

**SCTMG 2023**  
**International Scientific Conference «Social and Cultural Transformations in the Context of**  
**Modern Globalism»**

**LEGAL REGULATION OF THE OPERATION OF UNMANNED**  
**VEHICLES**

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**Abstract**

The introduction of unmanned technologies into the transportation system of the Russian Federation implies the timely consolidation of their operation in the regulatory legal acts of the state. The analysis of the current international and national legislation in the field of the functioning of unmanned vehicles has allowed the author to make a number of proposals to amend the legislation to eliminate administrative barriers. The author has highlighted the main areas subject to legal regulation, taking into account the need for further research of the purposes of creating the necessary norms and provisions capable of ensuring the effective operation of unmanned vehicles. The author proposes the adoption of a fundamental legislative act that enshrines the concept of introduction and operation of unmanned vehicles in the Russian Federation, followed by the formation of a set of subordinate legal acts regarding each type of unmanned transport. It includes the concretization of the Resolution of the Plenum of the Supreme Court of the Russian Federation of 26.01.2010 N 1 "On the application by courts of civil legislation regulating relations on obligations due to infliction of harm to life or health of a citizen". The research methodology is a set of general-scientific and private-scientific (logical-legal, comparative-legal, legal modeling) methods of cognition. The conclusions have practical significance and can be used in the development of methods to improve the legal regulation of the operation of unmanned vehicles.

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*Keywords:* Autonomous navigation, legal regulation, maritime autonomous surface vessels, unmanned transport

## 1. Introduction

Innovative technologies act as a means of transformation in a positive aspect, transforming certain spheres of social life. The positive aspects of the functioning, in particular, of unmanned vehicles include the reduction of operating costs, increase in cargo capacity, minimization of the level of a human factor influence on road safety and navigation, reduction of piracy (Zaslonov et al., 2020). At the same time, any change always has a negative aspect. If we do not pay attention to it, any innovative technologies can cause significant damage to society. Accordingly, the introduction of innovative technologies, in particular, unmanned transport, involves modeling the results of their implementation in the relevant system (Brikota et al., 2018; Baburina & Kuznetsova, 2020). Any innovations presuppose the timely consolidation of their functioning in the system of normative legal acts of the state.

The introduction of unmanned vehicles from the point of view of the sphere of legal regulation belongs to the institute of legal regulation of artificial intelligence. The amendments made to the Constitution of the Russian Federation referred information technologies to the issues of federal importance, which we consider quite reasonable, since their application will affect the security of the individual, society and the state. The established constitutional and legal framework has determined the basic aspects of the development of subsequent sectoral regulation.

## 2. Problem Statement

As a theoretical basis of the conducted research, there are scientific publicistic sources, legal acts of international character (Convention on International Regulations for the Prevention of Collisions at Sea, International Convention for the Safety of Life at Sea), legislation and subordinate normative legal acts of the Russian Federation. They include the Criminal Code of the Russian Federation, the Code of the Russian Federation on Administrative Offenses, the Civil Code of the Russian Federation (Part Two, Resolution of the Government of the Russian Federation on the Protection of Human Life at Sea). There is also legislation and subordinate normative legal acts of the Russian Federation (the Criminal Code of the Russian Federation, the Code of the Russian Federation on Administrative Offenses, the Civil Code of the Russian Federation (Part Two, the Resolution of the Government of the Russian Federation on the Protection of Human Life at Sea).

## 3. Research Questions

The question of the legal personality of unmanned vehicles deserves special attention. Nowadays, scientists are actively debating the legal personality of unmanned vehicles that are controlled by artificial intelligence, as these vehicles can interact with their environment and make decisions, which makes them a unique entity that requires a separate legal personality (Golovina, 2022).

Experimental projects for the introduction of unmanned vehicles allow identifying the problems of legal regulation arising at every step when trying to test their operation (Narkevich et al., 2021). States and specialized international organizations have a huge layer of not only technical, but also legal work. For example, the International Maritime Organization in recent years has been actively engaged in the

development of legal regulation in the field of maritime unmanned navigation. The same applies to key maritime powers, such as the Russian Federation, Norway, the Netherlands and others.

However, the fundamental barrier to the introduction of unmanned vehicles is the lack of an international treaty enshrining a unified terminology (regarding the definitions of "unmanned vehicle", "external captain", etc.). This involves the basis of the legal status of an unmanned vehicle, the used information systems, the registration procedure, cybersecurity guarantees and liability for its violation, etc. The current international and national regulations need a comprehensive transformation due to the absence of a crew on board. The existing international and national norms need comprehensive transformation due to the absence of a crew on board the vessel. And, accordingly, it is necessary to develop legal norms dedicated to the rights, duties and responsibilities of the external captain.

#### **4. Purpose of the Study**

The introduction of unmanned technologies into the transportation system of the Russian Federation implies the timely consolidation of their operation in the regulatory legal acts of the state. The analysis of the current international and national legislation in the field of the functioning of unmanned vehicles has allowed the author to make a number of proposals to amend the legislation to eliminate administrative barriers.

#### **5. Research Methods**

In the process of this research, general scientific (a dialectical method, a method of system analysis) and special legal (comparative-legal, formal-legal) methods were applied. The formal-legal method of research was used to analyze the regulatory framework governing the operation of unmanned vehicles, as well as the legislation in need of revision. The comparative-legal method made it possible to identify the possibility of adapting the existing normative legal acts to ensure their functioning.

#### **6. Findings**

Depending on the degree of automation, autonomous ships are qualified into semi-autonomous and fully autonomous.

Therefore, reduction of operating costs, increase in the cargo carrying capacity of ships, minimization of the human factor impact on the safety of navigation are the key strategic goals for ship-owners (Epikhin & Modina, 2021). The technologies of unmanned vehicles make them quite achievable in the perspective of several decades.

Crewless navigation was included in the list of issues under development by the International Maritime Organization in 2017 at the ninety-eighth session of the Maritime Safety Committee. Already in 2019, the Interim Guidelines for the Testing of Maritime Autonomous Surface Vessels were developed at the Hundred and First Session of the Committee. The above-mentioned activities lead to the conclusion that the International Maritime Organization recognizes the promising prospects for the introduction of unmanned vehicles in maritime shipping.

As regards the conceptual apparatus, the International Maritime Organization has proposed the introduction of a unified term "autonomous maritime vessels". However, we believe that the principle of autonomy in this term is not acceptable, because at present the concept of autonomy includes the duration of the actual possibility of navigation without resupply. Despite the attempt to introduce this term, it is obviously premature to talk about unification in domestic maritime practice and scientific literature, which gives rise to the need to fix the terminology at the national level, certainly on the basis of the concept adopted by the International Maritime Organization.

Shipping is regulated by national legislation and international maritime agreements, such as the "International Convention for the Safety of Life at Sea", "International Convention for the Prevention of Pollution from Ships", "International Regulations for the Prevention of Collisions at Sea", "UN Convention on the Law of the Sea" and others. The introduction of unmanned vehicles exposes multiple gaps in legal regulation, which can be overcome only by revising the existing legal norms regulating merchant shipping. First of all, the legal status of unmanned vehicles needs to be enshrined, the set of rights and obligations of the flag state is to be enshrined, and, of course; the most acute problem is bringing guilty persons to responsibility for the damage caused in connection with their operation.

Rule 7(i) states that a collision hazard shall be considered to exist if the bearing of the approaching ship does not change appreciably. This means the bearing that is taken by the master or mate by means of a direction finder.

The Convention for the Safety of Life at Sea also needs a comprehensive revision. In addition, we believe it would be advisable to include in its text a special chapter regulating its subject matter in the context of the use of unmanned maritime vehicles.

The International Convention on Salvage of 1989 enshrines the duty of the master of a ship to render assistance to all persons threatened with loss of life at sea. The Criminal Code of the Russian Federation duplicates the said duty of the captain of a sea vessel in Article 270. It provides liability for the failure of the captain of a vessel to render assistance to persons in distress at sea or on another waterway, if such assistance could have been rendered without serious danger to his vessel, its crew and passengers. The fulfilment of the said duty by an external master is also not possible.

Tangible reduction of ship owner's operating costs is possible either due to reduction of fuel level consumption or due to reduction of crew maintenance costs. Therefore, reduction or complete abolition of the crew of a merchant marine vessel, except for the external captain, is a positive effect of the introduction of unmanned vehicles for the ship-owners, but not for the seafarers themselves and the Russian Federation. It is currently the prerogative of the Russian Federation to ensure the supply of qualified personnel to the ships of the world merchant fleet. Besides, the majority of domestic seafarers, even those who sail on foreign-flagged ships and receive their salaries in US dollars, do not have accounts and real estate in foreign countries, and, accordingly, spend their earned money on the territory of the Russian Federation. Hence, the introduction of marine unmanned vehicles through the prism of ensuring Russia's economic security and the social security of crewmembers of merchant marine vessels does not bring absolute benefits. It is encouraging that in 2018, at the 100th session of the Maritime Safety Committee of the International Maritime Organization, it was declared that despite the fact that maritime

unmanned vehicles are being operated in experimental mode, seafarers remain indispensable for safe navigation.

The main stumbling block in terms of jurisprudence in the process of introducing unmanned vehicles is the issue of legal liability for damage caused in connection with their operation. Let us dwell on some important points.

Firstly, when developing and adopting legal norms enshrining legal liability, it is necessary to take into account the specifics of legal regulation in each individual mode of transportation.

Secondly, the issues of legal liability arising in connection with causing damage from the operation of unmanned vehicles should be enshrined in civil, administrative and criminal legislation. If no special difficulties should arise with the compensation of property damage, the qualification of offenses depending on the degree of public danger will definitely cause a number of difficulties. Undoubtedly, it is necessary to clearly establish the composition of administrative offenses and criminal offenses. However, the subject and a subjective side of a criminal offense for a long time will cause difficulties in qualification. The owner of an unmanned vehicle, an operator (external captain), a manufacturer, a software developer may appear as a subject of a crime. At present, the issue of bringing the subject to criminal responsibility remains ambiguous, as well as the establishment of his guilt.

Currently, there is a situation when imperfect legislation is the main obstacle to the development of unmanned vehicles. The existing regulatory legal acts are fragmented, inconsistent with both domestic legislation and international legal acts.

The fundamental normative act in the Russian Federation regulating the order of operation of unmanned vehicles is the Resolution of the Government of the Russian Federation of 26.11.2018 No. 1415 "On conducting an experiment on pilot operation on public highways of highly automated vehicles". It enshrined the experiment on putting unmanned vehicles into operation on public highways starting from 2019. The Resolution enshrines the terminological apparatus. However, the key definition of an unmanned vehicle is missing. The issue of legal liability is also not unambiguously resolved, only the dependence of determining the type of liability depending on the degree of public danger of a particular incident is indicated.

Attention should also be paid to the issues of legal liability for violations of the rules of operation of unmanned vehicles.

Article 264 of the Criminal Code of the Russian Federation establishes responsibility for violation of the rules of road traffic and operation of vehicles. But the literal interpretation of this article does not assume the operation of unmanned vehicles. We consider it appropriate to introduce a new article of the Criminal Code of the Russian Federation, for example, "Violation of the rules of operation of unmanned vehicles". At the same time, the text of the article should clearly distinguish the cases in which the owner of an unmanned vehicle, an operator, a manufacturer and a software developer will be held liable.

No less problems arise with the bringing to administrative responsibility for accidents that caused harm in connection with the operation of unmanned vehicles. It seems expedient to distinguish between general and special norms in Chapter 11 "Administrative Offenses in Transport". General norms should regulate relations for all types of unmanned vehicles; special norms should reflect the specifics of application of norms in respect of unmanned vehicles in certain types of transport. The way of fixing

general norms in the CAO RF, and special ones in transport statutes and codes, which will require a comprehensive revision of sectoral transport legislation, seems to be an alternative.

Property damage caused by the operation of unmanned vehicles is certainly subject to compensation by persons who own them by right of ownership, right of economic management or right of operational management or those, which are based on other legal grounds. At the same time, the provisions of Article 1079 of the Civil Code of the Russian Federation do not need to be adapted. The Resolution of the Plenum of the Supreme Court of the Russian Federation states that "the named norm does not contain an exhaustive list of sources of increased danger, the court, taking into account the special properties of objects, substances or other objects used in the process of activity, has the right to recognize as a source of increased danger also other activities not specified in the list". Therefore, unmanned vehicles can be recognized by the court as a source of increased danger, which allows extending to them the norms of the Civil Code of the Russian Federation on liability for harm caused by activities that create increased danger to others. However, in order to exclude discrepancies in the period of formation of judicial practice, we consider it advisable for the Plenum of the Supreme Court of the Russian Federation to adopt a document of clarifying nature. This allows one to unambiguously establish which norms of the current legislation can fully extend to the operation of unmanned vehicles, among other things, recognizing unmanned vehicles as a source of increased danger.

## **7. Conclusion**

In view of this, the digital transformation of the industry, in particular the introduction of unmanned vehicles, gives rise to a whole range of problems, not only of a technical but also of a legal nature. International legal norms and national legislation are in dire need of comprehensive revision.

The main transport conventions were adopted in the second half of the 19th century, and when they were signed, the prospects of unmanned transport simply could not be foreseen. All existing regulations proceed from direct human involvement in driving any vehicle.

Since the national legislation is more flexible in comparison with international treaties, we consider it expedient to adapt it as soon as possible to the legal relations developing in the transport sphere.

Undoubtedly, we believe it is necessary to adopt a fundamental legislative act that enshrines the concept of introduction and operation of unmanned vehicles. On its basis, a set of subordinate legal acts regarding each type of unmanned transport should be formed.

Due to the fact that the introduction of unmanned transport is already taking place in the form of an experiment, we consider it necessary to amend the provisions fixing the issues of legal liability related to its operation, in particular, the Criminal Code of the Russian Federation, the Code of the Russian Federation on Administrative Offenses.

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