitive facilities, port security and maritime security (Michel, 2018).

When we look at the current anti drone technologies, it is possible to evaluate these systems under four headings (Ding et al., 2017):

– Warning Technique: Detection of a drone in the area by cameras, sensors and radars and warning the relevant systems.
– Spoofing Technique: Electronic, optical and infrared false signals are sent, causing the drone to lose control and crash to the ground.
– Jamming Technique: It is the inactivation of the automatic driving mechanism and communication system of the drones by creating a strong interference with an electromagnetic gun.
– Mitigation Technique: It is the inactivation of the drone by methods such as micro-missiles, laser or capture net that can be used to destroy or capture drones in emergency situations.

The small size and low weight of amateur drones cause these vehicles to suddenly appear and disappear again, making it difficult to detect drones. In addition, the combination of artificial intelligence with drone technology and the increase in the technology of materials used for drone manufacturing are likely to become factors that make these drones difficult to detect in the coming years. Most of the current anti drone sciences are technologies designed to be prohibitive for certain drones in certain scenarios (Ding et al., 2017).

## 4. Conclusion

The importance of unmanned aerial vehicles in security and defence fields is rapidly increasing today. In addition to ensuring security, unmanned aerial vehicles are frequently used in the resolution of cases and forensic investigations. Apart from these, the numerous advantages and various usage areas of these vehicles make this technology indispensable. However, today's globalizing world and developing production factors enable technologies produced at one end of the world to be easily accessible to people in another part of the world. Advantages such as the worldwide popularity of unmanned aerial vehicles technology and the low price advantage of this technology make it very easy to reach unmanned aerial vehicles today. This accessibility creates big gaps, especially in the field of security. Unmanned aircraft used by malicious people or careless operators pose important problems in terms of public safety. In addition, terrorist activities that can be carried out using these vehicles have also made it necessary to develop technologies against unmanned aircraft. Many companies are developing anti-drone technologies and seeking measures against a possible attack using these tools. Drones, which facilitate human life day by day, especially with their use in the field of security, provide significant benefits in many areas such as investigation of crime scenes, detection of disaster areas and due diligence in cases such as pandemics. The emergence of new security threats day by day shows that drones will be one of the important security factors in the future. When examined in this context, effective use of unmanned aircraft by authorized forces in the process of ensuring security has become a necessity today. However, being able to eliminate the threats posed by these tools is also a necessity in terms of security. Security forces should both use the advantages of these tools and have the necessary equipment against the threats that may be caused by these tools.

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The Journal of Criminology and Criminal Law is triannual, peer reviewed scientific journal with a 58-year long tradition, co-published by the Institute of Criminological and Sociological Research and the Serbian Association for Criminal Law Theory and Practice. The Journal includes articles in the field of criminal law, criminology, penology, victimology, juvenile delinquency and other sciences that study etiology, phenomenology, prevention and repression of crime.

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