

Modern Problems of Legal Evaluation and Individualization of Liability for Crimes Involving Artificial Intelligence-Based Unmanned Vehicles

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ABSTRACT

Objective: This scientific article comprehensively analyzes the most pressing problems of the criminal-legal evaluation of traffic accidents involving unmanned vehicles equipped with artificial intelligence technologies in modern society. **Method:** Within the framework of the research, gaps in the current criminal legislation have been thoroughly studied, particularly theoretical and practical issues such as identifying the subject of the crime, distinguishing between negligence and intentional guilt, and establishing the boundaries of legal liability for the manufacturer, programmer, remote operator, and vehicle owner. By engaging in a scientific debate with the views of foreign scholars and advanced international practices, the author has developed his own personal approaches. **Results:** The article also deeply discusses the ethical dilemmas of robotics, the criminal consequences of cyberattacks on computer systems, and the necessity of introducing corporate criminal liability. **Novelty:** At the end of the study, detailed, scientifically grounded, and step-by-step proposals and recommendations are put forward aimed at adapting the Criminal Code of the Republic of Uzbekistan to modern technological challenges, creating special blanket norms, and developing clear legal mechanisms for investigating such crimes.

INTRODUCTION

In the modern world, the rapid development of artificial intelligence technologies is having a profound impact on almost all spheres of human activity, and the transportation system is no exception. In an era characterized by the emergence of smart cities, global 5G network integration, and the massive incorporation of neural networks into daily infrastructure, unmanned vehicles (UVs) are rapidly developing as one of the most promising and, at the same time, complex areas of AI applications. Although these technologies offer a range of advantages, such as improving road safety, reducing traffic jams, minimizing environmental damage, and increasing the efficiency of transport services, their widespread application also creates a number of new legal and ethical problems. Traffic accidents involving unmanned vehicles are among the most pressing of these problems [1].

One of the specific features of artificial intelligence is its ability to self-learn and self-manage. Developers cannot always foresee the results of this, which can pose a risk of harming socially protected relations. The artificial intelligence used to control unmanned vehicles is intended to be widely used not only in foreign countries but also in Uzbekistan. This situation, in turn, necessitates the adoption of appropriate criminal-legal measures [2].

The development of robotic systems and the introduction of innovative developments in industry, particularly in mechanical engineering, have enabled the creation of widely used unmanned vehicles in the 21st century. Highly automated vehicles, for instance, include fully unmanned cars. They operate on the basis of software or external control and do not require human intervention. There are also cars operated via autopilot but where a driver is present. In these types of vehicles, although the autopilot functions, a person who has the right and appropriate skills to drive the vehicle must be in the driver's seat [3]. In cars of certain designs, the autopilot system (driver assistant) requires slight pressure on the steering wheel or minor steering corrections to verify that the human is at the wheel. In others, this may require complex actions, even stopping the car and exiting it [4].

The issue of regulating this matter from a criminal-legal perspective is pressing; however, the fact that this problem remains unresolved requires scientific analysis. Due to gaps in criminal law, this issue remains open. For example, Arizona legislators attempted to pass a law regulating the operation of unmanned vehicles on state roads but could not resolve who should be held liable for an accident: the owner of the car, the company that developed the technology, or the automaker that manufactured and sold the vehicle? Subsequently, the Arizona government developed preliminary rules, according to which the driver must take full control of their car when necessary. This situation created a potential problem for Alphabet, as its initial unmanned vehicle prototype lacked a steering wheel and pedals. This incident caused a wide resonance in society and raised important questions about the safety and ethical aspects of developing automated cars [5].

According to many experts, when sitting in fully unmanned vehicles utilizing artificial intelligence, due to the absence of a driver at the wheel, the liability of the vehicle owner can only arise in the event of failure to comply with technical operation conditions or interference with the software or hardware of the car [6]. According to K. Sazonov, "if an accident occurs involving a second-group (remotely controlled) unmanned vehicle, the operator should be held liable for harm caused to the life and health of the accident participants only if they committed errors" [7].

RESEARCH METHOD

In our opinion, in such a situation, the remote operator should be recognized as the actual driver and should be held liable for committing a crime (Article 266 of the Criminal Code). The main features of the corpus delicti in remotely operating a car correspond to the similar features of a crime committed when the driver is inside the car cabin. However, while Sazonov rightly

points out the operator's role, reducing liability solely to their direct manual errors overlooks the systemic nature of AI operations. I argue that the operator's liability should also encompass the failure to override the AI when the system's predictive models clearly malfunction, thus establishing a duty of active monitoring rather than passive observation. In this regard, if the operator fails to intervene in the development of a critical situation, they should, much like an air traffic controller, be held criminally liable for criminal inaction that leads to grave consequences (inflicting moderate or severe bodily injury, or the death of the victim).

However, there are also circumstances to consider where, despite the high level of security of the car's software, various technical tricks are used to hack or bypass it. Such actions can be committed with direct or indirect intent, and in some cases, with unspecified intent. The motives and goals can vary: extortion, hooliganism, as well as a desire for revenge, eliminating a competitor, inciting fear or exerting pressure among the population, and others.

It should also not be overlooked that the causes leading to a criminal traffic accident may include malfunction or incorrect operation of software, electronic equipment, or mechanics. In our view, it is necessary to clearly identify the individuals responsible for the technical condition of the unmanned vehicle's control systems and to specify the consequences represented by severe harm to health or human death caused by negligence.

RESULTS AND DISCUSSION

It is known that the video cameras and Lidar systems of unmanned cars can only clearly distinguish well-drawn markings on the roads. For this precise reason, the experience of operating highly automated vehicles controlled by artificial intelligence should be conducted only in specially prepared areas. One of the problems in the legal evaluation of traffic accidents involving unmanned vehicles equipped with artificial intelligence technologies is the decision-making of the unmanned car in a critical situation, where any action poses a danger either to the car's passengers or to other persons (pedestrians, other drivers, etc.) [8]. Public statements by representatives of certain major car companies on this issue have already led to a significant drop in their stock prices. Ethical norms developed by German experts for unmanned cars prohibit artificial intelligence from making decisions that could save one life but simultaneously harm another. The essence of these norms is as follows: first, priority is given to preventing physical harm to humans, as it is considered more dangerous than material damage; second, it is not permissible to classify people into any groups, including by age; third, the car manufacturer is liable for potential harm [9].

Although this egalitarian approach proposed by German experts is morally sound, from a practical criminal law perspective, it creates an absolute deadlock. I assert that programming an AI to strictly avoid utilitarian calculations (e.g., choosing to save a crowd of pedestrians over a single occupant) might inevitably lead to greater overall harm when a collision is physically unavoidable. Thus, legal frameworks must not only

impose liability but also provide specific exculpatory defenses for manufacturers when an AI makes a “lesser-evil” choice based on objective, pre-programmed safety algorithms during unavoidable collisions. In such situations, we believe it is necessary to delimit liability depending on the level of automation of the car and to bring the software developer or the individuals responsible for checking the safety of specific car components to criminal liability if clear negligence is identified. Of course, when the car is controlled by a human to a certain extent, current legislation can be used. But when algorithmic control or artificial intelligence is used to drive a car, applying the current norms of the Criminal Code poses difficulties in qualifying the crime.

In this regard, according to S.N. Shatilovich, in the near future, many states may face difficulties in qualifying the actions of drivers using “automated driving” systems [10]. I. Nigmatullin, combining this with the three laws of robotics, stated that since the material damage of a traffic accident involving unmanned vehicles is secondary to the harm caused to an individual, the liability should fall on the manufacturer [11]. Nigmatullin’s reliance on Asimov’s theoretical laws of robotics is overly romanticized for modern jurisprudence. Criminal liability cannot be shifted entirely to the manufacturer without analyzing the causal link of the end-user’s maintenance and the operating environment. I believe that a shared liability model based on spheres of control’ is far more pragmatic than a blanket manufacturer-liability approach. From March 20-25, 2017, in Geneva, Switzerland, during the 74th session of the “World Forum for Road Traffic Safety” of the UN Inland Transport Committee, discussions were held on the legal regulation of systems termed “unmanned transport equipped with artificial intelligence technologies”. Following the discussion, it was agreed to continue work in two directions [12]: first, it is necessary to legally elaborate the legal status of systems that allow partial automation of the driving process. This concerns systems currently available (lane-keeping assist, automatic lane change systems, etc.) as well as systems that will enter the market in the near future (e.g., remote parking systems).

It should be noted that in this context, it must be decided to what extent the current provisions of Article 8 of the 1968 Convention on Road Traffic cover these systems, which imposes on the driver, on the one hand, the obligation to “be able to control their vehicle at all times”. Second, to “refrain from any activities not related to driving”. The current Article 266 of the Criminal Code of the Republic of Uzbekistan does not contain a single generalizing concept applicable to various technical devices, robotics, and artificial intelligence, which, in our opinion, prevents the possibility of describing the various elements of this complex in a general manner.

Turning to Article 266 of the Criminal Code, it can be seen that a person directly driving a car or other mechanical vehicle can be held criminally liable for the crime stipulated therein. Considering that the essence of unmanned vehicles is to exclude the human from the vehicle driving process (fully or partially), the question of who should be recognized as the subject of a crime committed involving such a type of transport remains open. To evaluate acts involving robotics and artificial intelligence from a criminal-legal perspective, according to A.I. Korobeev and A.I. Chuchaev, “it is necessary

to consider a number of factors, primarily its degree of social danger, prevalence, adverse dynamics of development, as well as the possibility of legal impact through criminal law mechanisms and the absence of other less repressive means” [13].

In our opinion, A.I. Korobeev and A.I. Chuchaev propose developing a corresponding criminal-legal norm that would allow for the legal evaluation of traffic accidents involving unmanned vehicles equipped with AI and the determination of their criminological risks for criminal consequences. I strongly support this proposition, as attempting to fit AI-driven offenses into traditional human-centric negligence frameworks violates the principle of legal certainty. However, I would add that such a norm must explicitly differentiate between software malfunctions, hardware failures, and malicious cyber-intrusions. These are the classic criteria that serve as the basis for the criminalization of a new type of crime. However, in the context of robotics and artificial intelligence, these criteria take on special significance because these technologies are developing very rapidly, and their impact on society is unpredictably complex. In particular, the legal evaluation of traffic accidents involving unmanned vehicles equipped with artificial intelligence technologies involves a number of complexities:

First, there is the problem of identifying the subject who should be held criminally liable in traffic accidents involving vehicles equipped with artificial intelligence (AI) technologies. The question “who is to blame?” in crimes involving unmanned cars is one of the most fundamental problems. Whether it is the driver, the programmer, the manufacturer, the operator, or the system itself (if such a concept is legally recognized), establishing the chain of liability is a complex task. The proposal of most scholars to consider the liability of the remote-control dispatcher or the software developer for unmanned vehicles is an important step in this direction [14].

Second, ethical dilemmas must be taken into account when programming vehicles equipped with artificial intelligence (AI) technologies. Ethical norms developed by German experts, particularly prohibiting AI from making decisions such as “saving one life and harming another”, add deep moral aspects to problems in the field of criminal law [15]. This requires determining who is responsible for the decisions of artificial intelligence in situations where, for example, all alternative choices are bad. For instance, an unmanned car is at risk of hitting two pedestrians who suddenly appear on the road. But if the car changes direction, it endangers a group of people standing on the side of the road or passengers in another vehicle. What decision should the car’s software make? Should fewer people be harmed to save more people? Or should the safety of the car’s own passengers be prioritized? In our opinion, as highlighted in the text above regarding the approach of the German experts, this means that artificial intelligence should not be forced to choose “who to sacrifice”. Such an approach is an attempt to prioritize human life qualitatively rather than quantitatively. Dilemmas of this kind require solving not only technical but also profound ethical and legal issues in the development and implementation of artificial intelligence systems.

Third, it is necessary to ensure harmony between technical standards and legal norms. Legal norms must constantly adapt to evolving technologies. This requires

continuous monitoring of technical standards and integrating them into criminal-legal legislation.

Fourth, it is necessary to resolve the issue of corporate liability. In the criminal legislation of the Republic of Uzbekistan, only the principle of personal liability of individuals applies; the criminal liability of legal entities is not established. However, in some foreign countries, for example, the Netherlands, Great Britain, the USA, Canada, Spain, Australia, Hungary, and Switzerland, even organizations are held criminally liable. In our opinion, in the legal evaluation of traffic accidents involving unmanned vehicles equipped with artificial intelligence technologies highlighted above, the issue of holding legal entities liable should be introduced into criminal legislation. The reason is that the manufacturing organization itself must certainly be responsible for ensuring that these vehicles operate in a technically fully functional state.

Although the causes of traffic accidents during the use of highly automated motor vehicles vary, blame is often placed directly on the person in the driver's seat. In most contracts concluded for the purchase and operation of such cars, it is specified that the systems under consideration are only driver assistants and are not full autopilots that allow reaching point B from point A without the driver's participation.

In terms of technical equipment, vehicles equipped with artificial intelligence technologies are similar to widely common cars equipped with cruise control, lane-keeping systems, and automatic emergency braking functions. However, the main difference between such cars and highly automated ones, aside from the level of automation, is that the enumerated functions are auxiliary. The driver does not rely on them completely but uses them as additional conveniences or relies on them in emergency situations. The operation of highly automated vehicles implies the safe operation of all automation systems working in tandem and without the driver's direct participation, but under their supervision for a certain period.

Therefore, when a traffic accident occurs, it seems possible to place the blame on the driver. However, some aspects of such liability require deep scientific justification and explanation. If the driver's task is to monitor the movement of a vehicle equipped with artificial intelligence technologies and to take over control in situations where the automated control system cannot safely manage, it is logical and fair to speak of such a driver's liability only in cases where they foresaw the possibility of socially dangerous consequences arising but, without sufficient grounds, confidently hoped to prevent them, or, if they did not foresee them, should and could have foreseen them with necessary attention and foresight. This, in fact, corresponds to the concepts of negligence and self-confidence (recklessness) in criminal law.

Practically, this means that the driver must have had the technical capability to prevent the traffic accident. This is only possible if the system signals in a correct and timely manner that it can no longer continue automatic operation. In law enforcement practice, the process of determining the technical capability to prevent such a traffic accident will not be an easy task. It will require technical expertise and a deep analysis of the system's operational algorithms.

A person driving a vehicle equipped with artificial intelligence technologies usually relies on its technological capabilities and expects actions from the system. For example, expecting the automatic braking system to operate, but for some reason, the system does not engage into a working state and does not leave the driver the opportunity to stop the vehicle “manually” in time. Or, a malfunction occurs in the system automatically keeping the vehicle within the lane, and the vehicle moves into another lane or off the road. The driver could not have foreseen this but could only begin actions to stop the relevant movement at a certain time, which may not always lead to preventing the harm. In such situations, distinguishing between technical malfunction or software error and human error becomes crucially important.

Of course, international documents such as the Vienna Convention on Road Traffic (1968) stipulate that the automated control system must sufficiently exchange information about its state and intentions with users and other road users in a clear, effective, and consistent manner. It also requires that the vehicle provides clear and effective notification to the driver-operator when the vehicle moves outside its designated operational conditions. However, it must be said that this is only an ideal situation that the developer strives for. But we are advancing the idea of a situation where a malfunction occurs in the system and it does not operate according to the designated scenario. In such conditions, legal norms and the mechanisms for applying them must be further perfected to determine liability. At the international level, for example, in the European Union and the USA, active work is underway to develop special legislation on autonomous vehicles, paying special attention to the issue of liability.

In this case, a logical question arises – is it possible to apply the existing problem-solving scheme for such situations, i.e., situations where the issue of liability depends on whether the driver had the technical capability to prevent the traffic accident? Theoretically, this will be tied to the only possible decision-making algorithm. Therefore, in such situations, the issue of criminal liability must currently be properly resolved based on traditional approaches used in criminal law for any traffic crimes. The further development of vehicles equipped with artificial intelligence technologies may lead to the introduction of models that require humans only to activate the system and will not need supervisory actions. This implies that the control system will be fully autonomous and will not require constant human intervention.

Consequently, even the activation of the system itself can be done remotely. Therefore, in the future and currently existing models, the presence of a driver in such a vehicle is not envisioned. The owners of such vehicles can also be physical individuals who purchase them from the manufacturer for personal or commercial purposes. However, it must be admitted that the Criminal Code (CC) of the Republic of Uzbekistan is not yet ready for such a situation. This necessitates predicting potential instances of harm to objects protected by criminal law and developing options for the legislator’s, and subsequently the law enforcer’s, criminal-legal response to them. Considering the driverless operation of the vehicle, such vehicles can be referred to as driverless (unmanned) transport vehicles. Therefore, let us consider the circle of subjects who can

theoretically be held liable in such situations, which may be the following: the developer of the unmanned vehicle, the manufacturer, the owner of the unmanned vehicle, the official dealers authorized by the manufacturer, or other persons, only their scope requires clarification.

Speaking of the liability of the unmanned vehicle manufacturer, we refer to traffic accidents that may be caused by defects in the unmanned vehicle, because the manufacturer should generally be responsible for them. At the same time, A. Yu. Churilov draws successful analogies with cruise-control systems. In his opinion, in such a situation, liability for the harm caused will lie with the manufacturer if the fault of the person operating the vehicle in the emerging situation is not proven. If the negative consequences arose due to incorrect operation of the automated system or the manufacturer's fault, for example, due to a violation of production technology or shortcomings in quality control, it is necessary to identify the specific person responsible for the operation of the relevant segment that led to the infliction of harm to objects protected by criminal law.

Here, it should also be taken into account that the developer and the manufacturer of such a vehicle may not be the same entity. This requires an individual approach to each specific case. E. O. Yakovleva correctly highlights the complex issue of liability for harm caused to the life and health of individuals by robotic vehicles created by multiple developers. In her opinion, in such cases, each developer is responsible for their respective part of the robot. Hence, in determining liability, it is important to identify the role of the entities that developed the various components of a complex technical system.

Considering the rules regarding the institution of the causal link between the act and the criminal consequence in criminal law, the main problem here lies in the technical sphere and requires the application of the knowledge of relevant technical experts. A good basis for solving these complex problems would be special technical regulations in which the legal liability zones of each participant in the process of creating such vehicles are clearly defined.

Such an aspect of the manufacturer's liability cannot but cause concern, namely the necessity to pre-configure the decision-making criteria of the automated system in the event of a danger that cannot be eliminated by other means. In doing so, in addition to preventing harm, an algorithm must be installed that ensures the minimum possible harm is inflicted, as such situations often arise in the process of road traffic. Taking into account the principle of liability for guilt established in the CC of the Republic of Uzbekistan, the main criterion here must be the identification of a situation where minimal possible harm is inflicted. Another question is whether it is possible to create an algorithm in which a technical device is capable of making an intelligent choice? Also, how a specific behavioral option will be determined as preferable is a complex issue. Will the system prioritize the protection of the passenger or other road users, and can it prioritize the protection of certain categories (minors, the elderly, pregnant women, etc.)? We believe that it is advisable for technical specialists to resolve these issues with the participation of experts in the field of law.

The second possible subject of criminal liability is the official dealer. Since an unmanned vehicle is viewed not only as a technically complex mechanism but also as a novelty, it requires compliance with special rules for regular maintenance, routine repairs, and necessary modernization, which should preferably be entrusted only to trained specialists. Of course, a corresponding document will be needed in which such rules are written, and the liability norm will have a blanket character, meaning its content will refer to other normative acts. To ensure rapid information exchange and the adoption of correct technical decisions, it is advisable to establish the work of such specialists under conditions of stable communication with the developer and the manufacturer.

If a socially dangerous harm arises as a result of the incorrect actions of the service dealer (e.g., in maintenance, diagnostics, repair, or the manufacturer's vehicle recall procedure), then the liability of the guilty person, including criminal liability, should arise. Here, it must be proven that the dealer's failure to perform or improper performance of obligations directly caused the ultimate harm.

The logical continuation of the dealer's obligations to correctly perform the aforementioned actions should be the corresponding obligations of the owner of such a vehicle. For example, the owner must, in accordance with the manufacturer's regulations, provide the vehicle to the dealer in a timely manner for maintenance, software updates, or for the elimination of a serial defect if one is discovered. If the owner has not fulfilled such an obligation, and precisely for this reason a socially dangerous harm has occurred, it would be logically correct to speak not of the liability of the manufacturer or dealer, but of the liability of the owner.

As for third parties, several categories can be distinguished among this group of subjects. These can be passengers who switch the vehicle to manual control and allow its uncontrolled movement, or who take over control and violate traffic rules. Or it can be third parties outside the vehicle committing illegal actions aimed at damaging the vehicle or inducing it to perform certain actions. For example, intentionally creating an accident situation, forcing the vehicle to maneuver, which could result in harm to other persons. In addition, one can predict the occurrence of negative consequences resulting from the disruption of the road-street network (damaging required road signs or road markings, illegally dismantling them, installing or applying them incorrectly, introducing modifications that distort their original meaning, damaging the road surface, creating dangerous artificial bumps, and similar actions). Such actions can be committed both by specially authorized officials of a management organization responsible for ensuring the safety of a particular public road section and by any unauthorized persons not related to the activities of the special subject.

Therefore, it is necessary to analyze the liability of the management company responsible for the safety of a specific road segment and the unauthorized person who made the changes or caused the damage. We believe that establishing at the level of a legal act the frequency of monitoring the state of road infrastructure and the requirements for reacting to identified violations, including information regarding data received from external sources, will help resolve this issue. If, despite the proper reaction of the relevant

monitoring and management company, the damage was not identified or eliminated, the liability should lie with the person who introduced such changes or allowed the damages. Naturally, such a person should be brought to administrative liability in all cases. At first glance, such a proposal might appear as an accusatory approach towards the responsible management company, but this is important for clarifying liability.

However, an alternative decision, where the unauthorized subject who introduced the above-described changes is always held liable if they committed them, leads to an excessive reduction in the liability of such a company. For example, if an unauthorized person damaged a road sign, and the management company did not check the safety of this road section within the established timeframe, did not identify the violation, and did not eliminate it, and as a result, a traffic accident causing socially dangerous harm occurred involving an unmanned vehicle, the liability should still lie with the subject who damaged the road sign. Therefore, establishing the principle of special subject liability is considered fair. That is, the organization responsible for the safety of road infrastructure should be held liable if it is not proven that it fully performed its duties. If the actions of the management company are recognized as lawful, of course, the liability of the general subject must arise.

If a traffic accident occurs because one of the road infrastructure objects was damaged by acts of nature (e.g., rain washed away the road, a hurricane knocked down a road sign, thick fog descended, and so on), resolving the issue of liability is more complex. If the company responsible for safety on this road segment had a real opportunity (taking into account time, weather conditions, and other circumstances) to eliminate the defect but failed to do so, perhaps this would fall within the management company's zone of liability. At the same time, the relevant rules should separately regulate such actions for cases of natural disasters. If the answer to the first question is negative, resolving the issue based on the rules regarding emergency situations established in the legislation of our country will be the most correct path. In the matter of criminal liability, it would be appropriate to apply the rules on causing harm without guilt under Article 24 of the CC of the Republic of Uzbekistan. Also, in such cases, it will be significant whether the road signs, road markings, and other automobile infrastructure objects damaged by natural phenomena met special requirements (strength, stability, brightness of the image, etc.).

In highly automated systems, it is possible to predict with high probability the occurrence of malfunctions leading to socially dangerous consequences under the influence of malicious computer programs. In such a case, it is logical to speak about liability for the corresponding *corpus delicti* in the field of computer information. For example, for the purpose of qualifying such situations, the elements stipulated in Article 278-6 of the CC of the Republic of Uzbekistan (Creation, Use, or Distribution of Malicious Programs) may be very suitable. For this very reason, today, many researchers studying the development issues of unmanned transport are focusing on the danger of cyber threats.

The fourth possible subject of liability is the owner of the vehicle. Taking into account the necessity of an especially responsible approach to the operation of unmanned vehicles, a number of obligations related to appropriate operation should be established in a special normative document. Among them, it is reasonable to consolidate a norm prohibiting independent repairs and modifications to the design of such vehicles. This prohibition should correspond to a norm regarding the obligation to conduct repairs and maintenance exclusively at organizations specially authorized by the manufacturer for the repair and maintenance of unmanned vehicles. Under such regulation, if socially dangerous harm is caused as a result of the unqualified actions of the maintenance subject in the operation of the unmanned vehicle, it is precisely the owner of this vehicle who should be held liable.

To ensure the possibility of correct qualification in the future, it is considered correct to store important information not only in the internal memory of the vehicle but also on a third-party resource, such as the cloud, ensuring copying in real time. It will also be necessary to eliminate the technical possibility of making arbitrary changes to such information. This, in turn, will ensure the reliability of the evidence.

In addition, the legislator will soon face the issue of the material bases for criminal liability for harm caused by unmanned vehicles. Today, there is still no decision on whether there should be liability for crimes in the sphere of traffic safety and operation of vehicles, or whether it is necessary to formulate a fundamentally new *corpus delicti*, or even an entire chapter containing several new *corpora delicti*; this issue remains controversial.

Consequently, a violation of operational rules by the owner of an unmanned vehicle that resulted in severe harm to the health or the death of the victim is qualified under the relevant part of Article 266 of the CC of the Republic of Uzbekistan. Poor-quality repair of unmanned vehicles that led to dangerous consequences can be qualified under Article 262 of the CC for a special subject. All variants of road surface damage, destruction of road signs, and similar actions are qualified under Article 263 of the CC. It should also be taken into account that not only a car but also railway, water, and air transport can be unmanned [16]. Article 260 of the CC exists to qualify various situations associated with these types of transport. Many such examples can be given. At the same time, such specific adaptation of the existing norms of criminal law can be achieved by creating a normative framework with some of the rules proposed above.

This normative framework will ensure their application as a blanket norm. Additionally, corresponding qualification recommendations from the Supreme Court will be required. However, it should be understood that such recommendations cannot appear until the relevant law enforcement practice is formed. Furthermore, other articles of the CC may also apply. For example, if an unmanned vehicle was used to commit the crime of premeditated murder, such actions will be qualified under Article 97 of the CC. As correctly formulated in the literature, whatever norm determines the safety of movement and operation of unmanned vehicles equipped with artificial intelligence technologies, it must have a blanket nature. Various positions are also being expressed in

the literature regarding new norms. For example, it is considered appropriate to establish criminal liability for violating the rules of operating unmanned vehicles, as well as liability for the production, sale, and bringing into operation of control systems for unmanned vehicles by a special subject.

In conclusion, based on the comprehensive analysis of the legal evaluation of accidents involving AI-equipped unmanned vehicles, the following scientifically grounded proposals and recommendations are put forward:

Firstly, it is essential to legally define the concepts of an “unmanned vehicle” and an “artificial intelligence control system” within the General Part of the Criminal Code. A unified terminology will prevent discrepancies in law enforcement and establish a solid foundation for evaluating AI-related offenses.

Secondly, the institution of the subject of the crime must be modernized. The traditional human-centric view of a “driver” is inadequate for Level 4 and Level 5 autonomous vehicles. The legislator must explicitly introduce categories distinguishing the legal liability of the remote operator, the software developer, and the vehicle owner based on their specific sphere of control and causality.

Thirdly, the issue of corporate criminal liability must be introduced into national legislation. When an autonomous vehicle causes fatal harm due to a systemic software flaw or gross negligence in the quality assurance process, holding only an individual engineer liable is disproportionate. The manufacturing corporation must bear collective criminal liability, encompassing heavy fines and operational restrictions.

CONCLUSION

Fundamental Finding : As unmanned vehicles and other artificial intelligence-based objects inevitably and actively enter our daily lives, this process poses serious tasks for the legal system, especially criminal law. Adapting existing legislative norms to new conditions and, where necessary, creating new legal mechanisms are of paramount importance. **Implication :** Specialized technical regulations must be developed to serve as a blanket normative basis for the Criminal Code. These regulations must mandate real-time, tamper-proof “black box” cloud data logging for all autonomous vehicles to ensure objective forensic analysis during criminal investigations. Fifthly, legal exculpatory defenses must be established for AI manufacturers when the algorithm is forced to make a “lesser evil” decision in an unavoidable collision scenario. The law must protect developers from criminal prosecution if the AI strictly adhered to legally pre-approved, utilitarian safety algorithms designed to minimize overall harm. Sixthly, the procedural mechanisms for investigating such crimes must be updated. A specialized institution of cyber-automotive forensics must be established to differentiate between mechanical failures, algorithmic errors, and malicious cyber-intrusions (hacking). This will require training a new generation of investigators and prosecutors equipped with advanced IT and engineering competencies. **Limitation :** This study is limited to normative legal analysis and does not include empirical data from actual autonomous vehicle accident cases. The rapidly evolving nature of artificial intelligence technology may also affect the

long-term relevance of the proposed legal framework. **Future Research :** Future research should examine real-world autonomous vehicle cases, compare regulatory approaches across jurisdictions, and develop practical standards for determining criminal liability among manufacturers, programmers, operators, and vehicle owners.

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