

# AIR NAVIGATION SAFETY AND SECURITY PROBLEMS

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**Abstract:** *International ICAO standards assume that there is national responsibility for the safety of air navigation, while demanding functional separation of regulatory from operational functions. Regulators and operators of air navigation are recognized by all services and all eligible institutions, regardless of the modes of organization and ownership structure - government authorities, the incorporated organizations (companies) and military authorities. In contrast to the ICAO, as an organ of the United Nations, the European Commission has set out the terms of separation of national authorities and providers (service providers - operators) or regulatory and operational organization, by which it prejudices the corporatization and privatization. As these regulations were adopted by the European Ministerial Conference (ECAC,) they can be considered valid for the European countries which are not members of the Union. However, security as a primary function of air traffic services could be compromised by corporatisation and privatization of the system.*

**Keywords:** *air navigation, safety, security, corporatization, ICAO.*

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## 1. INTRODUCTION

The term “security” is now used to denote a much broader concept than its original meaning (freedom from fear, threats and physical violence) because it implies the desired state of the system, which is achieved by eliminating the threats and risks that come from outside the system. For example, reaching the safety of air navigation involves advance reaching of security in its systems, especially air traffic safety. The unique theoretical and scientific approach to security points to the need that the process of identifying potential hazards and risk management should be uniquely linked through all system functions.

Historically, safety of air traffic is focused on compliance with the increased complexity of regulatory requirements. This approach used to work well until the late seventies, when the rate of accidents had been declining. Accidents still occurred, despite all the rules and

regulations. This approach to safety was pro-reactive regarding undesirable events by prescribing measures to prevent recurrence.

Instead of defining new processes and desirable standards, this approach is aimed at ensuring minimum standards achieved. Specifically, the overall rate of fatal accidents of  $10^{-6}$  (one fatal accident per million flights), using this approach, it would be very difficult to achieve future improvements to security. To maintain security risks at an acceptable level, while increasing the level of activity, contemporary practice is moving from poor reactive to more proactive fashion.

Proactive approach to security includes active involvement of staff, developing of their security awareness as bearers of safety of air navigation, and acceptance of institutional professional bodies of security as a service for achieving security objectives and should lead to the establishment of security culture and creation of safety environment or positive perception of security as a given condition.

## 2. FUNCTIONS OF SECURITY IN AIR NAVIGATION

As one of the most important sources of international law, the Chicago Convention provides that the regulation of civil aviation security is a national responsibility. Of course, each state has exclusive sovereignty over the airspace above its territory. Each State Party is required to ensure the safety of its equipment for air navigation and, as soon as possible, compliance of their activities with those established by ICAO. [1]

To meet this obligation from the jurisdiction of the state, it is necessary to organize, by international standards, adequate services with defined functions on the implementation of air navigation safety. ICAO accepts and determines two basic functions defined in the national responsibility for the safety of air navigation, including: **regulatory function**, which includes legal, bylaw and technological regulation, control and supervision of the implementation of regulations, and **so-called provider function**, which involves directly carrying out the tasks of air navigation services.

Traditionally, such services are provided by the state, usually through civil or military aviation authorities. However, the civil aviation authorities in some countries have revealed potential conflicts of interest in the dual role of the state as regulator and provider. In addition, some countries believe that the operational efficiency and economy would benefit from the corporatization of some of these services, in particular air traffic services and airports. As a result there is the increase in the number of states that have delegated the responsibility of some of these services. [2]

In this context, it is acceptable that the primary responsibility for the security service of air traffic management lies with the service provider.[3] Provider, in this context, means the authorities and organizations which perform operational tasks or directly provide services within the jurisdiction of air navigation services. In addition to the clear separation and conditioning of establishing regulatory and providers' functions, ICAO respects the existence of a third function that the states still keep as an independent state office of aeronautical **inspection**.

From the foregoing description it can be concluded that the establishment of international standards for the separation of regulatory functions from providers' essentially performs a kind of deregulation of security responsibility of the state, determined by the Chicago Convention. Executive authorities and air navigation services, perform their security functions performed through a single-job execution by aviation personnel. This implies

that methods and procedures in the conduct of sensible security affairs by aviation personnel should be clearly and precisely defined.

Therefore, the responsibility for safety is determined at the level of the United Nations through the Chicago Convention, as a state jurisdiction, and the European recommendations, practices and regulations, it is deregulated to executive organs. In relation to set jurisdiction, responsibility should be clearly defined, too. However, the issue of accountability can be realistically perceived through the legal prosecution and sanctioning as a systemic reaction to instances of compromised safety of air navigation.

### 3. SAFETY IN CORPORATIZATION OF AIR TRAFFIC SERVICES

At the national level, security of services of air traffic management, that provide services to aircrafts, refers to two **primary security responsibilities** and functions, including: **management of safety**, as the responsibility of the organization that provides services, the so-called service-provider, and **regulation of safety**, as responsibility of national governments, and function which should, in the public interest, ensure that service providers meet minimum levels of security.

In most countries there is a third function for the establishment of an official and independent testing of accidents and serious incidents.[4] In relation to the ownership or management structure of each of air navigation services, the responsible managers are expected to implement a safety management system within their area of expertise. [2]

Organizations of air traffic services have traditionally been part of the state government. Usually governments are guarding almost every part of the commercial aviation, from regulation and air traffic control to national air carriers. In recent years, this policy has changed. There is a general tendency in Europe to separate providers (service providers) from air traffic controllers of security.

For example, Norway and Germany in 1999 established an independent monopoly of providers of air traffic services, which is regulated by the government. In the UK Civil Aviation the Regulatory Group is tasked with monitoring the activities of the national providers of air navigation services (National Air Traffic Services - NATS). In relation to the UK experience, institutional changes may mean that the regulatory authority orders the implementation of the Programme of safety management into a regulated organization.[5]

Service provision of air navigation services must, according to the international standards of ICAO, in order to maintain security as a basic imperative, remain a non-profit business, and the price of services provided should cover only the actual costs of the system. However, organizational changes described in these systems indicate the tendency of their commercialization which may be in conflict with the imperative of security. In that sense, this is offset by Eurocontrol which points out that "although the provision of air traffic services is not competitive job, the system of air traffic management works in a competitive environment, and therefore economic pressure from direct constituents of this system (airlines and airports), for the reduction of delays and cost cost while increasing capacity, can affect the safety."

That air navigation services, under the influence of the above factors, are moving away from security as its primary attributes, is indeed confirmed by the results of the survey [6] which was conducted by Eurocontrol with users that were asked to rank the attributes of air traffic services:

- reducing delays 64%
- lower cost 60%
- increase capacity 57%
- less direct route 40%
- security 21%

Air Navigation System includes multiple security protection. Accidents in such a system are usually the result of an unhappy combination of many systemic factors including culture, training, regulations, procedures, equipment, working conditions, personal and organization factors, etc. They contribute to human errors, each of which is a necessary but not sufficient alone to stop multiple layers of system protection. Aviation accidents and incidents are almost always associated with errors of personnel (pilots, mechanics, air traffic controllers, etc.) and / or equipment and the shortcomings of the system.

Analysis of important recent accidents in aviation and other industries of high technology suggest that it is imperative that the faults of operating personnel, as well as the shortcomings and equipment be perceived from a different level of human shortcomings in the decision-making process, which primarily occur in the administration sector. [7, 8, 9]

Human imperfections in decision-making is called "latent failures". It is about poorly designed equipment, neglect of identified safety deficiencies, poor training and selection of personnel, poor motivation of staff, and other defects that can cause visible consequences for a long time. They become evident when combined with active defects (which have an immediate adverse effect and are generally associated with operating personnel, technical problems or unfavorable conditions which result in stopping of the system of protection), produce accidents or incidents.[5]

#### 4. PRIVATIZATION OF AIR TRAFFIC SERVICE AND SECURITY

The very philosophy and the meaning of existence privatized corporations is higher income, profit and capital increase. Even these basic characteristics can be opposed to the primary function of security. The motivation of air traffic controllers could be primarily directed to additional stress for servicing of a larger number of aircraft upon which their income directly depends. In market competition that strain could be further increased by accepting the undisputable fact that he can easily be replaced by other more capable subjects. The interest of the owners and the desire for profit, with the least cost, is inclined towards maximum utilization of human and material resources, with as little investment as possible.

However, the state administration in air traffic control system is also not prone to maximum investment and constant modernization of the system that must accompany rapid technological advances, especially in the information field of automation in data processing. Further, states too can see in the financial aspects of this system is extremely valuable budget revenues, which is practically happening, and the possibility of independent control over spending of earmarked funds has been reduced compared to such control when corporate organizations are concerned.

Proactive approach to security and the institutionalization of an independent system safety management in the corporate environment, both represent the belief that the primary function of safety will be maintained at the highest level. However, although it has an irreplaceable value and very strong scientific foundation, when coupled with the political, military and economic background of European integration and regionalization as well as

forced incorporation of institutionalized security management could be taken as a formal substitute for state responsibility, which in regionalization slowly gives way other non-state actors.

If this assumption, for which the previous elements provide the basis, is confirmed in practice and system security management is established primarily for these reasons, it will only produce counterproductive effects and marginalize security. An additional reason for thinking in this direction is the fact that the head of the security is also part of the corporate structure which removes and appoints management of the organization, even if this indeed can be primarily distributed onto other system functions, such as regularity and efficiency of air traffic.

By the very nature of things, head of security must be proficient in both aviation and in the field of security; he must directly form that very organizational structure, and must answer directly to the management. Such a dilemma could be overcome by the right of the state body to appoint and set managers and security specialists, with the establishment of a functional relationship, both towards the leadership of the organization and with the appropriate authority.

Finally, these primary characteristics of privatized corporations, in terms of profits and capital increase, are contradicting the basic principles of ICAO and the provisions of the European Regulation on the provision of air traffic services, according to which these services operate unprofitable, while collected fees must be covered by a real and transparent system denominated costs and the surplus collected funds proportionally returned to service users. By contrast, the philosophy and the capital market business can not survive based on the non-profit principle.

## 5. CONCLUSION

Security as a primary function of air traffic services could be compromised by the privatization of the system. This attitude could refute the claim that the primary objective of safety in the system each airline whose corporatization and privatization does not diminish safety. However, the two systems should be compared, because – viewed comprehensively - airline security is a particular segment of the air transport system, responsible primarily for itself, while the air traffic system is security-wise responsible to others.

The immediate beneficiaries of the system of air traffic management perceive safety as its marginal attribute, which indicates that security - as a basic function of the system of air traffic - might be compromised by privatization. Further, the very philosophy and the meaning of existence privatized corporations - whose fundamental objective as higher wages, profit and the capital increase, with the least cost and maximum utilization of human and material resources – directly points to all this. These primary characteristics of the privatized corporations are contradictory to the fundamental principles of ICAO and to the EU rules on the profitability of the system. However, it was observed that the state administration in the system of air traffic management is also not inclined towards maximum investment. States can perceive the financial aspects of this system as extremely valuable for budget revenues; further, the possibility of independent control of earmarked spending of investment funds is reduced compared to such control when corporate organizations are concerned.

A solution that is offered in order to preserve security, is the belief that the primary function of safety will be maintained at the highest level through a proactive approach to

security and the institutionalization of an independent safety management system, based on risk management. However, in relation to the political, military and economic interest connotation of European strategic projects of regionalization, forced incorporation of institutionalized security management could be taken as a formal substitute for state responsibility that slowly gives way to a corporatised trans-national entities. If such a solution is insitucionalized - primarily for these reasons - scientifically based risk management might be misused and might fail to be accepted in the system as an imposed obligation. In this case, it could to be counter-productive and it might even marginalize security.

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