



DETERMINATION OF AVIATION SECURITY ADMINISTRATION

**DETERMINAÇÃO DA ADMINISTRAÇÃO DA SEGURANÇA DA
AVIAÇÃO**

DMITRIY BEZZUBOV

State University of Infrastructure and Technologies – Ukraine

<https://orcid.org/0000-0001-7183-5206>

E-mail: dbezzubov@ukr.net

KATERYNA DOBKINA

State University of Infrastructure and Technologies – Ukraine

<https://orcid.org/0000-0003-2627-8871>

Yevgeniya Klyuyeva

State University of Infrastructure and Technologies – Ukraine

<https://orcid.org/0000-0002-5537-2827>

LIUBOV NETSKA

National Aviation University – Ukraine

<https://orcid.org/0000-0002-7383-3586>

E-mail: netska-1-s@ukr.net

OKSANA KHORVATOVA

Kyiv University of Law – Ukraine

The National Academy of Sciences of Ukraine – Ukraine

<https://orcid.org/0000-0002-1467-3797>

IVAN BAKHOV

Interregional Academy of Personnel Management – Ukraine

<https://orcid.org/0000-0002-8379-199X>

E-mail: i.bakhov59@gmail.com

ABSTRACT

Objective: The article considers the problem of determining the aviation security administration from the standpoint of the current state of aviation research in the humanities and law.

Methods and materials: In the course of the study the authors used complex of philosophically ideological, general scientific and special scientific methods.

Results: The category of aviation security is defined as an element of general aviation activity. The analysis of aviation safety from the standpoint of the formal and legal element of aviation activity is presented.





Conclusion: The practical application of pedagogical and humanitarian levers to increase the level of aviation security is proposed.

Keywords: Aviation; Security; Provision; Determination; Management; Model.

RESUMO

Objetivo: O artigo considera o problema de determinar a administração da segurança da aviação do ponto de vista do estado atual da pesquisa aeronáutica em humanidades e direito.

Métodos e materiais: No decurso do estudo os autores utilizaram métodos filosoficamente ideológicos complexos, científicos gerais e científicos especiais.

Resultados: A categoria de segurança da aviação é definida como um elemento da atividade de aviação geral. Apresenta-se a análise da segurança da aviação do ponto de vista do elemento formal e legal da atividade aeronáutica.

Conclusão: Propõe-se a aplicação prática de alavancas pedagógicas e humanitárias para aumentar o nível de segurança da aviação.

Palavras-chave: Aviação; Segurança; Provisão; Determinação; Gestão; Modelo.

1 INTRODUCTION

Since the adoption of the Rules and Procedures of the International Civil Aviation Security Organization in 1944, a theoretical basis has been developed to improve the administrative and legal support of flight safety. Experience and technical improvement of aircraft, navigation and communication systems have brought to a qualitatively new level the concept of flight safety as a subject of aviation management and administrative and legal regulation.

The complex system of subjects and methods of administrative and legal regulation of flight safety requires close attention, improvement and implementation of conclusions in the legal field.

The development of world aviation, paving new routes, increasing the number of aircraft, passenger traffic in general require constant attention from the subjects of flight safety, ensuring the reliability of aircraft, minimizing the human factor in aviation accidents.

Tragic events related to civil and military aircraft crashes, as well as the increase in the number of victims of aviation accidents and catastrophes, economic losses from these events only increase the aviation community's attention to flight safety.





Of course, all the above factors point to the regulation of flight safety as an important state issue, one of the leading tasks facing the civil aviation industry, so it should be the subject of close attention by the legal community and the legal community as a whole.

Some aspects of this issue were the subject of research by Ukrainian scientists O.F. Andriyko, D.O. Bezzubov , A.S. Bychkov, V.D. Havlovsky , V.D. Hvozdetzky, R.O. Herasymov, S.T. Honcharuk, O.A. Husar, N.V. Daraganova , I.A. Didovska, O.V. Dudnyk , Ye.K. Eryashova , H.H. Zabarny, O.O. Zolotar, R.A. Kalyuzhny , V.V. Kostytsky, V.K. Kolpakov, Yu.H. Stetsenko, A.V. Filipov, V.S. Tsymbalyuk, O.Yu. Sheremetyev and others.

In addition, these issues have attracted the attention of foreign researchers, in particular, A.P. Alyokhin, V.D. Bordunov, A.M. Vereshchagin, M.M. Volkov, V.A. Horyachev, Y.M. Maleyev, M.N. Ostroumov, V.M. Khomenko.

However, it should be noted that the current state of the study of administrative and legal principles of flight safety in air transport requires new approaches and solutions, improving the legal framework. This applies to all aspects of administrative and legal regulation of flight safety.

The most optimal in this way, of course, is the comparative legal analysis of legislation in the field of flight safety. The experience of airlines of ICAO member states, the work of international aviation organizations, the vector of further improving air safety also raise the issue of adapting modern safety experience to ICAO rules and procedures, taking into account the specifics of civil air transport and clearly defined theoretical definitions.

We should avoid situations where international safety experience is implemented without a comprehensive analysis, which does not take into account the specific conditions of each state, which makes it impossible to take properly into account the advantages and disadvantages of specific models of safety.

It determines the need for a comprehensive analysis of the theoretical foundations of administrative and legal security; the content of administrative and legal regulation; ways to improve the administrative and legal regulation of flight safety.





The problem of aviation security administration is especially relevant against the background of current global challenges, reforming the civil aviation industry, adapting the conditions of flights and technical means of civil aviation to the requirements of the laws of individual countries.

The object of study is public relations in the field of flight safety.

The subject of research is administrative and legal bases for determining the safety of flights in air transport.

2 METHODS AND MATERIALS

To obtain scientific results, a complex of philosophically ideological, general scientific and special scientific methods was used in the work.

Using the dialectical method, successive changes in the regulatory framework (legislation) for ensuring flight safety (the issue of formal definition of the category of safety) are analyzed. The historical and legal method was used primarily in the study of the development of flight safety in retrospect (aspect of the formation of the preconditions of the category of aviation security). The method of comparative legal analysis revealed common and different in the practice of flight safety in different countries (formation of aviation security concepts). The combination of the last two methods, as well as the use of the forecasting method gave grounds to formulate the main models of legal improvement of flight safety and track new trends in their development (formation of a strategy for determining aviation security).

The systematic approach was to involve the categorical apparatus of systems theory in the analysis of concepts (“flight safety”, “administration of determination”, “aviation security support” “aviation security”, “securitylogy of aviation security”), gave the opportunity to explore organizational and legal relations between the elements of the flight safety system.

In this scientific work, categories and means of formal logic have been used: concepts, definitions, proofs and refutations, judgments, analysis, synthesis, analogy, generalizations, etc. Other traditional jurisprudence methods were used in the study.





The normative and legal basis of the study is ICAO regulations, Ukrainian and foreign scientific works.

The empirical foundation of the study is the scientific literature, as well as the generalized practice of the subjects that carry out administrative and legal security of flights in civil and freight traffic.

3 RESULTS

The activities of modern human being are closely linked with his/her civilizational achievements. At the same time technological progress has also become an objective prerequisite for improving human activity. Technology is increasingly taking over human functions. The relationship between them today creates a unique system, which has evolved from a primitive mechanical to a complex philosophical and humanistic. The interaction of human being and technology needs to be studied and constantly improved. This is especially true of the aviation component of such relationships, as it is technologically advanced and the reliability of human activities and, ultimately, human life depends on its reliability.

The “common denominator” for human-aviation relations is the administrative and legal field, one of the aspects of which is the immediate subject of ensuring flight safety. Its efficiency depends on the organized administration, the balance of all elements of the structure, advanced technologies, skillful management of each section of the aviation industry in accordance with the requirements of the law (Bezzubov et al., 2020).

Legislation in the field of aviation of any state depends on its socio-economic and political system and national interests. This also applies to the legal field of the aviation industry and, above all, to ensuring flight safety. The world became open, aviation legislation was perhaps the first to break the ideological veil in relations between countries of different political systems. It is not based on politics, but on “security” and economic feasibility.

The socialistic self-isolation of some Eastern European countries in historical retrospect has become an obstacle to flight safety, and thus the reason for the lag in





building an effective system of administrative and legal space to ensure the development of aviation and flight safety. With its passing away, the problem of integration of the post-socialist world into the world aviation regulatory space arose.

Modern technological progress has become an objective prerequisite for improving human activity. Technical devices are taking over more and more human functions. It changes the plane of human-technical relations from mechanical to philosophical-humanistic. Technological progress has become an objective prerequisite for the improvement of human activity, inspired the need to find a kind of “common denominator”, a common platform for their interaction. This is especially true in the field of aviation, because the improvement of all its areas, including the technical industry, depends not only on the effective activities of human being, but also his/her life. Such a “common denominator” is the administrative and legal field, the direct subject of which is to ensure flight safety. Its effectiveness is directly proportional to the effectiveness of a well-organized system of administration based on modern law. In turn, such efficiency depends on the thoughtfulness of each element of the structure: both the introduction of advanced technologies and the management of each section of the aviation industry in accordance with the requirements of the law.

The legislation of each state depends on its socio-economic and political system and, accordingly, national interests. This also applies to the legal field of the aviation industry and, above all, to ensuring flight safety. The predominance of the ideological imperative over the economic one in socialist society, its self-isolation from the world space and, accordingly, the closedness of economic cycles did not contribute to the adequacy of laws to world standards. This affected the formation of appropriate differences between the state's need for the development of aviation as an efficient mode of transport and the lag in creating an effective system of administrative and legal space to ensure the development of aviation and flight safety.

Before the Second World War the contribution of technology and transport to civilization in general was only optimistically approved, and continuous technical and transport progress seemed to be something forever given and such that affirms the idea of human domination over nature. The real interest in the philosophical interpretation of the problems of technology and transport began with the World Philosophical Congresses





in Vienna (1968), Varna (1973), and Dusseldorf (1978). Since then, the number of publications devoted to this issue has begun to grow rapidly, although doubts have been expressed about the feasibility of posing philosophical and legal problems of technology and transport. Such views were supported by the fact that the Western philosophical tradition used to consider technology as a craft, and transport as a means of moving goods and passengers in the social, economic and other spheres of human life. Technology and transport have traditionally been seen as areas not worthy of philosophical research, and philosophy has been seen as part of the realm of the spirit that opposes practical activity based on intuitive ability to do something.

When considering some basic principles and trends in the development of international air services at that stage, special attention should be paid to regulating the commercial activities of airlines, as this issue has become increasingly important in the organization of international air services. This does not mean that such fundamental issues as the regulation of international air services, such as airspace and international flights, or the responsibility of carriers and aircraft operators, have lost their relevance primarily to flight safety. Nevertheless, the specific economic and sometimes political effect obtained from the operation of an airline, or the prospect of obtaining it in the future became the main criteria for planning states to develop a network of their international routes (Bezzubov & Sopilko, 2019).

The current stage of development of aviation is characterized by the following features: 1) manufacturability: the development of technical capabilities of aircraft, their provision and equipment, the emergence of artificial intelligence; 2) internationality: the development of aviation takes place in close cooperation between ICAO members; 3) objectivity: the process of development of air transportation due to economic, social and humanitarian reasons.

Based on this, there is an urgent need to study the causes and consequences of aviation incidents and disasters from the standpoint of “aviation security” as an element of general aviation activities.

Determination of aviation security administration is the definition of the main humanitarian and managerial boundaries of improving air safety by applying a general





philosophical understanding of aviation security and establishing quantitative and qualitative safety features as aviation.

Determination of aviation security is a special type of activity of aviation officials in the field of flight safety through the application of humanitarian, pedagogical, managerial and legal components of aviation, implementation of scientific and technical research results in aviation, application of assurance system and training on safety requirements. participants in all stages of flight activities.

The determination of administration consists of the theoretical level and practice of application. At the theoretical level, the definition of security as a component of human activity, forms and methods of security; at the practical level, the properties of safety in the field of aviation, forms, methods and modifications of aviation security from the standpoint of management science are determined.

We determine that the primary category “aviation security” consists of two components: the first one is security; the second is security management in aviation.

Currently, there are about 200 definitions of the category “security”, which confirms the multifacetedness and versatility of its application. Therefore, it is necessary to consider the problem of interpretation of security in the system of society, ie the activities of society aimed at a certain result. It is clear that it is impossible to cover all spheres of society, but there are several areas that play a major role in society at the practical and scientific levels such as philology (language), philosophy, politics, economics, law, management. In these areas we will analyze the categories of security.

There are many different opinions in the scientific literature about the origin of the word “security”. It deserves attention V.P. Makarenko’s assumption that the word “security” arose in contrast to the word “danger” and meant the state of its absence (Zarosylo et al., 2012).

The philological basis of any category is explanatory dictionaries, which determine the common meaning of a word. In V.I. Dal’s dictionary “security” is a state, a property of the adjective “safe” and at the same time the action of the verb “secure”. Safe means no danger, no threat; safety and reliability. Security means safe, non-threatening, one that cannot cause harm or hurt, harmless, subject to storage, faithful, reliable. Security (of somebody) means to protect, to ensure the absence of danger. Thus, according to V.I.





Dal, the word “danger” is defined as a state, a property of the adjective “dangerous”. Dangerous means unreliable, threatening, bearing harm, trouble, disease, misfortune.

In S.I. Ozhegov’s dictionary safety is defined as “a situation in which danger does not threaten anyone or anything”, in another interpretation it is “no danger, safety, reliability”. At the same time, according to S.I. Ozhegov, danger in the general sense is defined as “the possibility, the threat of something dangerous”, ie “capable of causing, bearing any harm, misfortune” (Zarosylo et al., 2012, p. 67).

Modern philosophical dictionary defines that “security is an action aimed at counteracting possible or real danger, the state of absence of threats to the existence and functioning a particular system” (Zarosylo et al., 2012, p. 109).

Foreign scholars in the fields of philosophy and mathematics D. Lewis and H. Rife in the work “Game and Decision” note that:

among the various types of situations that in reality encounter the subject of historical action (defined, indefinite, situations in which uncertainty, risk, etc. are combined), a special place is still occupied not by situations (rather than circumstances, conditions and settings) of risk, but by actions aimed at overcoming this situation and the transition to a state of security. (Zarosylo et al., 2012, p. 256).

The famous scientist A.P. Algin was one of the first to study the issue of improving safety by studying the category of risks and studying the probabilities of dangers. In his works we find the following definition of safety: “safety is an activity carried out to prevent negative results of risk” or “safety is an activity that takes into account the probability of achieving the desired result and provides it in a situation of risk or imminent danger” (Bezzubov & Sopilko, 2019, p. 29).

4 DISCUSSION

Ensuring security from the standpoint of philosophy and sociology is an active human activity to meet the needs and create an environment without dangers and risks. The philosophical model of security has the form: human being – danger – active operations and process management – restoration of security.





The basis of this model is: a) management as a sphere of administration activity (subject and object of management of the aviation security system), management environment (external and internal), b) areas of management (which together constitute the concept of “aviation security”) and c) models of application of managerial decisions (legal model, organizational model, constructive and non-constructive models).

Management, according to one of the founders of aviation incidents, is a continuous process of influencing the object of management (individual, team, technological process, enterprise, state, etc.) to achieve optimal results with optimal time and resources (Domingue, 1984).

Agreeing with the above definition, we propose to define the management of the aviation security system as a continuous process of influence of authorized bodies in the field of aviation and their officials on individual (citizen), society and the state of the country to achieve the optimal state of development of aviation and air transportation, in which there are no threats to the flights of civil vessels in all areas of aviation security (political, economic, technical, social and others).

Management of the aviation security system is considered by us as a special kind of activity of the subjects of aviation security, aimed at achieving the main goal which is to ensure the safe state of air transport. This activity includes the organization and coordination of goals, objectives and methods of achieving them as an objective necessity.

The scheme of management in the field of aviation security can be as follows: the subject of management – the object of management – threats and dangers, their consequences – the impact of the subject on the object and situation – the restored state of air safety.

In the proposed scheme the main subject of aviation security, in addition to those listed in the regulations, is an official or citizen, i.e. a person whose activities are aimed at ensuring aviation security.

There are two levels of aviation security from the point of view of determination: the first is the macro level (activities of ICAO, individual states and international cooperation in the field of flight safety); the second is the micro level, where individual organizations and officials, flight and service personnel carry out their activities.





Considering the proposed scheme, we have identified the priority of micro-level analysis. Therefore, in this element we consider the subject at the micro level. This is due to the fact that the management of aviation security system is based solely on human ability to set goals and objectives, determine rational and adequate means for their implementation and achievement, the ability to predict the results of such impacts and predict it based on possible deviations and risks.

The objects of management in the system of aviation security are a person (citizen, foreigner, stateless person) as the main component and object of aviation security, as well as economic and social interests that need protection.

There is an internal unity between the subject and the object of management in the system of aviation security. It is that the subject of management directly affects the object and modernizes and develops with it. If this connection is lost, there are possible risks and dangers to the functioning of an effective aviation security system (Zarosylo et al., 2012).

Activities of subjects and objects, their interaction takes place in a certain economic and sectoral environment of aviation security management. Outside the habitat of these categories is impossible.

The aviation security management environment is an economic, sectoral or social environment that acts as a set of all aspects of the functioning and development of aviation, which creates probable threats and dangers as a result of professional activities or natural (technical) conditions.

We propose to divide this environment into internal and external according to the place and causes of sources of danger for air transportation.

The internal environment of the aviation security system is a set of social relations that arise in the aviation security system during its operation. Such dangers may be: danger of information exchange (for example, between the subject and the object during the flight), legal risk (incorrect or inadequate application of regulations that may harm the participants of aviation security; personal risk (incorrect decision) participant in aviation security), managerial risk (irrational or untimely use of technical and technological resources to overcome situations of danger during the flight task).

The external environment is formed outside the aviation security system outlined by us. The external environment is formed from situations and their negative





consequences that arise for reasons that do not depend on the aviation security system. Such hazards include natural disasters, space hazards (meteorites, spacecraft debris or space debris that may fall in populated areas), technical and technological factors, and unauthorized interference in aviation activities (terrorism). Under the influence of the external environment, the aviation security system is transformed, changed accordingly to the emerging threats, their real or probable negative consequences (Bezzubov, 2018).

The aviation security environment forms the sphere of managerial influence of the public security system it is a practical plane of administration in the field of aviation security.

Areas of managerial influence in the system of aviation security are technical, technological, social, environmental, political, economic, humanitarian and technogenic. The logic of their existence is due to the main threats to aviation security (in fact, threats and act as a catalyst for the functioning the relevant branches of government).

The public sphere covers the range of public relations regarding security in public places, crowded places (airports, passenger boarding and disembarking areas). This area is mainly related to the behavior of individuals in public places and the consequences of such behavior. In fact, the public sphere of aviation is formed from the categories of “public safety” and “public order”.

The environmental sphere is related to the activities of individuals and legal entities to use hazardous substances, mechanisms and processes that may harm the environment or other persons in the field of aviation. In this case, the use can be both authorized by the state (transportation of hazardous substances by cargo aircraft) and illegal (for example, increased air emissions from the combustion of aircraft turbines).

The political sphere is formed in the conduct of political activity, adoption and implementation of political decisions in the field of aviation security. It is a purposeful activity of people in the process of managing processes in the aviation sphere with the help of political decisions and political will.

The economic sphere is formed from a set of government agencies and organizations, financial institutions, enterprises and organizations of various forms of ownership, individuals who participate in the provision of aviation in the country. All the above entities are involved in the formation, distribution and use of financial resources in





the country, the processes of social reproduction, which forms the financial and economic environment of the aviation industry. The economic sphere consists of two main branches: the first is the entire economic sphere, the second is the actual support of airlines and airports.

The humanitarian sphere of aviation is a set of social, cultural and ethnic heritage of mankind, which includes the formation and development of aviation as part of human activities, rules and customs of behavior of participants in aviation, taking into account gender, age, national and religious characteristics.

The technogenic sphere covers the activities of all manufacturing enterprises, all sectors of the world economy and national economies. This area is defined as the activity of people to reproduce natural resources and related technological processes that could potentially pose a threat to life and health of participants in aviation security. The difference between the technogenic and ecological spheres lies in the consequences of a dangerous situation: if the ecological sphere covers both the environment and threats to workers of an individual enterprise and others, the technogenic sphere covers threats to workers, machines and mechanisms and others.

The spheres operate within the framework of aviation security system and are constantly evolving together with public relations in the field of transport.

Development is a necessary condition for the functioning of society. Development is a prerequisite for the formation of society, the basis of its functioning and the main purpose of existence. The development of society leads to the modernization of threats and leads to the formation of two mechanisms: monitoring and forecasting probable threats and dangers in aviation.

Monitoring is the process of analyzing a situation that has developed without active intervention in the analysis process. Monitoring as an element of aviation security system management provides a detailed analysis of all levels of flight activity for the emergence and development in the initial state of threats and dangers. The monitoring is actually carried out in the areas that form the basis of the “aviation security” category. Monitoring methods are diverse, but the goal remains the same that is to identify the initial stages of potentially dangerous situations in the field of aviation.





Forecasting is a process of calculations based on statistics and probability theory of possible options for the development of certain events and phenomena. Forecasting is one of the most difficult elements in the management of the aviation security system, as there are opportunities for fallacious or erroneous calculations. The forecasting process involves the use of monitoring results and their further processing. The purpose of forecasting is to identify among the likely “scenarios” of events that could potentially be a source of danger in the flight task, and to prevent or eliminate them before they occur.

The result of monitoring and forecasting in the practical plane of management are models of management decisions to ensure aviation security.

A model is an analogue of some object (system), process or phenomenon (the “original” of the model), which is used as its “substitute”.

The aviation security model can function only in the presence of all the elements and the necessary external conditions. The functioning of the outlined model of administrative provision of aviation security is possible under the following conditions: a) change environment; b) the development of a situation of danger and threat; c) improvement of the model and its self-improvement adequate to the complexity of threats and dangers (ie the ability to self-improvement on the existing practical and legal basis). There is a logical connection between the outlined elements, which is due to the need to operate a model of public safety only in situations of threats and dangers, as well as preventive operation of this model or its individual structures over time. The following categories act as connecting links: a) general social development: that is aviation security is a necessary condition for the development of society; b) subjectivity: the mandatory participation of legal entities in activities to ensure aviation security; c) objectivity: the presence of objects of protection and the need to protect them; e) situationality: the possibility of using the structure at a certain point in time (in the event of a situation of threat or danger); g) whole assignment: the presence of goals in the activities of the subject of aviation security (straight is overcoming the situation of threat and danger, mediation is not related to aviation security or has a preventive nature); h) effectiveness (functionality): the need for active action to ensure aviation security (law enforcement); j) clarity: practical activities, available results, reflection of improving the state of aviation safety in the external environment.





From the above we can define the category “aviation security system (in a broad sense)”, namely: a system of theoretical, methodological, organizational, legal, management measures aimed at ensuring the management of aviation security in the form of countering threats and dangers in all areas functioning of aviation and guarantee of progressive and normal development of aviation in the future.

The determination of aviation security administration involves the analysis of five main aspects of this category from the standpoint of management, law and science of administration.

These aspects reflect the main thresholds for determining aviation security from the standpoint of formal logic.

1. Aviation security as an active category is defined by the system: aviation security is certain activities carried out by an authorized entity in the field of aviation.

Aviation security is a state of the aviation sphere and activity in which there are no threats and dangers. Achieving this state is possible only by taking action by authorized aviation security entities. These actions should have several features: activity which is the exercise of authority by influencing the external environment, i.e. its state and the probable change of such state; purposefulness: the purpose and objectives of the above actions should have a pre-planned end result (theoretical one is to restore or maintain security, practical one is the implementation of the full functioning of a particular industry or aviation in the absence of threats and dangers); consistency in time and space: such activities should not be stopped regardless of external circumstances (for example, in the absence of danger or threat).

The Regulation on Train Safety Management System states that the train safety management system is “a set of measures that allow the staff of railway stations, railways, enterprises and their structural units to work effectively in the field of train traffic”. This provision is an example of the process of ensuring aviation security as a prevention of possible threats and hazards of technogenic nature in related modes of transport.

The 1987 Regulation on Fire Safety at Civil Aviation Airfields states that the:

system of fire protection of aircraft and facilities includes a set of measures aimed at preventing fires and burning on aircraft and facilities, and in the event of fires for their timely detection and successful extinguishing, for the safe evacuation of





people and property, as well as for equipping buildings, structures, warehouses and parking lots of aircraft with fire protection. (Australian Government, 2011).

Fire safety is an integral part of aviation safety, so compliance with the rules and requirements of fire safety is mandatory for all participants in aviation activities.

ICAO rules state that Aviation security is “the protection of civil aviation from acts of unlawful interference, which is provided by a set of measures involving human and material resources” (Australian Government, 2011). The impact of this type of safety is similar to the safety of rail transport. The Air Code defines public safety in the use of aircraft and the prevention of aircraft threats (for example, the safety of aircraft over residential areas of cities).

2. Aviation security as a passive category is defined by the system: aviation security is the absence of risk, threat, danger.

Aviation security is a state of absence of threats and dangers during flight or other stages of aviation activity at a certain time. In this definition, we can consider aviation security in the system: space – time – individual. However, each of these components has its impact on the passive state of safety.

Space is a certain part of the territory or airspace that is safe, ie where there are no threats and dangers of any origin. Time is a certain period of time without threats and dangers until the situation of threat or danger. Since time is not static, it is impossible to predict the probability of a time interval of threat or danger in a passive environment. Time is a passive and static category in relation to security, as it is counted until the moment of threat and danger. Individual is the most capacious element of this system, as it is both an object of protection and a probable source of threat and danger. In this case, the occurrence is possible both through active operations and through inaction of the individual.

Flight safety is a condition in which the risk of damage or injury is limited to an acceptable level, and the flight security system is a system that “deals with the provision of flights with aeronautical information, as well as navigational, meteorological, aerodrome, electro-lighting, radio, ornithological, regime-security, medical, search-and-rescue and emergency-rescue support, organization of air transportation and operative management of production” (Australian Government, 2011).





The Regulation on the Train Traffic Safety Management System states that “safety is the absence of threats to life, health, property, animals, plants and the environment that exceed the maximum risk” (Australian Government, 2011).

The 1999 NATO Strategic Concept states that Ecological safety is a state of the environment in which the prevention of deterioration of the ecological state and the emergence of danger to human health is ensured (Acquis YeS, n.d.).

3. Aviation security as a certain activity of legal entities is determined by the formula: safety – the purpose of a certain government body.

Aviation security is an element of goal setting in the activities of all subjects of aviation activity. Goal setting aviation security is an element of public life, the absence of this element creates a risk of critical or risky situations in aviation.

Article 4 of the ICAO Rules of 2005 lists the ICAO bodies authorized to carry out activities aimed at ensuring aviation safety, namely: “The subjects of ICAO aviation security are the Air Navigation Commission, the Transport Committee, the Technical Cooperation Committee” (Australian Government, 2011).

4. Aviation security as an element of protection is defined by the following system: aviation security – the state of protection from threats, dangers, risks.

The state of aviation security is the absence of threats to aviation activities at all stages. In fact, this is the ultimate goal of the aviation security actors, but at the same time it is the starting point for the full functioning of aviation. In fact, aviation security is a constant, zero state of threats and dangers. This situation is obvious and real and has practical application in order to achieve safety in the activities of aviation entities.

The “Regulations on the train safety management system” states that traffic safety “is the protection of railway rolling stock, which is characterized by the absence of maximum risk of accidents and their consequences that could harm the lives and health of citizens, the environment, property of individuals or legal entities” (Australian Government, 2011).

The dictionary on the problems of adaptation of aviation legislation states that information security is a special state of protection and security of information from unauthorized actions that pose a danger or threat of modification or destruction of data (Acquis YeS, n.d.).





5. Aviation security as an element of the legal field is determined by the formula: aviation security – compliance with certain parameters or values (documents).

The general provision of public safety is carried out and ensured through the existence of an appropriate legal framework, ie the existence of laws, decrees, resolutions, orders. Without these regulations, public security has no law enforcement, acting exclusively as a theoretical abstraction.

The provision “On ensuring fire safety at civil aviation aerodromes” states that

standards, technical conditions, other normative and technical documents on fire-hazardous technological processes and products must include fire safety requirements and be agreed with the state fire supervision authorities. Fire safety requirements contained in departmental regulations should not contradict state standards, norms and rules. (Deelen, 1989, p. 26).

NATO's 1999 Strategic Concept states that “economic and other projects must have materials to assess its impact on the environment and human health” (Flight Safety Foundation, 2006, p. 5).

Thus, according to the analysis, we can identify the following main theoretical features of the current state of aviation security administration: generality (aviation security activities are mandatory for all participants in aviation activities); subjective direction (aviation security is ensured by the activities of individual subjects of aviation security); situationality (the period of time without risks and dangers and the likelihood of situations of threats and dangers in the future); functionality (aviation security as a function of ICAO bodies); goal setting (aviation security as the basis for the existence of specific national and international bodies in the field of aviation); clarity (the absence of threats and dangers in the practical plane of aviation, which has time and place).

The practice of applying the categories of determination of aviation security administration involves planning measures to ensure aviation security as a component of the functioning of society in general and the transport system in particular.

When planning measures to ensure aviation safety by the subjects of management of air transport, taking into account the specifics of their activities and the proposed gradation of safety levels, the following requirements must be met:





continuity means the planning of security measures should take place within the planning of activities, individual actions and main activities of the relevant structural units of the subject of aviation security (especially for civil aviation);

probability means safety measures should take into account the most possible situations of danger and threats during flights and the possibility of situations of imminent danger and threat that are not related to the performance of direct functional duties of crew members (especially in the occurrence of natural factors and communications with dispatch services);

completeness is defined as the ability to take into account all probable and unlikely scenarios when planning a flight task, identifying vulnerabilities during the flight and their prompt elimination;

timeliness means the coincidence of temporal and spatial criteria of aviation security measures with other measures in the activities of aviation services;

constant updating means the need to improve the base for aviation security measures ;

regularity means the subjects of aviation security must provide information to the analytical services with a certain time interval, taking into account the plans for the implementation of certain functions and tasks of services and units of aviation;

optimal level means security measures should take into account the level of security of the individual aviation entity;

clarity and accessibility are requirements for security measures, taking into account the intellectual and intellectual level of all participants in aviation activities.

The special level of the aviation security mechanism reflects planning and conducting measures to ensure safety in aviation activities at individual levels of aviation services and units, taking into account the specifics of their activities and the circumstances in which these measures are carried out.

The individual level of the aviation security mechanism is defined as ensuring the security of an individual employee of the subject of aviation activities (crew members, ground staff) in the performance of their duties. This mechanism provides for measures to improve the safety of individual aviation workers, namely:





initial training, during which the employee receives information about the essence of security measures; service training, in the process of which situations of dangers and threats in the performance of official tasks are worked out and individual psychological properties of an aviation employee for activity in conditions of risk are formed;

advanced training, which helps to acquaint aviation workers with the latest achievements in the field of security and increases the overall intellectual level, which allows independence in decision-making by aviation workers in situations of danger and threats;

independent training helps to increase the level of knowledge, skills, abilities of the employee who is the subject of aviation activity;

retraining should be carried out at the stages of implementation of fundamentally new methods of aviation security in the framework of activities to ensure the rules, requirements and procedures of ICAO in the field of aviation security;

the internship is necessary at the stages of acquainting the employee with the development of security measures in practical activities to ensure aviation security;

other training is an activity related to the scientific training of the employee who is the subject of aviation security, the formation of his/her scientific views on aviation security, broadening horizons and developing personal proposals for security measures in the field of aviation.

The proposed mechanisms form a system of aviation security administration “aviation security safety” is the systematization of practical mechanisms of determination in order to improve aviation security as participants’ active operations in aviation activities.

5 CONCLUSIONS

As a result of research the theoretical model of algorithm of development of the mechanism of maintenance of aviation safety is constructed. It is established that it consists of several main levels. The first level determines the scientific category “aviation security phenomenon” in the following areas: a) classification of levels of the mechanism of aviation security; b) determination of models of interaction of elements of the aviation





security mechanism; c) structuring and optimization of the proposed elements of the aviation security mechanism. The second level determines the possibility of determining the aviation security: a) in the direction of improving the existing mechanisms for aviation security; b) within the framework of integration of the proposed elements into the existing aviation security mechanism; c) in the direction of studying possible changes in the implementation of the proposed element. The third level is practical, it determines the final options for implementing changes to the current model of aviation security: a) in the legal framework; b) in aviation management; c) in optimizing the process of interaction of aviation entities.

The concept of aviation security determination can be defined as the main approaches to determining the theoretical and applied basis for aviation security within the priority of aviation activities of national and international aviation institutions.

In the current activities of ICAO, it is possible to distinguish the main concepts of aviation security, which are divided into two main groups: a group of aviation security concepts in national programs (national aviation security concepts) and a group of aviation security concepts in activities (sectoral aviation security concepts). These groups of concepts are complementary and together form such a category as the phenomenon of “aviation security”.

The study found that the determination of aviation security is to determine the direction of development of the state mechanism and management of all branches of aviation activity, the essence of which is to develop mechanisms to counter threats and dangers in aviation, taking into account the specifics of aviation management. The determination of aviation security is a practical result of the implementation of the considered concepts of ensuring all levels.

The concept of the triad of national, international and sectoral aviation security is defined as an integrated and organic combination of aviation security systems at different levels in order to develop joint actions to achieve safe operation of aviation and aviation enterprises and their activities in natural hazards and threats.

The essence of the aviation security mechanism is to create favorable conditions for improving aviation security, all employees and officials in order to best meet the needs





of all aviation entities and the safe existence and protection of legitimate rights and interests of aviation participants from threats, risks, dangers and criminal encroachments.

Improving aviation security tasks is a process of analyzing and evaluating existing goals and objectives in the field of aviation security, rethinking and reorienting these tasks in a constantly changing environment and scientific and technological progress.

REFERENCES

Acquis YeS u sferi tsyvilnoi aviatsii ta perspektyvy adaptatsii zakonodavstva Ukrainy u svitli pidpysannia ta nabuttia chynnosti Uhody pro spilnyi aviatsiinyi prostir mizh Ukrainoiu ta YeS [EU in the field of civil aviation and prospects for adaptation of Ukrainian legislation in the light of the signing and entry into force of the Agreement on the Common Aviation Area between Ukraine and the EU]. <https://old.minjust.gov.ua/file/40911>

Australian Government. (2011, January). Australia`s state aviation safety program. <https://infrastructure.gov.au/aviation/safety/ssp/files/asasp.>

Bezzubov, D.O. (2018). Yurydychna skladova aviatsiynoho ryzyku (systemno-prykladnyy analiz) [Legal component of aviation risk (system-applied analysis)]. *Naukovi pratsi Natsionalnoho aviatsiynoho universytetu, zb. nauk. pr.*, 3(48), 11–17.

Bezzubov, D.O., Bakhov, I.S., Klyuyeva, Y., & Byrkovych, T. (2020). Aviation legal risk management: The concept, structure, and categories. *Journal of Advanced Research in Dynamical and Control Systems*, 12(4 Special Issue), 703–711.

Bezzubov, D.O., & Sopilko, I.M. (2019). Accidents on board an aircraft: Goals and objectives of the investigation. *Naukovi pratsi Natsionalnoho aviatsiynoho universytetu, zb. nauk. pr.*, 4(53), 28–33.

Deelen, C. (1989). Methods for assessing the risk of environmental contamination. In H. M. Seip, & A. B. Heiberg (Eds.), *Risk management of chemicals in the environment. NATO - Challenges of modern society* (Vol. 12, pp. 25–36). Boston, MA: Springer. https://doi.org/10.1007/978-1-4684-5604-2_3

Domingue, G. (1984). Approaches to risk assessment (management). *Toxic Substances Journal*, 2–3, 97–103.

Flight Safety Foundation. (2006). Accumulated stress presents range of health risks. *Human Factors and Aviation Medicine*, 53(1), 1–6. https://flightsafety.org/hf/hf_jan-feb06.pdf





Zarosylo, V.O., Bezzubov, D.O., Dudnyk, O.V., & Timashova, V.M. (2012). Yurydychnyi ryzyk ta yurydychna bezpeka [Legal risk and legal security]: Monograph. Kyiv: Ukrainyskyi derzhavnyi universytet finansiv ta mizhnarodnoi torhivli, 300 p.

