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**SUMMARY**

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The doctoral thesis and the summary can be consulted at the Library of the Free International University of Moldova and on the website of the Free International University of Moldova (<https://ulim.md/doctorat/sustinerea-tezelor-de-doctorat/>) and the National Agency for Quality Assurance in Education and Research (<http://www.cnaa.md/>).

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## CONTENTS

<b>1. CONCEPTUAL RESEARCH MILESTONES .....</b>	<b>4</b>
<b>2. SUMMARY OF CHAPTERS .....</b>	<b>10</b>
<b>3. GENERAL CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>20</b>
<b>4. LIST OF PUBLISHED SCIENTIFIC PAPERS.....</b>	<b>28</b>
<b>5. ANNOTATION (in Romanian, Russian and English) .....</b>	<b>29</b>

## 1. CONCEPTUAL RESEARCH MILESTONES

**The actuality and importance of the research topic.** In recent decades, air transport is the most emerging sector of the passenger and freight transport industry. The specific nature of the means of transport and the rules governing this type of activity have required the utmost attention from both states and private players, who have tried over the last fifty years to resolve the dilemma between the sovereignty of the state over its airspace and the urgent need for the practical implementation of air freedoms and the liberalization of the civil aviation services market by legal means and international regulatory institutions.

Despite all the apparent dilemmas between the different subjects of the aviation industry, the subject of ensuring the safety of air corridors, airport systems and infrastructure, the direct beneficiaries of the services provided, is the subject that organizes and mobilizes the efforts of all the entities involved. No matter how deep the differences in approach between public players (states, international intergovernmental organizations) on the one hand and private players (airlines, aircraft manufacturers, airport owners and international non-governmental organizations set up by them) on the other, after the shock of the effects of the pandemic caused by the Covid-19 virus, no one among the relevant players doubts any longer the urgent need to pool all efforts to apply the best national and international experience in order to ensure the safety of civil aviation as a precondition for recovery and a return to economic and safety indicators by 2019.

In addition to the major challenge posed by the pandemic, terrorist actions are becoming increasingly sophisticated and difficult to prevent, which, in addition to exorbitant costs, is leading to a loss of confidence on the part of beneficiaries in the quality and security of air transport in general and air navigation in particular.

Another, no less important aspect of the process of ensuring civil aviation security is the security of the systems for managing the processes for preventing and combating the negative effects of risks and threats on the security of airport infrastructure, air corridors and civil aviation beneficiaries, which are interconnected and interdependent systems whose viable, efficient and effective activity cannot be modelled and achieved without ensuring cyber security.

At present, there is no perfectly reliable source capable of estimating the security of a flight at its true value other than an estimate, and the fear provoked by terrorist attacks, whatever their origin and motivation, combined with the suspicions generated by the harmful effects of the Covid-19 pandemic not only on the world economy in general, but on the civil aviation industry in particular, in view of the inability of the existing international institutional system to guarantee the security of civil air navigation, is not only prompting pessimistic discussions and approaches to

the future of this segment of international transport, but also a substantial reassessment of its place and role in the development of the world economy.

The unequivocal awareness of the need to order all efforts in order to identify effective solutions to the challenges generated by the phenomena described above, but also the will and courage to mobilize efforts towards the implementation of international and national legal mechanisms and instruments that would have the sole objective of ensuring the safety of civil air navigation, further argue the topicality of the topic researched.

Thus, aligning all the parties involved in the process of ensuring civil aviation security within the framework of an international institution capable of ensuring the priority of civil aviation security over the commercial and sovereign interests of States would be the only viable solution that could offer the chance to relaunch civil aviation and the confidence of its beneficiaries in civil aviation security.

All the attempts to achieve legal regulation at international level have resulted in the adoption of various pieces of legislation which have sought to underpin the existence of an institutional and regulatory system for civil aviation or to contribute to its practical implementation. We can see that the current institutional and regulatory system, both at international and national level, has only partially met the latest challenges to civil aviation security, and that the pandemic and the challenges of cyber security, together with the new forms of terrorism, constitute the basic risks and threats to civil aviation security, and highlight the topicality and importance of in-depth, multi-faceted research on this subject.

At the national level, states are trying to implement international treaties and to develop and implement regulatory provisions that are in line with international civil aviation standards, but the principled divergence between public and private interests in civil aviation is in many cases the main cause of delays and non-alignment with international requirements and best practices in the field of civil aviation security.

The topicality and importance of the topic under investigation lies in the need to analyze the legal norms at national and international level, which purport to characterize and punish violations and abuses of regulatory and institutional mechanisms and instruments for ensuring civil aviation security.

In addition, the topicality and importance of the topic under investigation lies in the need to:

- to determine the characteristics and prevent the consequences of terrorism on the civil aviation security system;

- to determine the priorities, legal mechanisms for implementation and terms of implementation to ensure the security of civil air navigation, not only in national airspace, but also in the entire international airspace;

- determine clearly and unequivocally the role and place of international organizations in the process of developing and implementing civil aviation safety standards;

- appreciate the necessity and importance of this industry for the sustainable development of the world economy and realize the impossibility of achieving this goal in practice without ensuring civil aviation safety.

**Degree of study of the research topic.** There are sufficient sources of information in the literature on the general subjects of public international law and the essence of international air law governing social relations specific to civil aviation.

With regard to the legal mechanisms for ensuring civil aviation security in general and civil aviation security in particular, a number of scientific articles and research reports are available which present the place and role of air law in the international law system or tangentially analyze some aspects of the subject under research. In the light of the topicality and importance of the subject under analysis, it should be pointed out that, at present, there is no fundamental work in domestic doctrine that would have as its object of research the legal regulation of mechanisms and instruments for ensuring the safety of civil air navigation.

International and national regulatory means, institutional systems to ensure the implementation of their provisions in the field of civil aviation security are among the main research topics in the field of international air law, and the authors, whose works are reviewed in this research, reflect various aspects of this phenomenon, from the historical evolution to the analysis of national and international systems to prevent and combat risks and threats to the security of air corridors, airport systems and civil aviation beneficiaries.

The results of the research on international legal mechanisms and instruments for ensuring civil aviation security have been analyzed in relevant scientific events and have been presented in articles published in the following scientific journals and proceedings of national and international scientific conferences.

**The aim of the thesis** is to analyze the international and national institutional system and the legal regulation of the complex processes of preventing and combating the risks and threats to civil aviation security generated by the terrorist phenomenon, the Covid-19 pandemic and cyber attacks both on the airport system and air corridors and on the beneficiaries of these services in order to ensure full compliance with the provisions of international treaties in the field of civil aviation security.

**Research objectives:** In order to effectively achieve the purpose of the paper, we have set the following main objectives of this research:

1. Analysis of the relationship between the principles of complete and exclusive sovereignty of the state in its airspace and that of freedom of overflight of aircraft in international airspace in the process of realization of the principle of ensuring the safety of civil air navigation;
2. Determining the evolution of the process of codification of universal and regional rules on ensuring civil aviation security;
3. Elucidate the structure, functions and tasks of international organizations in the field of civil aviation security;
4. Investigation of legal and institutional means of preventing and combating terrorism as a risk to civil aviation security;
5. Analysis of the legal protection of civil aviation cyber security;
6. Establishing the impact of the Covid-19 pandemic on the regulatory and institutional system for ensuring civil aviation security;
7. Assessment of international legal regulation of air corridor security;
8. Reflecting current trends, best practices and legal mechanisms for harmonizing national legislation with EU standards for ensuring civil aviation security.

**Research hypothesis.** For the purpose of the present research we consider that the main hypothesis is that ensuring civil aviation security is the imperative and precondition for the existence and perpetuation of the air transport industry, and the cooperation of states, international intergovernmental organizations and all interested actors in the process of prompt and unequivocal implementation of the single standards for ensuring civil aviation security through the development of legal mechanisms and instruments that would address the risks, threats and vulnerabilities specific to the process of ensuring civil aviation security is the algorithm that could ensure the achievement of the set objectives.

**Summary of research methodology and justification of chosen research methods.** In the process of analyzing the international legal regulation of civil aviation safety assurance we used the following scientific research methods, namely:

- Historical method, in order to highlight the main stages in the development of the civil aviation system and the legal and institutional mechanisms and instruments for ensuring civil aviation security, highlighting the factors that have generated the greatest dangers and threats to this desideratum;
- the comparative method, allowing us to make a comparative analysis of the factors that have influenced the development of civil aviation at different stages as well as the factors that have generated the major risks and threats to civil aviation security. We also aimed to compare the role

and place of elements of the international institutional system in the process of building international air law rules in general and those related to ensuring civil aviation security in particular. Another useful comparison in the process of achieving the set objectives was made by highlighting the common and distinct elements of the approach to the main risks and threats at the national level of relevant states in the segment of ensuring civil aviation security;

- quantitative method, this method was used in the context of systematizing and highlighting the doctrinal sources and normative sources reflecting the factual situation in the civil aviation industry in general and the regulatory and institutional system for ensuring civil aviation safety in particular;

- the prospective method, used to identify the most effective methods of cooperation between States, international organizations, private actors and their associations in the process of preventing and combating the negative effects of risks and threats on the process of ensuring civil aviation security, as a precondition for the existence and development of air transport and the civil aviation industry;

- the systemic method, has allowed us to carry out a systemic analysis of the component elements of the regulatory system and the international and national institutional system responsible for civil aviation in order to highlight the main risks and threats to civil aviation security and the standards, best practices and requirements to be implemented without exception by all stakeholders in order to ensure the achievement of the central objective of civil aviation;

- the method of synthetic analysis, which proves indispensable in the process of formulating conclusions and recommendations.

**The scientific problem solved** consists in elucidating and arguing the imperative to build a regulatory and institutional system to prevent and combat the risks and threats to the security of civil air navigation generated by established dangers such as terrorist actions and the latest ones caused by the Covid-19 pandemic and cyber attacks, by realizing that civil aviation security is the basic precondition for the existence of civil aviation in general, and that the apparently divergent interests of public and private actors and the organizations and associations created by them are to be overcome in order to give civil aviation a new chance to recover and develop in a secure environment for all beneficiaries.

**The novelty and scientific originality** lies in the fact that the thesis is a complex research of legal and institutional mechanisms and instruments at both national and international level, which aim to create algorithms that would allow to avoid and exclude the possibility that risks and threats to the security of civil navigation can be realized to the detriment of stakeholders and beneficiaries of these services without which we cannot imagine modern society and economy.



The thorough analysis of the evolution of the legal mechanisms regulating the safe operation of airspace without prejudice to the sovereign nature of each State's control over its own airspace, the building up of organizations as indispensable elements of the system for preventing and combating risks and threats to the safety of civil air navigation, the awareness of the need to combine the efforts and systematize the experience of all the actors involved in order to achieve the fundamental objective of ensuring the safety of airspace in general and of civil air navigation in particular, argues the undeniable topicality and originality of this research.

Also, the necessity and importance of this research lies in the attempts to highlight the main achievements in the field of ensuring the safety of civil air navigation at international and European level to which the Republic of Moldova has aligned or continues to align itself, not only by adopting the necessary legislation and standards, but also by implementing them at national level in order to contribute to the achievement of the basic objective, ensuring the safety of civil air navigation, as a prerequisite for the existence and development of air transport for the benefit of all stakeholders.

## 2. CONTENT OF THE DOCTORAL THESIS

The thesis entitled "International Legal Regulation of Civil Aviation Security" is structured as follows: introduction, 3 chapters, general conclusions and recommendations, and bibliography.

In Chapter I "*Doctrinal Concepts and International Normative Provisions on Ensuring the Security of Civil Air Navigation*" the doctrinal concepts on ensuring the security of civil air navigation and the international normative framework formed by the main international normative acts regulating civil aviation are analyzed, by highlighting the most important works that have been cited during the research in order to create the limits of the bibliographical space of the present research and the international legal basis of social relations related to the compliant exploitation of airspace, highlighting the aspects related to ensuring the security of civil air navigation.

Subchapter 1.1. "*Analysis of Doctrinal Concepts in the Field of Civil Aviation Security*" reflects the monographs and articles that served as the bibliographical basis for this research. Works by local authors and by leading authors in the field of international air law from abroad are analyzed.

The basic concepts of the science of public international law in general and of international air law are presented systematically and concisely, allowing us to systematize and clearly divide the areas of regulation between international air law and cosmic law.

International law is ubiquitous in the legal regulation of civil aviation and is embodied in a number of major multilateral treaties. This is complemented by various annexes (promulgated by the International Civil Aviation Organization) and conventions and protocols (promulgated by states in diplomatic conferences). States then implement these international obligations in domestic laws that create aviation regulatory administrations which in turn promulgate regulations.

Since the adoption of the Chicago Convention on Civil Aviation, aviation treaties continue to develop both in terms of aviation operational technique and economics. These treaties have become the main source of international aviation law. As a result, global requirements need to be adapted in the national legislation of states. States are bound both legally and politically by the decisions/resolutions of international organizations.

Subchapter 1.2 "*Evolution and Codification of International Legal Principles and Rules on Ensuring Civil Aviation Safety*" explores the evolution of international air law and airspace operations in general and the evolution of relevant international and national legal regulations of some States that have underpinned the current regulatory and institutional system of civil aviation which is heterogeneous, containing technical elements and strongly influenced by the instability of the air transport sector. It also analyses the dilemma of international air law which is based on

two competing principles, state sovereignty over airspace on the one hand and air freedoms as a mechanism for the complete liberalization of airspace on the other.

It highlights the crucial moments in the exploitation of airspace, the main initiatives that have transformed the aviation industry from ideas that were not accepted and limited by human scepticism to everyday realities where we cannot imagine life without air transport and the building of the regulatory and institutional system for regulating the use of airspace in the interest of all actors and beneficiaries of these services.

Legal principles are the most general and important rules that determine the behavior of legal subjects, which are a criterion for the legitimacy of all other rules and form the basis for the creation of new rules in the field under study.

As far as the principles of the international air law branch are concerned, this issue has not been sufficiently developed by legal science. Some authors acknowledge the existence of such principles, others refrain from highlighting them.

An analysis of the relevant legislation and international treaties allows us to distinguish the branch principles in the area we are examining in the field of air traffic management. These include the following:

- a) traffic management in national airspace;
- b) air traffic safety;
- c) structuring airspace for the safe and efficient use of air traffic;
- d) a unified air traffic management system, cooperation with adjacent competent entities or bodies (including foreign states) in air traffic management;
- e) priorities established in the use of airspace on the axis: State - legal entity - natural person.

In our view, civil aviation cannot develop to its full potential without ensuring the safety of civil air navigation. The disruption of civil aviation security has negative effects on the entire civil aviation chain and affects all elements of the airport system and diminishes passenger confidence in this type of transport, which also indirectly harms aircraft manufacturers and adjacent service providers, which allows us to qualify ensuring civil aviation security as a principle of international air law.

The conventions that have been concluded in the field of civil aviation have dealt with the organization of air navigation, offences committed on board aircraft and air accidents. The most important international aviation conventions are the following:

1. **Paris Convention of 1919.** The Paris Convention, which was concluded in 1919 and entered into force on 11 July 1922, was the first international convention in the field of public international law to regulate civil aviation matters.

2. **The Madrid (Ibero-American) Convention of 1926.** Due to the disagreement of some States with the Paris Convention of 1919, a conference was held in Madrid at the invitation of Spain on 1 November 1926, which resulted in the Ibero-American Convention of 1926. The Convention was not fully approved because only five of the signatory states ratified it. Spain signed the Paris Convention, so the Madrid Convention is completely inactive. The USA has neither signed nor acceded to the Convention.

3. **Havana Convention of 1928.** The Havana Convention of 1928, or the Pan-American Convention, was signed on 20 February 1928, between twenty American states, following the refusal of the USA to accede to the Paris Convention of 1919. The Convention applied only to private aircraft, not government aircraft.

4. **International Sanitary Convention (The Hague) of 1933.** The International Sanitary Convention on Air Navigation was signed in The Hague on 1 April 1933. Signatory states have the right to impose special sanitary and quarantine regulations against diseases communicable by passengers on aircraft of one contracting state entering the territory of another. This convention was not an aviation convention, but some of its provisions related to passengers travelling by air and they had to have a vaccination certificate to present to the immigration authority at the airport of entry.

5. **The 1944 Chicago Convention,** known as the International Civil Aviation Convention, signed on 7 December 1944 by fifty-two states and entered into force on 4 April 1947. This Convention established the International Civil Aviation Organization". This Convention was concluded to replace the Paris and Havana Conventions. It establishes the main directions for organizing and planning the basis for modern international civil aviation throughout the world.

The International Civil Aviation Organization (ICAO) is the body responsible for the most comprehensive set of regulations on international civil aviation. As a civil aviation organization, ICAO has the capacity of 'regulatory function'.

The International Civil Aviation Organization is now considered a specialized agency of the United Nations, established under the Chicago Convention to administer the principles of the Convention and to implement the rules and regulations that later appeared in the annexes to the Convention and other supplementary documents since 1944. The principles of airspace use, aircraft registration and safety, and duty-free aviation fuel were established by the Chicago Convention.

Under the auspices of ICAO, several international treaties have been developed governing various aspects of civil aviation security. These are:

a) *Tokyo Convention 1963: Convention on Offences and Other Acts Committed on Board Aircraft;*

b) *The Hague Convention 1970: Convention for the Suppression of Unlawful Seizure of Aircraft;*

c) *1971 Montreal Convention: Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation;*

d) *the Bonn Declaration of 1978;*

e) *1991 Montreal Convention: Convention on the manufacture of plastic explosives for the purpose of detection;*

f) *The 2010 Beijing Convention: Convention for the Suppression of Unlawful Acts against International Civil Aviation;*

g) *the Supplementary Protocol to the Convention for the Suppression of Unlawful Seizure of Aircraft (2010 Beijing Protocol).*

h) *Protocol to Amend the Convention on Offences and Certain Other Acts Committed on Board Aircraft (Montreal Protocol 2014).*

Chapter II "**Preventing and Combating Risks and Threats to Civil Aviation**" reflects the main results of research into emerging risks and threats to civil aviation security in general and civil aviation in particular. In this chapter, we set out to analyze new forms of aviation terrorism and the legal mechanisms to prevent and combat them, the new challenges posed by cyber communication and civil aviation security systems and the legal instruments to regulate them. We cannot avoid analyzing the risks, threats generated by the Covid-19 pandemic, in order to research the consequences and highlight the objectives set to avoid the negative effects of such events on both the civil aviation system and the legal mechanisms and instruments for ensuring the security of civil air navigation.

Paragraph 2.1 "*Legal and Institutional Means of Preventing and Combating Terrorism as a Risk to the Security of Civil Aviation*", elucidates the essence and legal mechanisms for preventing and combating the negative effects of new forms of aviation terrorism.

The continuing development of civilization provides them with convenient targets where potential victims are in large human crowds. The latter include, among others, passenger ships. The legal mechanisms for preventing and combating terrorism embodied in the text of various conventions and treaties are proving necessary but not sufficient to remove terrorism from the list of risks and threats to the security of civil aviation.

Humanity's efforts in this regard must disregard the divergent and momentary interests of the various actors involved in the process of exploiting airspace in order to give a chance to the perpetual development of this area of crucial importance for the development of the world economy.

Terrorism as a phenomenon, and terrorist groups, whether networked or acting as independent entities, constitute one of the most serious threats to many of the world's nations at the beginning of this century, in relation to such fragile international security.

Since the early 1930s, the list of the most frequent objects of terrorist attacks can be extended by adding aircraft.

It has also increased the number of reasons considered by terrorists as convenient for planning and launching aviation terrorism. Moreover, the methods applied and the types of attacks have been constantly developed. The growing and constant threat of aviation terrorism has forced international society and certain countries to take separate political, strategic and tactical measures to neutralize the effects of aviation terrorism. Scientists and their research findings have played a significant role in creating the organizational effectiveness of counter-terrorism work.

In this regard, we believe that terrorist acts cannot and should not be politically motivated, and after the experience of the last hundred years of aviation terrorism, states and private companies must join efforts to identify effective legal and institutional mechanisms and instruments to ensure the security of civil aviation.

Paragraph 2.2. *“Legal Protection of the Cybersecurity of Civil Aviation”*. The air transport industry is faced with an increasing number of travelers and consequently an increasing number of interactions between people, devices and services, as well as the creation of smart airports, the introduction of more sophisticated aircraft and information technology.

The confluence of information and operational technologies has created new opportunities for deliberate cyber attacks and attackers are likely to exploit gaps first in information technology networks and then in operational networks. Given the transformation of the industry, the operational technology environment is unable to cope with such attacks. In addition, the industry faces two opposing problems. On the one hand, the need to protect systems with reliable multi-layered security and, on the other, to ensure that passengers can continue to interact with devices.

Aviation companies continue to struggle with the inevitable changes in technology imposed by the cybersecurity threat landscape. Given the multidisciplinary and interdisciplinary complexities associated with developing an international cybersecurity defense policy, many challenges could hinder the development and implementation of a comprehensive plan to ensure the cybersecurity of civil aviation. The interplay between business, security and geopolitical interests are important factors in protecting aviation from cybersecurity threats.

Air transport has undergone a major transformation in recent years with the introduction of state-of-the-art information systems in aircraft and ground systems.

The air transport industry is characterized by a combination of complexity and interdependence, making it a vulnerable and attractive target for cyber attacks. As aviation

undergoes a global digital transformation, the risk of calculated and deliberate cyber-attacks by a potentially growing number of dangerous actors determined to commit criminal acts or destabilize established rules and canons of civil aviation security is increasing.

With the emergence of new technologies and capabilities in aviation, it is becoming increasingly difficult to prevent a cyber attack on aviation infrastructure.

Our research provides in-depth insights into the analysis and conceptualization of the challenges related to the development of an international civil aviation cybersecurity defense plan and the legal mechanisms for ensuring this aspect of civil aviation security.

Subchapter 2.3. *"The Effects of the Covid-19 Pandemic on the Regulatory and Institutional System for Ensuring Civil Aviation Security"*. Air transport should operate with confidence despite various crisis phenomena. Taking into account the main threats facing global aviation, analyzing the experience of the fight against the COVID-19 pandemic, it is necessary to develop effective organizational and economic mechanisms for the recovery of the industry, taking into account relevant influencing factors and perceived problems to be addressed.

In this respect, states should play a leading role in restoring domestic air transport by offering comfortable compensation to all air carriers operating in the face of severe restrictive measures and serious market decline.

Safety technologies will play an increasingly important role in reducing safety and health risks. They can help the global economy to recover and meet human needs. To play this role, processes and technologies, airports and air carriers need to restore passenger confidence while reducing the need for mandatory quarantine measures worldwide.

Chapter III *"Institutional Systems and Legal Mechanisms to Ensure Civil Aviation Safety. Comparative Law Aspects"*, reflects the main legal requirements in the process of ensuring the security of air routes or corridors. The chapter also presents the main achievements of the legal and institutional systems of the USA, the UK, Australia in the field of civil aviation operations and the systems of civil aviation security assurance in France, Romania and the Russian Federation in order to make a comparative analysis of the different approaches to the process of preventing and combating risks and threats to civil aviation security.

It also analyzes the mechanisms and legal instruments for harmonizing the national legislation of the Republic of Moldova in the field of civil aviation with the standards and requirements of the European Union in the segment of ensuring the security of civil aviation.

Paragraph 3.1. *"International Legal Regulation of Air Corridor Security"*. The organization of airspace is designed to determine the optimal (permissive and prohibitive) conditions for use. Establishing the airspace structure in this way is the basis for all subsequent regulation of the practical use of airspace. The airspace structure is understood as a set of zones, corridors and other

elements delimited by height and territory, ensuring planning and coordination of airspace use, direct control of aircraft flights, safety and regularity of air traffic.

In establishing the airspace structure, geographical and politico-administrative boundaries, overflight characteristics, terrain relief, availability and characteristics of technical means, dynamic characteristics and characteristics of aircraft air and ground navigation and overflight equipment, particularities of the legal status of ground objects, etc. are analyzed.

Assessing the robustness of air transport networks when faced with random errors and intentional attacks is therefore an important issue in civil aviation security research.

Subchapter 3.2. "*The Institutional System for Ensuring Civil Aviation Security in the US, UK and Australia*" reflects the analysis of the institutional system and the main elements of the legal system for regulating civil aviation operations on the one hand and the legal mechanisms and instruments on the other hand in countries whose experience is proving to be useful in achieving the objective of ensuring civil aviation security.

The situation in the field of aviation security in the US has changed since 11 September 2001.

The experiences of the US in adopting and implementing legal rules on preventing and combating terrorism in general, and aviation terrorism in particular, serve as an example and inspiration for many national legal systems. The US also provides a number of legal and institutional solutions to ensure the security of civil aviation.

The Civil Aviation Security Authority, in collaboration with other government agencies, is responsible for external intelligence and threat assessment of criminal acts against domestic and international aviation. It is also responsible for the research and development of security equipment and the provision of technical assistance.

The US provides a classic example of creating an effective institutional system for combating aviation terrorism in particular and for ensuring the security of civil aviation in general.

Unlike the US Federal Aviation Administration (FAA), the UK Department for Transport is not directly responsible for research and development of security equipment or threat assessment, but the Civil Aviation Authority (CAA), which is responsible for regulating aviation security activities.

Australia has adopted and enforces a comprehensive system of aviation security measures and aviation protection against terrorism and other acts of unlawful interference. This approach is based on the principle of "advanced security", which means the higher the level of security, the lower the chances of an attack.

Paragraph 3.3. "*Responsible Institutions and Legal Mechanisms for Ensuring Civil Aviation Safety in France, Russian Federation and Romania*" analyses the good practices of



France, Romania and the Russian Federation in the field of airspace management in general and the process of strengthening the legal mechanisms for ensuring civil aviation safety in particular, which are of particular interest for the Republic of Moldova and are analyzed in a multi-aspectual manner in this paragraph.

Being directly affected by aviation terrorism, the French institutional and legal system responsible for ensuring civil aviation security is characterized by rigidity, complexity and omnipresence of the state and its representatives at all stages of the process of production and operation of aircraft and the airport system.

According to available data, France is a country that is substantially affected by the negative effects of terrorism, especially in comparison with European countries, including in the civil aviation security segment.

Civil aviation security in Romania is legally based on rules developed by national institutions, European and international organizations with responsibilities in this field. Security control, an integral part of this system, falls under these regulations.

In Romania, the Romanian Civil Aviation Authority is the specialized technical body and operates independently from civil aviation agencies and other entities subject to civil aviation safety oversight and/or civil aviation security quality control and exercises independently its function of civil aviation safety oversight at national level, as well as the tasks of competent authority in the field of civil aviation and civil aviation security by delegation granted by the Ministry of Transport and Infrastructure.

The Russian Federation is also actively fighting terrorism, including in the field of aviation. Russia is committed to implementing all provisions of international conventions in the field of international air law into its national legislation.

Subchapter 3.4. *"Instruments and Procedures for Harmonization of National Legislation with European Union Standards in the Segment of Ensuring Civil Aviation Security"* analyses the legal and institutional algorithms for harmonization of the legislation and institutional system of the Republic of Moldova responsible for civil aviation management and ensuring civil aviation security.

The process of harmonization of legislation includes methods and techniques for transposition of European Union norms into national legislation, their incorporation into the national legal system and the process of implementation, which manifests itself in the realization of individual rights or the assumption of concrete obligations. Harmonization of legislation is the alignment of Member States' laws, regulations and administrative rules with EU law.

Harmonization of the legislation of the Republic of Moldova with the legislation of the European Union is a continuous process, which aims at integrating the legislation of the European

Union into the internal legal order, in accordance with the commitments undertaken by the Republic of Moldova in the framework of bilateral agreements concluded with the European Union, the Government's action plans, as well as the legislative programs of the Parliament.

The Republic of Moldova continues to strengthen its national legislation in the field of ensuring national security in general and civil aviation security.

### 3. GENERAL CONCLUSIONS AND RECOMMENDATIONS

Following our research on international legal regulation of civil aviation safety processes, we draw the following conclusions:

1. States and international intergovernmental organizations, especially those of a regional character, make concerted efforts to ensure the consistent realization of the principle of exclusive state sovereignty over its airspace, and private companies and international non-governmental organizations created by them align their efforts around the goal of realizing in practice the nine freedoms of the air which indirectly diminish or at least substantially affect the sovereign right of the state over the operation of its airspace.

This dilemma, formulated only at the academic level, but recognized by all subjects of social relations related to the exploitation of airspace, is one of the main impediments in the process of formulating and implementing international standards in the field of civil aviation in general and requirements in the field of ensuring the safety of civil navigation in particular.

Following a systemic analysis of the international normative acts underlying the regulation of civil aviation, it should be pointed out that each subsequent convention, after the Chicago Convention, tacitly and indirectly, irreversibly diminishes what is called the principle of sovereign state control over its own airspace. International standards and requirements in the field of ensuring civil aviation security, built around the principle of freedom of movement in the airspace and the nine freedoms of the air, limit state mechanisms and instruments of control over civil aviation in order to ensure the security of civil air navigation.

Another unresolved issue in the field of legal regulation of civil aviation is the height limit of national airspace. Despite the existence of a customary limit, technical and scientific progress already makes it possible to operate aerial devices at very high altitudes, including above the customary limit of 100-120 km. Hypothetically, aircraft flying at this height could achieve the objective of creating a common and unrestricted airspace, i.e. the much coveted single market in air transport services could be built, except for the limits imposed by the exercise of sovereign control of national airspace.

In this respect, a new international convention should be adopted which would expressly regulate the conditions for the exploitation of outer space as an integral and free space for exploitation for exclusively peaceful purposes, which would allow the implementation of the results of the technical and scientific progress already existing in this field and would contribute to the development of the civil aviation industry by taking it to another level, confirming the fact that in this field, legal regulation anticipates social relations subject to regulation or regulates social relations that are to arise.

However, it should be pointed out that the deetatisation of security and the promotion of the interests of private companies focused exclusively on making profit entails a set of risks and threats to the security of civil aviation that can only be prevented and resolved, for the time being, through the existing international legal and institutional system and state paradigm.

2. Since the Paris civil aviation legal regulation initiative of 1919, both the effects of the two world wars, which provided consistent arguments for a sovereign approach to airspace exploitation, and the Bermuda I and Bermuda II agreements, which materialized attempts to liberalize world airspace, are indispensable elements of the historical evolution of the civil aviation legal regulation process.

The process of creating the European Union as a supranational structure directly influenced the regulatory system for airspace regulation by transferring the negotiating power from the Member States to the Commission of the European Union, which has not only increased capacity and strengthened the negotiating arguments and ensured the adoption of standards and requirements for ensuring civil aviation security for the entire global airspace, but has also led to the consolidation of efforts not only to achieve "open skies" agreements, which have boosted the development of the civil aviation industry, but have also made it possible to standardize the rules for preventing and combating the negative effects of risks and threats to civil aviation security.

3. Thanks to the achievements of scientific and technical progress, aviation security is becoming increasingly easier to ensure and aircraft, especially commercial aircraft, are among the safest forms of transport available. In aviation in the wider sense, risk is not just about air accidents or incidents, even though these always generate significant media coverage.

International cooperation in the field of civil aviation security is carried out at the following levels: cooperation within corporate associations, within national and international aviation associations, within international federations of national associations, within industry/government groups and activities of international aviation security bodies.

To meet aviation safety requirements, a number of organizations and institutions have been established at global, regional and local levels to develop common rules, regulations, standards and procedures on safety issues and to oversee their implementation in the aviation industry. The International Civil Aviation Organization (ICAO) is the main international organization in this field.

Attempts to politicize decision-making processes in international and regional civil aviation organizations, especially within ICAO, negatively influence the process of achieving statutory objectives and substantially reduce the speed and quality of decision-making, which negatively affects the algorithm for the application of legal rules to ensure civil aviation safety.

4. The measures adopted at regulatory and institutional level to prevent and combat terrorism are necessary but not sufficient to eliminate this major risk to civil aviation security. We believe that the most important element is to disavow or eliminate the similarities and assimilations between the struggle for the liberation of a people from colonial, racial or discriminatory domination and terrorist attacks on civil aviation security in general, by attacking airport infrastructure, and on civil aviation security in particular, by hijacking aircraft.

We believe that the priority objective of the international community in the process of preventing and combating aviation terrorism is to adopt positions, attitudes and legislation to ensure that this distinction is understood and realized.

Aviation terrorism is the most "effective" form of terrorism in terms of spreading fear and lack of confidence among the beneficiaries of aviation services in the ability of states and international intergovernmental organizations to deal with this danger, which motivates those concerned to resort to this particular form of modern terrorism. This underlines the need for legal and institutional mechanisms to prevent and combat aviation terrorism similar to the supranational system of the European Union.

In our view, only such an approach can provide the response and the security guarantees that all affected subjects within the civil aviation industry need and without which the provision of civil aviation security cannot be fully realized.

Ensuring the security of civil aviation in general and of the beneficiaries of these services in particular has been a priority for the supranational decision-making system of the European Union. After the tragic attacks of 11 September 2001, the European Union realized the importance and necessity of adopting a uniform system of Regulations for the prevention of unlawful acts in civil aviation. Prior to this date, in fact, each Member State was individually responsible for security legislation relating to air transport.

Existing EU regulations in the field of civil aviation safety are sufficient to achieve the objectives set. The irony and cynicism of the situation under consideration is that the mere occurrence of a tragedy through a terrorist act always precedes the exemplary mobilization and express operational regulation of concrete situations that can prevent terrorist attacks.

The example set by the European Union in the process of drafting and implementing rules aimed at preventing and combating aviation terrorism can and must serve as an example of good practice for all countries around the world. The regional, segmented or individual approach in the fight against aviation terrorism is proving to be temporary and ineffective.

5. The global internet network creates not only interdependence and interoperability, but also the danger of unauthorized connections or intentional attacks on software, airport route management systems and air flights in order to create panic. Cyber security is the big challenge. It

is well known that it is more effective to prevent than to solve a problem, but these actions require resources and will. In terms of the legal regulation of social relations relating to the exploitation of cyberspace, the existing legal rules are outdated.

We believe that the existing legal acts formulate as clearly as possible the basic principles of the process of ensuring the security of civil air navigation. Hyperconnectivity and access to the Internet by an increasing number of beneficiaries are presented by aviation experts as the major challenges for the technical and cyber security of airport systems and civil aviation.

6. The negative effects of the Covid-19 pandemic on civil aviation can be summed up as substantial limitation or complete cessation of flights, causing panic and the imposition of draconian on-board access rules, causing passengers to distrust air transport, resulting in negative and irreversible systemic economic consequences for some economically weak countries and for some civil aviation companies, regardless of their place in the aviation industry's lifecycle, from aircraft manufacturers, to logistics companies, to adjacent service providers, to flight operators. In this respect, every state in the world should play a leading role in restoring national air transport. At the same time, states must offer comfortable compensation to all air carriers operating in the face of severe restrictive measures and serious market decline.

The conclusion to be drawn from the analysis of these data is that the existing systems are not capable of anticipating this type of hazard and cannot develop legal and institutional mechanisms to prevent its negative effects. Initially, there were attempts to declare the normative system of international air law in particular, and of public international law in general, incapable of meeting the challenge, non-existent and outdated. However, we can readily see, that the basic rules of international air law are being respected and implemented, and the international institutional system of civil aviation management has withstood the blow dealt by the Covid-19 pandemic and continues to identify technical and legal measures and tools to overcome the negative effects and to recover the situation in the aviation industry to 2019 indicators.

As strange as it may not seem, but the pandemic has had some positive effects through: the focus on the technical and legal system for ensuring civil aviation safety, the elimination of low-paying players who cannot afford to implement the much more efficient and costly technological and cyber requirements, and the demonstration to all public and private players in the civil aviation industry of the need for the existence and development of ICAO as the main exponent of the international institutional system for civil aviation and the importance of strict compliance with the regulations governing civil aviation safety.

7. The security of air routes, as an inherent part of the complex structure of instruments and employees ensuring the safe and rapid movement of an ever-increasing number of people and

cargo, is one of the main priorities not only of the competent national bodies, but also of intergovernmental and non-governmental structures aiming at the safe use of airspace.

At present, the creation and management of air routes cannot be effectively achieved through a national regulatory structure alone. The specifics of airspace structure and management require governments to cooperate to ensure the stability, robustness and safety of both air routes in particular and air traffic in general.

8. The US and the UK also have structures in place to assess the level of safety and security within the airport systems of other countries serving their citizens. In addition to responsible structures, financial and human resources, these States also have legal mechanisms in place to cooperate with these airports to ensure security or to cease cooperation if the airport is unable or unwilling to implement the rigors of ensuring civil aviation security to the standards required by the US and the UK.

France, the Russian Federation and Romania, throughout the historical development of their national regulatory and institutional systems for ensuring the safety of civil air navigation, have mainly advocated maintaining and defending the principle of sovereign state control over its own airspace. The experience of France and Romania as Member States of the European Union and of the Russian Federation as the de jure successor of the USSR provides examples of necessary and useful practices for the national legal and institutional system for ensuring the safety of civil aviation in the Republic of Moldova.

We consider it necessary to mention that the direct and formal adoption of some experiences, including in the field of civil aviation security, may not be the most efficient way to harmonize national legislation with some standards. Assimilation through a careful approach to the specifics of each system, highlighting and modelling of regulatory provisions, legal mechanisms and implementation tools would substantially increase the speed of assimilation and its effectiveness, to the detriment of formalism and quantitative approach to this complex and extremely important process for the Republic of Moldova.

**The solved scientific problem** consists in elucidating and arguing the imperative to build a regulatory and institutional system to prevent and combat the risks and threats to the security of civil air navigation generated by established dangers such as terrorist actions and the latest ones caused by the Covid-19 pandemic and cyber attacks, by realizing that civil aviation security is the basic precondition for the existence of civil aviation in general, and that the apparently divergent interests of public and private actors and the organizations and associations created by them are to be overcome in order to give civil aviation a new chance to recover and develop in a secure environment for all beneficiaries.

The research suggests the following **recommendations**:

1. We consider it necessary to establish, under the aegis of ICAO, legal mechanisms and instruments whose applicability would be attributable to all public and private actors operating in civil aviation, in the field of preventing and combating aviation terrorism, as an intrinsic condition for the use of airspace.

2. The creation of specific elements of the international civil aviation management institutional system with special competences in the field of preventing and combating the effects of pandemics or the elaboration and adoption of a special convention do not serve as effective solutions to the dangers posed by the Covid-19 pandemic. Aligning the efforts within ICAO of all stakeholders, analyzing the experiences of the fight against Covid-19 for the civil aviation industry, developing useful and practical standards and experiences, and ensuring their implementation based on the principles of international civil aviation law would be the strictly necessary steps to be taken at this time.

3. Developing ideal software that would be immune to cyber attacks is only a theoretical goal. Only by realizing the value and scale of the challenge posed by the new operating space and aligning efforts within ICAO to formulate forward-looking requirements and algorithms for action in the event of a cyber-attack on a template, would provide a further opportunity in the inevitable battle between those interested in ensuring the security of civil aviation and potential hackers, terrorists or others interested in causing damage to the civil aviation system or causing panic and diminishing confidence in the competent national and international bodies responsible for ensuring the cyber security of civil aviation.

4. We consider it necessary to develop, in addition to the technical requirements and guidelines on the technical segment of preventing and combating cyber attacks and a general methodology for qualifying illegal actions in cyberspace, methods and tools for detection and qualification, especially in the field of ensuring the security of civil aviation.

5. It is absolutely necessary to be aware of the spatial and temporal parameters in the cyber environment in order to understand that the challenges to the existing legal system are crucial. Thus, existing international legal regulations cannot cope with this kind of challenges. Therefore, we consider it necessary to align the efforts of stakeholders to develop clear guidelines within ICAO that could avoid or mitigate the shock generated by cyber-attacks, and punishment is a necessary but not sufficient element to ensure compliance. At the time of writing, there are no uniform standards for qualifying and punishing cyber attacks.

6. Another issue is ensuring the practical implementation of EU and national regulatory provisions and direct implementation, which is in most cases the responsibility of airlines. This poses a major challenge to the efficiency of the implementation process of EU regulatory provisions at national level of Member States.



In our opinion, the general solution would be, in addition to ensuring compliance with EU legislation by the responsible structures and sanctioning those who do not comply, to stimulate and motivate companies that implement in an exemplary manner the regulatory provisions related to ensuring civil aviation security, by offering facilities and exemption from some taxes or parts of taxes they pay, depending on the degree of achievement of specific standards in the field of ensuring civil aviation security.

7. Large private companies and States that can afford such financial efforts, should establish a system of training of personnel in the field of civil aviation cybersecurity assurance and ensure the training of the necessary number of qualified personnel free of charge for all ICAO Member States, namely due to the hyperconnectivity and interoperability, which is the essence of the global network challenge and the underlying vulnerability of national civil aviation cybersecurity assurance systems.

The Romanian institutional and legal system of airspace management is characterized by the complexity and hierarchy of the elements of the institutional system, harmonized with the European Union standards and aligned with international requirements. In this respect, we consider it absolutely necessary for the Republic of Moldova to take over Romania's experience both in building the national system for ensuring civil air navigation safety and in the process of harmonizing it with the European Union's institutional and legal system.

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## ADNOTARE

### La teza de doctor în drept a Domnului Bria Feodor „Reglementarea juridică internațională a securității navigației civile aeriene” Universitatea Liberă Internațională din Moldova, Chișinău, 2023

**Structura tezei.** Teza cuprinde: introducere, 3 capitole, concluzii generale și recomandări, bibliografia din \_\_\_ surse, text de bază \_\_\_ pagini. Rezultatele obținute sunt reflectate în 8 articole științifice.

**Cuvinte cheie:** drept internațional public, aviația civilă, securitatea navigației, riscuri și amenințări, reglementare juridică internațională, combaterea terorismului, securitatea cibernetică, pandemia Covid-19.

**Domeniul de studiu** este cercetarea prevederilor normative naționale și internaționale de drept internațional public ce țin de reglementarea juridică a prevenirii și combaterii riscurilor și amenințărilor generate de terorism, atacuri cibernetice și pandemia Covid-19 asupra securității navigației civile aeriene.

**Scopul lucrării** este de a analiza sistemul instituțional internațional și național și reglementarea juridică a proceselor complexe de prevenire și combatere a riscurilor și amenințărilor asupra securității navigației civile aeriene generate de fenomenul terorist, pandemia de Covid-19 și atacurile cibernetice atât asupra sistemului aeroportuar și a coridoarelor aeriene, cât și asupra beneficiarilor acestor servicii în vederea asigurării respectării întocmai a prevederilor tratatelor internaționale în domeniul asigurării securității aviației civile.

**Obiectivele cercetării:** Analiza raportului dintre principiile suveranității complete și exclusive a statului în spațiul său aerian și cel al libertății survolurilor aeronavelor în spațiul aerian internațional în procesul de realizare a principiului asigurării securității navigației civile aeriene; Determinarea evoluției și procesului de codificare a normelor universale și regionale privind asigurarea securității aviației civile aeriene; Elucidarea structurii, funcțiilor și atribuțiilor organizațiilor internaționale în domeniul asigurării securității navigației civile aeriene; Cercetarea mijloacelor juridice și instituționale de prevenire și combatere a terorismului drept risc asupra securității aviației civile; Analiza protecției juridice a securității cibernetice a aviației civile; Stabilirea impactului pandemiei Covid-19 asupra sistemului normativ și instituțional de asigurare a securității aviației civile; Aprecierea reglementării juridice internaționale a securității coridoarelor aeriene; Reflectarea tendințelor actuale, bunelor practici și mecanismelor juridice de armonizare a legislației naționale cu standardele Uniunii Europene în materie de asigurare a securității navigației civile aeriene.

**Noutatea și originalitatea științifică** rezidă în faptul că teza constituie un studiu amplu în cadrul căruia se cercetează reglementarea juridică a mecanismelor și instrumentelor juridice ce țin de prevenirea și combaterea efectelor negative ale terorismului, atacurilor cibernetice, pandemiei generate de virusul Covid-19 și alte riscuri și amenințări la adresa securității navigației civile aeriene, prin analiza complexă a evoluției prevederilor normative internaționale în domeniul aviației civile și a practicilor relevante la nivel național ce țin de asigurarea eficienței sistemului instituțional de asigurare a securității aviației civile,

**Rezultatele obținute care contribuie la soluționarea unei probleme științifice importante** constă în elucidarea și argumentarea necesității și importanței elaborării unor mecanisme juridice și sisteme instituționale compatibile la nivel național și internațional ce ar asigura eficiența procesului de prevenire și combatere a riscurilor și amenințărilor moderne asupra securității coridoarelor aeriene, a infrastructurii aeroportuare și a beneficiarilor serviciilor prestate în domeniul aviației civile aeriene, *în vederea fundamentării unei abordări comprehensive și sistemice a tuturor actorilor implicați în procesul de asigurare a securității navigației civile aeriene.*

**Semnificația teoretică a cercetării** constă în realizarea unui studiu amplu asupra prevederilor normative naționale și internaționale în ceea ce ține de mecanismele și instrumentele juridice și sistemele instituționale naționale și internaționale de asigurare a securității navigației civile aeriene.

**Valoarea aplicativă a lucrării** se materializează prin posibilitatea de a utiliza atât materialul factologic cât și cel analitic pentru a suplini materialele didactico-științifice necesare pentru instruirea studenților de la facultățile de drept și pentru a facilita procesul de elaborare a reglementărilor juridice asupra procesului de prevenire și combatere a riscurilor și amenințărilor asupra securității aviației civile aeriene.

**Implementarea rezultatelor științifice.** Rezultatele cercetării realizate au fost prezentate în cadrul lucrărilor a două conferințe științifice internaționale și au fost reflectate în textul a trei articole științifice publicate în revistele de profil din țară, unul în revistă științifică din afara țării și două articole publicate în materialele conferințelor naționale.

## ANNOTATION

**On the doctoral thesis of Mr. Bria Feodor  
"International Legal Regulation of Civil Aviation Safety"  
Free International University of Moldova, Chisinau, 2023**

**Thesis structure.** The thesis includes: introduction, 3 chapters, general conclusions and recommendations, bibliography from \_\_\_ sources, basic text \_\_\_ pages. The results obtained are reflected in 8 scientific articles.

**Keywords:** public international law, civil aviation, aviation security, risks and threats, international legal regulation, counter-terrorism, cyber security, Covid-19 pandemic.

**The field of study** is the research of national and international normative provisions of public international law related to the legal regulation of preventing and combating risks and threats generated by terrorism, cyber attacks and the Covid-19 pandemic on civil aviation security.

**The aim of the thesis** is to analyze the international and national institutional system and the legal regulation of the complex processes of preventing and combating the risks and threats to civil aviation security generated by the terrorist phenomenon, the Covid-19 pandemic and cyber attacks both on the airport system and air corridors and on the beneficiaries of these services in order to ensure full compliance with the provisions of international treaties in the field of civil aviation security.

**Research objectives:** To analyze the relationship between the principles of complete and exclusive sovereignty of the state in its airspace and that of freedom of overflight of aircraft in international airspace in the process of realization of the principle of ensuring civil aviation security; To determine the evolution and codification process of universal and regional rules on ensuring civil aviation security; To elucidate the structure, functions and duties of international organizations in the field of ensuring civil aviation security; Investigation of legal and institutional means of preventing and combating terrorism as a risk to civil aviation security; Analysis of legal protection of civil aviation cyber security; Determination of the impact of the Covid-19 pandemic on the regulatory and institutional system of civil aviation security assurance; Assessment of international legal regulation of air corridor security; Reflection of current trends, best practices and legal mechanisms of harmonization of national legislation with European Union standards in civil aviation security assurance.

**The novelty and scientific originality** lies in the fact that the thesis is a comprehensive study which investigates the legal regulation of legal mechanisms and instruments related to preventing and combating the negative effects of terrorism, cyber attacks, the pandemic generated by the Covid-19 virus and other risks and threats to civil aviation security, through a complex analysis of the evolution of international regulatory provisions in the field of civil aviation and relevant practices at national level related to ensuring the effectiveness of the institutional system for ensuring civil aviation security.

**The results obtained, which contribute to the solution of an important scientific problem,** consist in elucidating and arguing the necessity and importance of developing compatible legal mechanisms and institutional systems at national and international level that would ensure the efficiency of the process of preventing and combating modern risks and threats to the security of air corridors, airport infrastructure and beneficiaries of services provided in the field of civil aviation, *in order to provide the basis for a comprehensive and systemic approach of all actors involved in the process of ensuring civil aviation security.*

**The theoretical significance of the research** consists in carrying out a broad study of national and international regulatory provisions concerning national and international legal mechanisms and instruments and institutional systems for ensuring civil aviation safety.

**The applicative value of the thesis** is materialized by the possibility of using both the factual and analytical material to supplement the didactic-scientific materials necessary for training students at law faculties and to facilitate the process of developing legal regulations on the process of preventing and combating risks and threats to civil aviation security.

**Implementation of scientific results.** The results of the research carried out were presented in the proceedings of two international scientific conferences and were reflected in the text of three scientific articles published in national journals, one in a foreign scientific journal and two articles published in national conference materials.

## АННОТАЦИЯ

О докторской диссертации г-на Бриа Феодора

"Международно-правовое регулирование безопасности гражданской авиации"

Международный независимый университет Молдовы, Кишинев, 2023 г.

**Структура диссертации.** Диссертация включает: введение, 3 главы, общие выводы и рекомендации, библиографию из \_\_\_ источников, основной текст \_\_\_ страниц. Полученные результаты отражены в 8 научных статьях.

**Ключевые слова:** международное публичное право, гражданская авиация, авиационная безопасность, риски и угрозы, международно-правовое регулирование, противодействие терроризму, кибербезопасность, пандемия Ковид-19.

**Область исследования** - изучение национальных и международных нормативных положений международного публичного права, связанных с правовым регулированием предупреждения и борьбы с рисками и угрозами, порождаемыми терроризмом, кибератаками и пандемией Ковид-19, на безопасность гражданской авиации.

**Цель исследования** - анализ международной и национальной институциональной системы, и правового регулирования сложных процессов предупреждения и борьбы с рисками и угрозами безопасности гражданской авиации, вызванными террористическим феноменом, пандемией Ковид-19 и кибератаками как на систему аэропортов и воздушных коридоров, так и на получателей этих услуг, для обеспечения полного соответствия положениям международных договоров в области безопасности гражданской авиации.

**Объективы исследования:** Проанализировать соотношение принципов полного и исключительного суверенитета государства в своем воздушном пространстве и свободы пролета воздушных судов в международном воздушном пространстве в процессе реализации принципа обеспечения безопасности гражданской авиации; Определить эволюцию и процесс кодификации универсальных и региональных правил по обеспечению безопасности гражданской авиации; Выяснить структуру, функции и обязанности международных организаций в области обеспечения безопасности гражданской авиации; Исследование правовых и институциональных средств предупреждения и борьбы с терроризмом как риском для безопасности гражданской авиации; Анализ правовой защиты кибербезопасности гражданской авиации; Определение влияния пандемии Ковид-19 на нормативно-правовую и институциональную систему обеспечения безопасности гражданской авиации; Оценка международно-правового регулирования безопасности воздушных коридоров; Отражение современных тенденций, лучших практик и правовых механизмов гармонизации национального законодательства со стандартами Европейского Союза в области обеспечения безопасности гражданской авиации.

**Новизна и научная оригинальность** заключается в том, что диссертация представляет собой комплексное исследование, в котором на основе комплексного анализа эволюции международных нормативных положений в области гражданской авиации и соответствующей практики на национальном уровне, связанной с обеспечением эффективности институциональной системы обеспечения безопасности гражданской авиации, исследуется правовое регулирование правовых механизмов и инструментов, связанных с предупреждением и борьбой с негативными последствиями терроризма, кибератак, пандемии, порожденной вирусом Ковид-19, и других рисков и угроз безопасности гражданской авиации.

**Полученные результаты, способствующие решению важной научной проблемы,** заключаются в разъяснении и аргументации необходимости и важности разработки совместимых правовых механизмов и институциональных систем на национальном и международном уровне, которые бы обеспечили эффективность процесса предупреждения и борьбы с современными рисками и угрозами безопасности воздушных коридоров, инфраструктуры аэропортов и бенефициаров услуг, предоставляемых в сфере гражданской авиации, с целью создания основы для комплексного и системного подхода всех субъектов, вовлеченных в процесс обеспечения безопасности гражданской авиации.

**Теоретическая значимость исследования** заключается в проведении широкого исследования национальных и международных нормативных положений, касающихся национальных и международных правовых механизмов, и инструментов, а также институциональных систем обеспечения безопасности гражданской авиации.

**Прикладное значение работы** заключается в возможности использования как фактического, так и аналитического материала для дополнения дидактико-научных материалов, необходимых для обучения студентов на юридических факультетах, а также для облегчения процесса разработки нормативно-правовых актов по процессу предупреждения и противодействия рискам и угрозам безопасности гражданской авиации.

**Внедрение научных результатов.** Результаты проведенных исследований были представлены в материалах двух международных научных конференций и отражены в тексте трех научных статей, опубликованных в отечественных журналах, одной в зарубежном научном журнале и двух статей, опубликованных в материалах национальных конференций.

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**SUMMARY of the PhD thesis**

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