ARTIFICIAL INTELLIGENCE IN PERPETRATION OF CRIMINAL OFFENCES

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ABSTRACT

Purpose: Artificial intelligence is in huge expansion in recent years. It is therefore expected that its development will be significantly accelerated in the coming years, and that different forms of artificial intelligence will find their application in very diverse areas. What is also to be expected is that certain forms of artificial intelligence may be used for criminal purposes, in other words to commit criminal offenses either using AI or some of its forms. Various criminal legal consequences may arise from this, and the most complicated issue will be related to the determination of the form of responsibility for a criminal act committed independently by a certain form of artificial intelligence. This will be particularly interesting and significant when it comes to militarised forms of artificial intelligence, such as the various types of drones that are already used in current wars and armed conflicts. The criminal law analysis concerning such means may also refer to other conceptually and essentially similar combat means, such as submarine drones, ship/boat drones, armoured vehicle/other vehicle drones, etc. In addition, this analysis can even concern drone soldiers - as a special type of robots and a vision of artificial intelligence, which is still, at least to some extent, in the realm of science fiction, but it is very likely, practically certain, that the future will bring it. Such means can be used to commit crimes in ordinary life circumstances, not only in wars and armed conflicts.

As long as it is the man who manages the specific militarized form of artificial intelligence, it does not lead to major criminal law problems, as in this case the man is the perpetrator of the specific criminal act, and the form of artificial intelligence, such as a drone/unmanned aircraft, etc. is a mere means of committing a criminal offence. However, in some situations, which are probably a matter of the near future, it is possible to operate completely autonomous forms of militarized artificial intelligence, which would act independently of the direct influence of the people who created them, which leads to the need to develop new concepts of criminal responsibility for such situations. In certain situations, the criminal law concept of indirect perpetration could be implemented. This, however, would not be entirely adequate, because the immediate perpetrator would not be a man, i.e. a human being. It seems that this problem could be most adequately solved by extending the concept of command responsibility to these situations as well, which would require appropriate legal changes, that is, it comes down to the idea in the sense of *de lege ferenda.*

Design/Methods/Approach: In the introduction of the text the main characteristics will be explained of artificial intelligence connected with some possibilities of using AI for criminal purposes. The text will have the following basic parts: 1) Basic criminal law consequences of using artificial intelligence, 2) Forms of artificial intelligence as a means of committing a criminal offense or as a segment of the way of committing a criminal offense, 3) Forms of artificial intelligence as the creator of the criminal

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act, 4) Forms of artificial intelligence as generally dangerous means and an essential element of committing the criminal offense of causing general danger, 5) The use of militarized forms of artificial intelligence such as robot drones and the criminal law concept of command responsibility, 6) Some grounds for the exclusion of illegality and artificial intelligence, and 7) Conclusion that explains both the possibilities of applying the existing criminal law norms in relation to the use of artificial intelligence to commit crimes, and the need to observe the connection between artificial intelligence and criminal law at *de lege ferenda* level.

All common methods of research in the field of criminal law will be used, starting from the dogmatic method, normative method and comparative method.

Findings: Rapid development of AI in various areas of life will lead to its use in a whole range of life situations, including those which are legal and legitimate, the aim of which is to suppress crime even. However, there is, of course, the other side here as well, and therefore, the use of artificial intelligence for criminal purposes is no longer a matter of some distant and uncertain future.

As already hinted at (and probably their development is well under way), the routine use of various advanced forms of militarised artificial intelligence, such as fully autonomous drones, make it necessary to solve certain criminal law problems in relation to that issue, especially the form and basis of responsibility for international criminal acts, and above all war crimes, arising from the effect of such types of combat equipment. In this regard, the existing criminal law rules can only be applied to a certain extent, and only on the basis of a relatively broad, but still legitimate interpretation. However, in relation to some aspects of the action of drones as a form of artificial intelligence in war/armed conflict (and this basically applies to other types of artificial intelligence in the service of war/armed conflict, such as, for example, robot-soldiers, etc.), some specific and special criminal law rules should be prescribed, which would be relatively similar in some aspects and the existing/current conceptions of command responsibility.

Originality/Value: As it has already been noted, huge expansion of AI is expected in the nearest future. As it will lead to enormous social change and leave significant consequences, and probably be used for both good and bad, it is of utmost importance to analyse all relevant connections between the use of artificial intelligence for criminal purposes and the resulting criminal law consequences.

In general, from the use of artificial intelligence for criminal purposes, which means either as a means/tool of committing a criminal act, or as a specific 'perpetrator' of a criminal act, different criminal legal consequences can arise, and certainly the most complicated issue will be related to the determination of the form of responsibility for a criminal act that was independently committed by a certain specific form of artificial intelligence. Apparently, at the current level of development of criminal law, this issue can hardly be definitively explained in the *de lege lata* sense, but it can mostly be resolved at the *de lege ferenda* level, which will be given special attention in the text.

Keywords: artificial intelligence, criminal law, Criminal Code, criminal offense, indirect perpetration, command responsibility

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INTRODUCTION

Artificial intelligence (AI) is in huge expansion in recent years. It is therefore expected that its development will be significantly accelerated in the coming years, and that different forms of artificial intelligence will find their application in very diverse areas. What is also to be expected is that certain forms of artificial intelligence may be used for criminal purposes, in other words to commit criminal offenses either using AI or some of its forms. Various criminal legal consequences may arise from this, and the most complicated issue will be related to the determination of the form of responsibility for a criminal act committed independently by a certain form of artificial intelligence. This will be particularly interesting and significant when it comes to militarised forms of artificial intelligence, such as the various types of drones that are already used in current wars and armed conflicts. The criminal law analysis concerning such means may also refer to other conceptually and essentially similar combat means, such as submarine drones, ship/boat drones, armoured vehicle/other vehicle drones, etc. In addition, this analysis can even concern drone soldiers - as a special type of robots and a vision of artificial intelligence, which is still, at least to some extent, in the realm of science fiction, but it is very likely, practically certain, that the future will bring it. Such means can be used to commit crimes in ordinary life circumstances, not only in wars and armed conflicts.

As long as it is the man who manages the specific militarized form of artificial intelligence, it does not lead to major criminal law problems, as in this case the man is the perpetrator of the specific criminal act, and the form of artificial intelligence, such as a drone/unmanned aircraft, etc. is a mere means of committing a criminal offence. However, in some situations, which are probably a matter of the near future, it is possible to operate completely autonomous forms of militarized artificial intelligence, which would act independently of the direct influence of the people who created them, which leads to the need to develop new concepts of criminal responsibility for such situations. In certain situations, the criminal law concept of indirect perpetration could be implemented This, however, would not be entirely adequate, because the immediate perpetrator would not be a man, i.e. a human being. It seems that this problem could be most adequately solved by extending the concept of command responsibility to these situations as well, which would require appropriate legal changes, that is, it comes down to the idea in the sense of *de lege ferenda.*

BASIC CRIMINAL LAW CONSEQUENCES OF USING ARTIFICIAL INTELLIGENCE

Huge expansion of AI is expected in the nearest future, and it will lead to enormous social change and leave significant consequences, as well as that it will probably be used for both good and bad, it is of the most importance to analyse all relevant connections between the use of artificial intelligence for criminal purposes and the resulting criminal law consequences.

In general, from the use of artificial intelligence for criminal purposes, which means either as a means/tool of committing a criminal act, or as a specific ‘perpetrator’ of a criminal act, different criminal legal consequences can arise, and certainly the most complicated issue will be related to the determination of the form of responsibility for a criminal act that was independently committed by a certain specific form of artificial intelligence. Apparently, at the current level of development of criminal law, this issue can hardly be definitively explained in the *de lege lata* sense, but it can mostly be resolved at the *de lege ferenda* level.

Current legal frameworks are not equipped to hold an AI system directly liable, as they lack the human or corporate personhood required for criminal sanctions like imprisonment. Traditional legal concepts of criminal intent are challenging to apply to AI, as it lacks human consciousness and moral agency. While an AI's decision-making process might appear "malicious", it does not equate to human intent. Some propose solutions for addressing crimes committed by AI, such as creating specific "endangerment" offenses or using novel forms of punishment like deactivation, reprogramming, or destruction of the machine (Sachoulidou, 2024: 9).

Criminal law consequences of using AI primarily involve the criminal liability of individuals or corporations for harms caused by AI systems, such as negligence or failure to supervise, as well as the potential for discriminatory outcomes from biased AI. There are also complex legal questions about attributing criminal intent and responsibility to the AI itself, which is currently not possible under traditional legal frameworks.

AI as a perpetrator of a criminal offenses presents a significant legal issue and one of the most challenging questions in the law, precisely criminal law. Reforms in the field of criminal substantive law, as an exclusively legal mechanism for controlling crime, must be in accordance with the scope, dynamics and forms of contemporary crime, which are opposed by all forms of its politicisation in order to achieve political goals (Bodrožić, 2020: 393). But, "being late is no news for criminal law, and not necessarily a bad thing. Indeed, [t]he criminal law is and ought to be different – importantly dissimilar from other kinds of law" (Husak, 2004:211). From a regulatory perspective, the norms of criminal law represent "the *ultima ratio* in the legislator's toolkit" (Giannini, 2023: 46).

One thing is certain: regardless of whether legislators will address criminal law issues pertaining to AI-related misbehaviours in the short run or not, starting from 2019 the academic discourse on AI in the realm of criminal law has thrived. The ultimate proof of this excitement can be found in the fact that the International Association of Penal Law decided to dedicate its XXI International Congress in 2024 to the topic of "Artificial Intelligence in Criminal Justice" (*http://www.penal.org/en/information*).

Traditional concept of criminal liability worldwide under current legal frameworks proclaims that AI systems cannot be perpetrators of a criminal offence, because they lack legal personhood,[2] consciousness, and the capacity for *mens rea* (a "guilty mind" or criminal intent). Criminal liability is instead attributed to the human programmers, developers, manufacturers, or users behind the AI's actions.

Criminal responsibility refers to legal liability for a crime, requiring proof of a guilty act (*actus reus*) and a guilty mind (*mens rea*). It can be influenced by factors like intent, recklessness, and negligence, and can be mitigated or excused due to reasons such as diminished capacity or insanity. This responsibility is determined through the legal process to establish whether a person is liable to punishment for an offense.

In Serbian criminal legislation, guilt is one of the four mandatory elements in the general concept of a criminal offense, which means that in order for an action to be considered a criminal offense, it must be attributable to the perpetrator.

The Criminal Code (CC) of the Republic of Serbia defines the concept of a criminal offense in a new way, the basic element of which is precisely the subjective character - the guilt of the perpetrator. Therefore, according to the CC, guilt is understood in two ways, first as a subjective element of the

2 "AI criminal liability requires legal personhood for the AIs, and would be similar to corporate criminal liability that some legal systems are recognising. Corporate criminal liability is deemed to be a fiction; a construed form of liability where the corporation is attributed with its employee's acts. In contrast with corporations, AIs would be accountable for their own behaviour, not attributed with anyone else's. Even though it seems to be a simple solution not violating the rule of law requirements, it requires a more comprehensive assessment than this. But, as long as AIs do not think and act humanly or possess the capacities that imposing responsibility for acts in general requires, direct criminal liability for AIs are not a solution good enough to solve the liability problem of AI" (Claussén-Karlsson, 2017: 42-43).

concept of a criminal offense and secondly as a basis for the application of punishment and other criminal sanctions. Earlier Serbian criminal legislation did not use the term guilt, but the term criminal responsibility was mentioned.

Guilt essentially represents a central concept in criminal law, given that it is the basis and condition of criminal responsibility. In order for someone to be held criminally responsible, it is not enough just to have committed the act, but it is necessary that he is guilty of what he did or failed to do.

According to the CC, guilt exists if the perpetrator was sane and acted with intent, and was aware or was obliged and could have been aware that his act was prohibited. However, guilt can also exist when the perpetrator acted negligently, if the law expressly provides for it. Therefore, illegality also appears as an element of guilt. Awareness of illegality does not always have to exist; it is enough that there were a duty and the possibility to have such awareness.

As an example of the criminal law status of the AI as a perpetrator of the criminal offences in general, German criminal law will be highlighted, while the complete criminal law tradition in Serbia is based on the German legal tradition and criminal law concept.

Under current German criminal legislation (*Strafrecht),* AI cannot act as a perpetrator *(Täter)* of criminal offences.[3] German criminal law is anthropocentric, meaning it only recognizes natural persons (humans) as having the capacity to commit crime. Key aspects of AI and German Criminal Law are primarily connected through the absence of legal personhood status: AI systems are considered property or tools, not legal persons with rights and duties. The lack of *mens rea*: criminal liability requires a "guilty mind" such as intent (*Vorsatz*) or negligence (*Fahrlässigkeit),* which AI lacks.

Human responsibility is the central place due to the fact that the liability is traced back to a human actor — the developer, manufacturer, or user — who exercised control or failed in their duty of care.

Within the current criminal law provisions in Germany AI cannot be understood as a "perpetrator" in the sense of a criminal offense, because it is not a natural person with the capacity of will and consciousness. Therefore, only natural persons or legal entities can be held criminally liable[4] - for example: the programmer (e.g. in cases of manipulative programming), the operator or user, the responsible management, or in certain cases even the end user.

3 As of today, the German Federal Office for Information Security *(Bundesamt für Sicherheit in der Informationstechnik – "BSI")* refers to the definition developed by the EU Commission's High-Level Expert Group on AI (HLEG) describing AI systems as "software and hardware systems that use artificial intelligence to act "rationally" in the physical or digital world. Based on perception and analysis of their environment, they act with a certain degree of autonomy to achieve certain goals". A most comprehensive definition which comprises the main features of AI according to the most recurring definitions in the academic discourse due to A. Giannini is: "Artificial intelligence (AI) systems are software (and possibly also hardware) systems designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from these data and deciding the best action(s) to take to achieve the given goal. AI systems can either use symbolic rules or learn a numeric model, and they can also adapt their behaviour by analysing how the environment is affected by their previous actions. As a scientific discipline, AI includes several approaches and techniques, such as machine learning (of which deep learning and reinforcement learning are specific examples), machine reasoning (which includes planning, scheduling, knowledge representation and reasoning, search, and optimization), and robotics (which includes control, perception, sensors and actuators, as well as the integration of all other techniques into cyber-physical systems)" (Giannini, 2023: 42).

4 For a long period of time Germany was lagging behind many European countries that have laws that provide for genuine corporate criminal liability (the United Kingdom, Ireland, The Netherlands, Norway, Iceland, France, Finland, Denmark, Slovenia, Switzerland and Belgium) because the dogmatic problems of where to place such liability within the existing system are as yet unsolved. It is likely that a solution will be most easily found along the lines of introducing corporate-specific sanctions rather than substantive criminal liability (Bohlander, 2009: 23). Under German civil law, legal entities can be held liable. German criminal law does not currently apply to legal entities, but their representatives can be criminally prosecuted. However, there are efforts to extend criminal law to legal entities to a certain extent ("corporate criminal law") (Hackbarth, 2024: 69).

A comprehensive understanding of how artificial intelligence is treated in criminal law first requires establishing the specific nature and purpose of punishment, which must be critically examined and re-examined. The focus must be on the responsibility of individuals who use or develop artificial intelligence, or who provide data and storage space for them, thereby shaping the behaviour of artificial intelligence. Among other things, a significant problematic issue is the dilemma of how to make a choice between causing harm to one legally protected interest and protecting another, all in the context of the adequacy of introducing specific criminal offenses related to the violation of legally protected interests associated with artificial intelligence (Waxnegger, 2024).

The possible impact of the AI in the sphere of contemporary criminal law provisions carries with it concepts such as electronic personality, the determination and individualisation of criminal responsibility, ethics and autonomy, traditional criminal law, and the permissible risk of AI. It proposes to consider AI as a subject of law and explores the legislative challenges of including "digital personality" in the criminal legal system (Escalante-Huisacayna et al., 2024: 473-475).

Forms of artificial intelligence as a means of committing a criminal offense or as a segment of the way of committing a criminal offense

Some forms of computer-generated artificial intelligence find their application for criminal purposes, such as the use of specific concepts and methods of the so-called deep deception/deep falsification, as regards one's artificially created face, complete appearance, speech, behaviour, etc. Namely, these forms of a kind of "deep" (essential) deception or radical "faking" and the creation of "artificial reality", i.e. "deep fake" achieved by using special and very complex computer programs and technologies with elements of artificial intelligence, are reduced to the creation of photos, video or audio material that in fact is a type of forgery, because it is not about a real, realistically existing person who is in the photo/video or who really does something speaks/pronounces (he expresses his original thoughts with his original voice), but it is an artificially realised imitation of a real person, which at first glance, when it comes to top creations of this kind, looks like a real/actually existing person, i.e. a voice is created that irresistibly resembles the voice of a concrete/original (real) person. Sometimes this can be fun, when it is done in some media as a type of specific "media game", realised without malice, sometimes it can be just tasteless, or on the border of good taste when it comes to media content, and sometimes it can be very dangerous, and even of a criminal character, that is, it can serve as a means/method of committing certain criminal acts or by itself, be a certain criminal act.

Artificial intelligence is used in such a way, i.e. as a type of creation of "false reality" and "convincing appearance" (deep fake mechanism), most often for the execution of some criminal acts that have an element of forgery, sometimes also for certain types of blackmail, but also as an element of some computer and classic frauds. The "photomontage" itself, almost as old as photography itself, of course, found its application in the sphere of criminality, but never before the development of modern technology, based on the concept and systems of artificial intelligence, did it reach such a level of "perfection", and this is especially noticeable when it comes to video material and voice/speech created by artificial intelligence.

All this, of course, is already finding increasingly expansive application in the sphere of committing some criminal acts, and in practice it is most often (therefore not limited to) the following forms of criminality of this type (Škulić, 2024: 472):

1) blackmail based on the creation of false photos/video materials/voices/speech of specific people, who are shown in such "images", i.e. in such audio/video materials in a way that is embar-

rassing for them or criminalises them (which may also have elements of the criminal offense of false reporting, evidence obstruction, etc.), destroys their reputation, etc.;

2) fraud, either computer or classic fraud, which is realised in different ways, such as the one based on fake voice appeals for providing financial assistance with an artificially created voice of a specific person, or artificial intelligence "creating" famous people (so-called celebrities), who in audio/video recordings invite citizens to pay sums of money for ostensibly humanitarian purposes, etc.;
3) identity theft using artificial intelligence, which is then used to commit/conceal other criminal acts;
4) creation of pornographic material using artificial intelligence (which, when it comes to our legislation, is a criminal offense in itself, only when the "actors" of such material are minors), in which case such recordings can also be used to blackmail real people, whose faithful "copies", i.e. imitations created by artificial intelligence have become the actors of a pornographic video, or in such a way the reputation of people, who are business competitors or political opponents, is drastically ruined for any reason, because of hatred, a high degree of envy and other negative feelings (which is mostly in the sphere of pathology;
5) persecution of people and other forms of systematic harassment, sometimes connected with sexual crimes (Škulić, 2019: 357), most often on the Internet, by creating and broadcasting on social networks material that is offensive to them, or humiliates them, morally degrades them, grossly insults their honour and dignity, etc.;
6) the achievement of other criminal goals, with elements of a number of other criminal acts, such as the execution of either classic espionage or industrial espionage, thanks to the issuing of false orders/orders by the superior's voice created by artificial intelligence to subordinates in a certain hierarchical chain, etc.

Finally, it is certain that the further development of the artificial intelligence system will quickly lead to further significant expansion of the field and the growth of opportunities for the use of various forms and types of artificial intelligence for the commission of criminal acts and, in general, for criminal purposes, so that the "list" of criminal acts that can be committed using forms of artificial intelligence, as well as the ways in which artificial intelligence can be used for criminal purposes, are certainly not of a limiting nature (Škulić, 2024a: 22-23).

Forms of artificial intelligence as the creator of the criminal act

When it comes to the subject, such as the so-called robot, which is characterised by artificial intelligence, then the basic question is how to solve the problem of responsibility for a criminal act that such a form of artificial intelligence "independently" committed. There are three basic ways of criminal law response to a criminal act created by some form of artificial intelligence, of which basically only one is acceptable in normal life circumstances, while none of them seems quite adequate for cases in war/armed conflict (at least not at the *de lege lata* level), this type of militarised artificial intelligence carries out a criminal act. There are the following ways to solve this problem:

1) treating a robot, which is a form of artificial intelligence, as a direct perpetrator of a criminal act, behind which, of course, a concrete "man" stands as an indirect perpetrator, who, using a drone, carries out his/her own criminal act;
2) treating a robot, which is a form of artificial intelligence, as a means of committing the criminal offense of causing a general danger or endangering the safety of air traffic, and sometimes some other criminal offense, when such a technical-technological means can be considered "generally

dangerous", that is, suitable for endangering air traffic under certain circumstances and under certain specific conditions;

3) treating robots, which are a form of artificial intelligence, within the framework of the adapted concept of command responsibility, which would be possible only and exclusively at the *de lege ferenda* level and above all in relation to the use of militarised forms of artificial intelligence in war or armed conflict, when dealing with positive criminal law, not only in Serbia, but practically in most modern countries (Škulić,2024a: 24; Škulić & Miljuš, 2024: 242-245).

Forms of artificial intelligence as generally dangerous means and an essential element of committing the criminal offense of causing general danger

Under certain conditions and in certain circumstances, the use of an unmanned aircraft in general, and especially its variant that represents a form of artificial intelligence, can constitute the act of committing the criminal act of causing general danger.

The crime of causing general danger prescribed by the provisions of Article 278 of the Criminal Code (CC) of Serbia is the central criminal offense of Chapter XXV of the CC, which concerns crimes against the general safety of people and property. The *ratio legis* of the incriminations contained in Chapter XXV of the CC, which is obviously particularly characteristic of the criminal offense of causing general danger (in which the aerial drone itself can be and is treated as a general dangerous tool), is explained in theory as follows: "Modern civilization and the development of technology have brought with them, in addition to the positive, a large number of negative phenomena that seriously threaten the safety of people and their property, so that although some ways of endangering that safety have always been known (e.g. fire), they also gain a new dimension with the development of technical means and technical achievements" (Stojanović, 2022: 242).

The possibility of treating a drone as a generally dangerous tool (which will be explained in more detail in the following text) comes from the very typical rapid development of technology for modern civilization, and it is based, among other things, on the justification that the legislator, after enumerating a series of generally "dangerous tools", does not limit it, but in the end uses one general formulation in the form of – "any other generally dangerous actions or generally dangerous tool".

The normative construction of the criminal offense of causing general danger is distinguished by the formulation of several forms of this incrimination. These are: 1) two basic forms, 2) two more severe forms, one of which is the most serious form of this criminal offense, as well as 3) one lighter form (Đorđević & Bodrožić, 2024: 259-260).

In addition, when some of the optionally defined (most) serious consequences occurred as a result of the commission of the crime of causing general danger, there will be a formal special crime (serious crime against general security), which in fact represents the most serious form of causing general danger, just as it has such significance with regard to some other criminal offenses from Chapter XXV of the CC.

The first basic form of the criminal offense of causing general danger exists when the perpetrator causes a danger to the life or body of people or to property of a larger scale by fire, flood, explosion, poison or poisonous gas, radioactive or other ionizing radiation, electricity, motor force or any other generally dangerous action or generally dangerous means.

In our criminal law theory, it is pointed out that when it comes to the act of committing the crime of causing general danger, "besides the explicitly stated actions, the general formulation also includes the undertaking of other generally dangerous actions, or the use of generally dangerous means, and these can be very different actions and means, with the fact that in practice the most common cases are uncontrolled firing of firearms" (Stojanović, 2022a: 898).

In addition, the theory also notes that "a special problem that arises here, if a more serious consequence from Article 288 of the CC (serious crime against general security) has occurred is the demarcation with the criminal offense of negligent deprivation of life" (Stojanović, 2022a: 898).

An aerial drone in general, and especially one with elements of artificial intelligence, can certainly in certain circumstances be considered a generally dangerous tool, in other words a tool that, in some specific circumstances, can commit the criminal act of causing general danger.

Another basic form of the criminal offense of causing general danger exists when the perpetrator is an official or responsible person who does not install the prescribed devices for protection against fire, flood, explosion, poison or poisonous gas, radio-active or other ionising radiation, electricity or other dangerous means, or does not maintain these devices in proper condition or, in case of need, does not put them into effect or does not act at all according to regulations or technical rules on protective measures and thereby causes a danger to the life or body of people or to property of a larger scale.

The act of committing the second basic form of the criminal offense of causing general danger represents inaction - when there is a duty to act, i.e. it is a punishable omission, so this form has the characteristics of *delicta propria*, because only persons/perpetrators of a certain status (official/responsible person) can carry out this form of causing general danger.

Both basic forms of the criminal offense of causing general danger have the same consequence, which is causing/occurring danger, which is formulated alternatively: 1) for the life or body of people or 2) for property of a larger scale.

The first serious form of the criminal offense of causing general danger is qualified by the place of execution and it exists if one of the basic forms of this criminal offense is committed in a place where a large number of people are gathered.

Both the first and second basic form of the criminal offense of causing general danger are carried out when it comes to the form of the perpetrator's guilt with intent, and if the perpetrator committed the first basic form, as well as the qualified forms, out of negligence, then it is a minor form of the criminal offense of causing general danger.

The first and second basic forms of the criminal offense of causing general danger are threatened with the same punishment, which is cumulative: a prison sentence of six months to five years and a fine. For the first serious form of the criminal offense of causing general danger, a cumulative fine and a prison sentence of one to eight years are prescribed, while the second serious form of this criminal offense is punishable by a sentence of two to ten years in prison. For the lighter (privileged) form of the criminal offense of causing general danger, which is of a negligent nature, when it is a form of guilt, a sentence of up to three years of imprisonment is prescribed.

Article 288 of the CC prescribes serious offenses against general safety, when there are particularly serious qualifying circumstances, which are reduced to particularly serious consequences of specific criminal offenses against general safety, as regards causing general danger as a basic/central criminal offense of that type.

A serious crime against general safety exists in the following situations: A) if, as a result of the commission of the first or second basic criminal offense, i.e. the first serious form of causing general danger, the alternative occurs: 1) serious bodily injury to a person or 2) large-scale property damage, which is punishable by prison sentences of one to eight years; B) if, as a result of the criminal offense of causing public danger (either the basic form or one of the more serious forms), the death of one or more persons occurred, when a prison sentence of two to twelve years is prescribed, C) if, as a result of the execution of the privileged (negligent) form of the criminal offense of causing public danger, serious bodily injury to a person or large-scale property damage occurred, which is threatened with a prison sentence of six months to five years, as well as D) if the death of one or more persons occurred as a result of the execution of a privileged (negligent) form of criminal offense of causing general danger, when a prison sentence of one to eight years is prescribed.

THE USE OF MILITARISED FORMS OF ARTIFICIAL INTELLIGENCE SUCH AS ROBOT DRONES AND THE CRIMINAL LAW CONCEPT OF COMMAND RESPONSIBILITY

The possibility of the emergence of an "army – robot", which would possess artificial intelligence, or in the context of the main topic of this work, the massive use of drones with elements of artificial intelligence, in order to solve criminal legal problems concerning international crimes that would be autonomously and independently committed by such forms of artificial intelligence, could be most adequately solved if the rules arising from the criminal law concept of command responsibility would be adapted to this situation. In a formal sense, this could be done both in certain international legal acts, such as the Rome Statute on the establishment of the permanent International Criminal Court (ICC), as well as in national criminal legislation, whereby the principle of complementarity would apply in relation to the states that are parties/members of the Rome Statute.

Command responsibility is otherwise considered to be an "originally international criminal law figure", derived from the Geneva Conventions, which found its place in the Rome Statute, and which is characterised by such a "model of attribution of responsibility", based on the fact that the commander is responsible when criminal acts of his subordinates result from his failures of due/guaranteed supervision (Satzger, 2020: 401). According to the principle of complementarity, all member states/parties of the Rome Statute on the establishment of a permanent International Criminal Court are in their criminal legislation, and essentially, i.e. in a substantial sense, modelled on the normative solution from the Rome Statute itself, it introduced rules concerning command responsibility. Of course, it should be borne in mind that the implementation of such rules, i.e. the introduction of the concept of command responsibility into the national criminal legislation of countries that are parties/members of the Rome Statute, certainly does not have to be legally and technically identical to the rules of the Statute, i.e. the normative solution contained in the Rome Statute, and even that issue can be resolved both at the level of the general part of criminal law - as a special form of responsibility (as it is also regulated in the Rome Statute), and in a special part of criminal law - as a special criminal act of inaction, as it is, for example, the case in the German International Criminal Code (*Völkerstrafgesetzbuch VStGB),* but also in the Criminal Code of Serbia. The theory states that "the real reasons for the emergence and introduction of command responsibility should be sought in the fact that, as a rule, it is very difficult to prove that a superior ordered the execution of a criminal act" (Stojanović, 2017: 76).

The use of the concept/institute of command responsibility in relation to criminal acts arising from the action of unmanned aerial vehicles/drones as a form of artificial intelligence, and the same would apply to other militarised forms of artificial intelligence, would not be possible, of course, by any extensive interpretation of the existing rules relating to command responsibility, which basically, i.e. from the point of view of the essence of the rules of that type of responsibility (in some aspects essentially quite close to objective responsibility, which otherwise is not immanent in modern criminal law), reduces the responsibility of the commander for criminal acts committed by his subordinates, if before the execution of such criminal acts, he did not take the necessary measures to prevent them.

It is difficult to see in the contemporary literature dealing with international criminal law a position according to which command responsibility is explicitly treated as a form of objective responsibility, because it is not formally so, i.e. none of its forms is formally defined as objective responsibility. In essence, command responsibility is not, and of course, should not be a type of objective responsibility.

However, it seems that some forms of command responsibility are very close to objective responsibility, and that in practice, when it comes to those forms, they will probably really come down to objective responsibility. Of course, this is about a situation where the commander acts out of negligence, especially if in a specific situation it is about unconscious negligence (Škulić, 2002: 489-532).

Z. Stojanović points out "that part of command responsibility, where premeditation is missing, i.e. where only unconscious negligence is required, is incompatible with the nature of international criminal acts in the narrower sense, which are always premeditated (or more than that, like genocide)", so there is "the absence of the necessary subjective attitude towards the committed act, as well as the absence of grounds to equate, in this case with regard to social-ethical reprimand, the superior who did not prevent the criminal act (for which he did not even know he was preparing) with the orderer, contrary to the principle of guilt in modern criminal law" (Stojanović, 2022a: 1137).

A similar concept to what is otherwise command responsibility in current international criminal law (Ristivojević, 2003: 188), as well as in most national criminal law systems (regardless of whether in certain criminal legislations it is a special form of responsibility as a general criminal law institution or a specific criminal act of inaction in the sphere of a special criminal law act) (Škulić, 2004), could also be applied when it comes to criminal acts resulting from the action of drones, i.e. in general, the consequences that could be criminal law/international criminal law relevant, which resulted from the action of armed/combat assets that are forms of artificial intelligence. Of course, this would only be formally possible if it were prescribed by a suitable source of law, which could be reduced to a single thought in the sense of *de lege ferenda*.

The institute of command responsibility is very interesting, because on the one hand, it represents a great novelty and a striking exception to the classic criminal law solutions on the basis of responsibility, and on the other hand, it practically enables the effective prosecution and sentencing of high-ranking military and political officials, which, according to the logic of things, always attracts a lot of attention, not only from the professional public, but from the public in general. Command responsibility basically and primarily owes its origin to the historically well-known case of the trial of the Japanese general Yamashita in Tokyo after the World War II, organized by the occupation forces of the USA (Škulić, 2023: 60-63). In addition, the introduction of that institute into national criminal legislation, especially in connection with the translation into that legislation of all relevant norms contained in the Rome Statute of the International Criminal Court, represents one of the most prominent examples of the concrete influence of international law on internal legal orders, in particular, the direct action of international legal rules in relation to national criminal law, mostly viewed in relation to concrete incriminations - the so-called international crimes.

The act of execution by the perpetrator who is responsible on the basis of command responsibility (Škulić, 2022: 163,167) as a specific form of extended responsibility is defined in the Rome Statute as an act of inaction, that is, failure to "do the duty". As usual, with the delict of omission, the existence of a certain duty to act, which is violated, is required, so it is treated as a punishable omission (Wessels, 1996: 208). This is a true criminal offense of inaction, which is characterised by the violation of some norm that prohibits certain behaviour. Namely, the commander in a certain chain of command is obliged to perform a control function in relation to his subordinates, and represents a special type of guarantor regarding the behaviour of his subordinates, which must be in accordance with their military duties, and in particular, the commander is obliged to exercise a control function in terms of preventing his subordinates from committing any of the criminal acts covered by the Rome Statute. The position of "guarantor", which the commander has in terms of command responsibility, results from his competence in relation to his subordinates and his supervisory duties (Ambos, 2018: 200).

If a person holding a command function violates his obligation, which amounts to his refraining from the necessary preventive action, he is acting in an illegal manner, but the conditions for him to be held criminally responsible based on the rules on command responsibility are still not met. It is still necessary to fulfil certain objective and subjective conditions.

In an objective sense, it is necessary that the forces under his immediate command or supervision, as a result of his failure to exercise proper supervision, committed a criminal offense under the jurisdiction of the International Criminal Court. From a legal and technical point of view, the fact that some of the criminal acts under the jurisdiction of the International Criminal Court were committed by the subordinates is an objective condition for incrimination, i.e. punishment, although it is not formal-legal, because command responsibility in the Rome Statute is not conceived as a separate criminal act, but as one of the general grounds of criminal responsibility (in addition to other grounds of criminal responsibility). It is therefore a very specific legal-technical solution, which is associated with the objective condition of incrimination (punishability), which it essentially is in its effect, however, it does not refer to a specific criminal act of the commander, but to a special basis of his criminal responsibility, which gives it a *sui generis* character.

In the previously mentioned International Criminal Code of Germany (*Völkerstrafgesetzbuch - VStGB),* § 4 prescribes the criminal offense of responsibility of the military commander and other superiors *("Verantwortlichkeit militarischer Befehlshaber und anderer Vorgesetzter").*

In Article 384 of the Criminal Code of Serbia, there is a criminal offense of failure to prevent the commission of crimes against humanity and other goods protected by international law prescribed, which in terms of content is reduced to command responsibility (Đorđević & Bodrožić, 2024: 447-448).

Whether command responsibility is a special form of responsibility (as prescribed in the Rome Statute and in some national criminal legislations), or whether it was entered into the criminal legislation as a special crime of inaction/punishable omission, as its special form, the responsibility of commanders could be prescribed for criminal acts of the appropriate type (first of all, they would be war crimes), resulting from the action of drones/unmanned aerial vehicles as a form of artificial intelligence, i.e. in the future even "robot soldiers" and other possible forms of militarised artificial intelligence. The commander would thus be responsible for such criminal acts, just as he is normally responsible according to the concept of command responsibility for the criminal acts of his subordinates, when he previously failed to take measures that he could and was obliged to take to prevent the commission of a criminal act, and as a result, the specific criminal act was committed.

Finally, in accordance with the principle of guilt, the responsibility of the commander, as a special type of "guarantor", who is responsible for his own inaction/punishable omission in relation to the action of drones as a form of militarized artificial intelligence (and essentially the same would be the case with other forms of such artificial intelligence, which humanity will probably encounter sooner or later in the future), would have to be of a subjective nature, which means that even in such a case it is necessary to show the appropriate form of the commander's guilt.

In addition, it is also necessary that between the "action" of the commander, which means his failure to act/relevant inaction, and the criminal act resulting from the action of a militarised form of artificial intelligence, there is a corresponding cause-and-effect relationship.

It follows from this that such rules that would enable the responsibility of the commander for the criminal acts of this specific category of "subordinates", who are not real human beings, but forms of artificial intelligence in a combat function, would essentially be conceived similar to the rules in the domain of command responsibility, which otherwise concern the responsibility of the commander for the criminal acts of his “classic” subordinates, if in relation to his act of omission/punishable omission, by which he did not previously take the necessary measures to prevent the criminal acts of his subordinates, manifested the appropriate form of guilt, and when, between the relevant inaction of the commander and the criminal act resulting from the operation of a militarised form of artificial intelligence, there is a relevant and adequate causal link, i.e. cause-and-effect relationship.

SOME GROUNDS FOR THE EXCLUSION OF ILLEGALITY AND ARTIFICIAL INTELLIGENCE

The phenomenon of artificial intelligence, i.e. its various forms, is of primary importance when it comes to criminal law, both from the point of view of using certain types of artificial intelligence as a means of committing some criminal acts, and also with regard to the complete creation of “complete” criminal acts by artificial intelligence, which at the current level of development of criminal law, represents a great challenge, which in one part can mostly be solved in the sense of *de lege ferenda* (Škulić, 2024a: 32).

In addition, some other general criminal law institutes may be relevant when it comes to the operation of some forms of artificial intelligence. This particularly concerns two grounds for the exclusion of illegality. These are necessary defence and last resort, in respect of which one can reason on the basis of the general rules of criminal law. Therefore, if some form of artificial intelligence, which is not complete, but requires to be “under the supervision of a person”, such as a remotely controlled drone, is used as a means of simultaneous illegal attack, which is realised by a specific person who controls such a means, i.e. uses it for his own attack, there would be a right to necessary defence in relation to such an attack, when all other general criminal law rules concerning necessary defence would be applied. However, if it were (which for now, but probably not for a long time, is predominantly in the domain of science fiction), an attack by a certain type of artificial intelligence, where that form of artificial intelligence that acts completely autonomously and independently, would be the “attacker”, then the rules from the domain of necessary defence could not be applied, because the attacker is not human, but it would be treated as a danger, which can be eliminated in accordance with the general criminal law rules concerning extreme necessity

Nevertheless, certain dilemmas related to “defence” against drones and the possibility/impossibility of necessary defence as the basis for excluding illegality/the basis for excluding the existence of a criminal offense/responsibility for a criminal offense still exist today, as indicated by an example from recent German judicial practice, which is explained below, connected with the institute of the so-called defensive last resort in the civil-legal sense, and in the context of non-existence of responsibility for damage caused by the destruction/damage of someone else’s property. Directing the drone to fly over the area where another person lives, while recording/photographing that area from such a drone, which is shown on the “display” of the operator, i.e. the “remote pilot” of such a drone and possibly stored in databases, etc., represents an invasion of the private sphere of another person, which amounts to the existence of a criminal offense in the sense of § 201a StGB (*Verletzung des höchstpersönlichen Lebensbereichs und von Persönlichkeitsrechten durch Bildaufnahmen)*. This is particularly noticeable, when the property is fenced and thus protected from unwanted views, and the drone overcomes everything, as it injures the privacy of the people on the property through aerial photography. In Germany, there was a specific judicial epilogue regarding this, when the Municipal Court of Rize decided on the possible responsibility of the accused who shot down a drone that violated his privacy from the air with an air rifle.

In the specific case, the drone flew over the defendant's property for a long period of time and harassed him, and after he verbally tried to influence the drone to move away, and failed to do so, he decided to use an air rifle, and from the second attempt, i.e. with a second shot, he managed to shoot down the drone, which the State Prosecutor's Office of Dresden treated as a criminal offense of damaging someone else's property *(https://www.anwalt.de/rechtstipps/strafbarkeiten-beim-fliegen-von-drohnen-208650.html.).* However, the Municipal Court of Riza acquitted the accused, judging that he was justified in shooting down the drone, protecting his privacy.

Namely, with his action, the accused deliberately committed the crime of damaging another's property, but the specific action was not illegal, because there was a basis for excluding illegality, which is acting in self-defence, in accordance with the provisions of § 32 StGB. When it came to possible civil liability, there was none in the specific case either, because the person destroying the drone as someone else's movable property acted in a legally permissible manner, and in terms of the civil law provisions on the justification of defensive last resort (*Defensivnotstand)* in accordance with the provisions of § 228 BGB (Škulić, 2023a: 47-49).

INSTEAD OF FINDINGS – THE NEED TO OBSERVE THE CONNECTION BETWEEN ARTIFICIAL INTELLIGENCE AND CRIMINAL LAW AT *DE LEGE FERENDA* LEVEL

Artificial intelligence is obviously developing rapidly, and perhaps even rapidly, in various areas of life. There are serious hints that objects/subjects of artificial intelligence will begin to appear in a whole range of life situations, starting from fully autonomous cars, to robots–housekeepers, robots-TV presenters, and of course to robots–soldiers, robots–policemen, etc. There is a whole series of legal and legitimate ways and forms of using artificial intelligence, sometimes also with the aim of suppressing crime. However, there is, of course, another side here as well, and therefore, the use of artificial intelligence for criminal purposes is no longer a question of some distant and uncertain future, but it is still observed today in numerous areas, and it is certain that artificial intelligence will be used far more for criminal purposes in the future.

Law adapts, to a greater or lesser extent, to situations that arise in life, thanks to the rapid progress of technique and technology. This sometimes concerns criminal law as well. Therefore, some aspects of the criminal law reaction to some forms of artificial intelligence that could potentially be used for criminal purposes can now be thought of mainly in *a de lege ferenda* sense.

Today, unfortunately, the use of various forms of militarised artificial intelligence in current wars and armed conflicts is also very typical.

The question of the use of artificial intelligence is particularly interesting both in current wars/armed conflicts, and especially in relation to future wars and armed conflicts, but also in numerous normal and usual life circumstances in peace. As today, in the light of several recent wars/armed conflicts, and especially related to the current major war between Russia and Ukraine, various variants of unmanned aerial vehicles have experienced a huge expansion, which are now widely used in the current armed conflict in the Middle East, both by Israel and by its enemies, such means of combat are extremely interesting for various types of analysis, including from the point of view of criminal law.

As already indicated (and their development is probably well under way), the routine use of various advanced forms of militarised artificial intelligence, such as fully autonomous drones, it is also necessary to solve certain criminal law problems in relation to that issue, which especially concern the form and basis of responsibility for international criminal acts, and above all war crimes, arising from the effect of such types of combat equipment

In this regard, the existing criminal law rules can only be applied to a certain extent, and only on the basis of a relatively broad, but still legitimate interpretation, but in relation to some aspects of the action of drones as a form of artificial intelligence in war/armed conflict (and the same basically applies to other types of artificial intelligence in the service of war/armed conflict, such as, for example, robot–soldiers, etc.), some specific and special criminal law rules should be prescribed, which would basically be relatively similar to some aspects and now existing/current conceptions of command responsibility.

When it comes to the use of militarised forms of artificial intelligence, i.e. aerial drones, there is a place for thinking in the *de lege ferenda* sense, which concerns the possible expansion of the concept of command responsibility and in relation to the operation of forms of militarized artificial intelligence, such as fully autonomous drones, and the so-called robot-soldier, which is still in the realm of futurism. Finally, when it comes to this, it is not certain if and when artificial intelligence will become so human-like that it will be difficult to distinguish between human thinking and machine reasoning. That is still a big question, but it is already quite clear that very soon various forms of artificial intelligence will find their place in our everyday life, as well as that some of their forms will find their destructive application in wars and armed conflicts, which poses great challenges to law in general, but criminal law in particular.

When it comes to the basic criminal consequences of using various forms of artificial intelligence in normal life circumstances, i.e. apart from war/armed conflict, certain forms of artificial intelligence can be, first of all, a means of committing certain criminal acts or can be an element of the way some criminal acts are committed, and in addition, such means can also be used to prepare certain criminal acts (Bodrožić & Milošević, 2023: 58-59), which is in principle punishable only when it comes to certain types of criminal acts, such as terrorism (Bodrožić, 2022).

This in itself does not represent any (too) big criminal law problem, because then, a certain type of artificial intelligence is "only" a tool or a "mere" means of committing a criminal act, which is used by a specific person as the perpetrator, who uses such means in an appropriate way. In addition, in itself, the use of some forms of artificial intelligence, such as autonomous aircraft/vehicles, can be a special criminal offense, when such a means is used first of all, the criminal offense of causing general danger, which of course, according to the logic of things, is possible and realistic only when it is not about war/armed conflict, but about normal life circumstances.

At the end it can be stated that traditional concept of criminal liability worldwide under current legal frameworks proclaims that AI systems cannot be perpetrators of a criminal offence because they lack legal personhood, consciousness, and the capacity for *mens rea* (a "guilty mind" or criminal intent). Criminal liability is instead attributed to the human programmers, developers, manufacturers, or users behind the AI's actions.

Finally, when it comes to artificial intelligence, both the militarised one and the one that is otherwise used, i.e. used outside of war/armed conflict, some illustrative conclusions can be formulated based even on examples from science fiction and films of that kind like the last scene of the legendary movie "Blade Runner". In the last dramatic sequence of that sci-fi film, the android who was created as a biological robot-soldier with a limited lifespan, feeling very deep emotions, otherwise typical only for humans, generously spares his mortal enemy, a cruel hunter of renegade androids, and gives him his life with a magnificent gesture.

These and similar scenes could become a reality with the appearance of robot-soldiers, but also with the use of this type of artificial intelligence in normal life circumstances, in relation to which the represented context of the criminal law aspects of the operation of some forms of artificial intelligence can be considered as very significant and current.

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