SECURITY SYSTEMS AT THE AIRPORT WITH ACCENT ON DATA LAYER SECURITY

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Abstract: *Great number of population use air terminals consistently. This presents potential attraction for terrorism and different types of wrongdoing. Correspondingly, the high convergence of individuals on huge carriers, the potential high passing rate with assaults on flying machine, and the capacity to utilize a seized plane as a deadly weapon might give a charming focus to terrorism.*

In this paper we will investigate air terminal security. It alludes to the systems and strategies which are utilized as a part of ensuring travelers, staff and flying machine which utilize the air terminals. Airplane terminal security incorporates assurance from inadvertent/vindictive damage, wrongdoing and other dangers. Airplane terminal security endeavors to keep any dangers or conceivably perilous circumstances from emerging or entering the nation. All things considered, airplane terminal security fills a few needs: To shield the air terminal and nation from any undermining occasions, to console the voyaging open that they are sheltered and to ensure the people using them.

It is necessary to comprehend the significance of security in each part of airplane terminal operations. It is entwined into the design fabric of airplane terminal operations - securing travelers, workers, data and base.

Convenient and precise database and programming upgrades are vital to guarantee operational proficiency.

Keywords: *airport, security, databases, security systems, security operations.*

Purpose and objective of research

Air transport is the transport sector, which is rapidly beginning to develop in the 20th century. Due to the specifics of the traffic branch, great attention is paid to safety. However, due to deregulation and liberalization of the market of air traffic safety aspects are becoming more complex, and represent a contradiction in relation to the economic aspects. The aim of any aviation organization, including the organization of air navigation is to provide services for which the organization was originally created.

The development of air transport, particularly with international character, has started to develop and regulations which are primarily based on safety. The regulation has been developed together with the technical development of aviation, and the rules were brought on the basis of analyzed accidents happened in the past.

The main purpose of this work is to study the safety management system at the international and national level. We will also consider the Research and development methodology that is based on security management. The impact of new technology is

to create a system that can perform quality control of security, but also the awareness of all employees to the implementation of high standards of safety in accordance with the characteristics of a safety culture.

The aim of this paper is to investigate the level of implementation of International Safety Management in air traffic control, and identify possible technological, operational and economic solutions to improve the safety management system.

1. **ICAO**

This topic is an important area of research for all experts dealing with safety of air traffic. The International Civil Aviation Organization (ICAO) defines the regulations, standards and guidelines for security management, as well as other relevant factors affecting the operation of the air traffic control. Also in the world there are a large number of non-governmental organizations dealing with the study of the problem of air traffic safety.

This includes relations between the security management system and quality management system, as well as the policy and objectives of security and methods of risk management security. Guarantee the security is intended to ensure a balance between meeting the goals of safety standards and goals of satisfying user to maintain an effective and efficient business organization.

Figure 1: The evolution of safety thinking (James Reason; ICAO 2009)
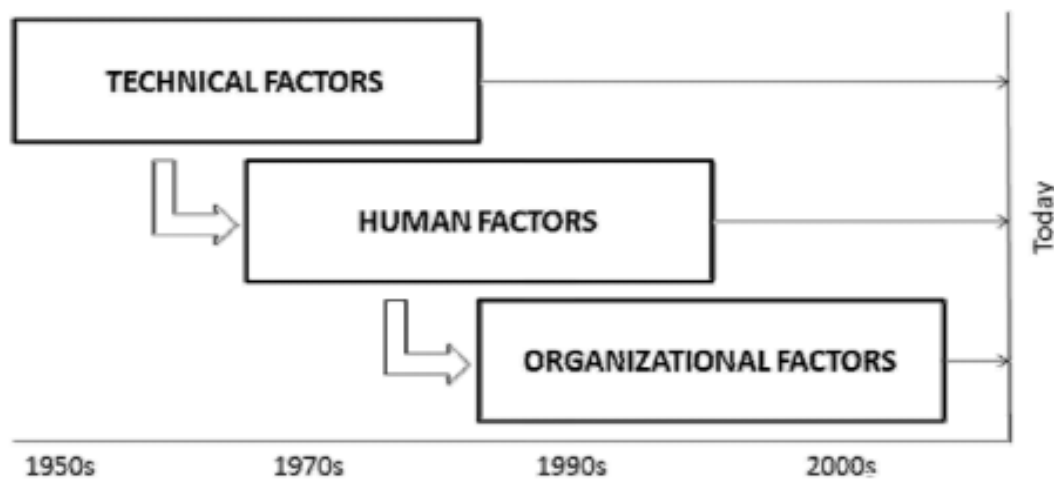
Also disclosed are methods of promoting safety achieved by training, i.e. High-quality and effective training and education which aims to develop professional and adequate staff in this business segment. For successful security management is of great importance and communication of safety among employees and beyond. We also researched and implementation process safety management system that takes place in four phases.

ICAO's summary explanation of safety:

"Safety is the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management." (ICAO 2009, Chapter 2.2.4).

The Parties to the Chicago Convention have pledged to implement the common accepted standards and recommended practices developed by ICAO, covering all aspects of aviation, including security. Standards and Recommended Practices have been developed in accordance to Article 37 of the Chicago Convention, to ensure the highest degree of equality regulations, standards, procedures and organization that regards the aircraft, personnel, airways and auxiliary services in cases that will improve aircraft navigation.

2.   **EUROCONTROL**

With regard to air safety is also an important European Organization for the Safety of Air Navigation shortly called EUROCONTROL. This is an organization established in 1960 to integrate and uniform administration of air traffic control in the upper airspace, and participates in the standardization of equipment and systems for controlling the air space, a unique education and training of staff of air traffic control.

The multilateral air movement administrations organizer, which executes much of the European Commission's strategy, is Eurocontrol. It is formally known as the European Organization for the Safety of Air Navigation. Eurocontrol is an global association, and started from the same hypothetical roots as much of Europe's multilateral air regulation (Balfour & Chataway, 2005).

Picture 1: EUROCONTROL Member States
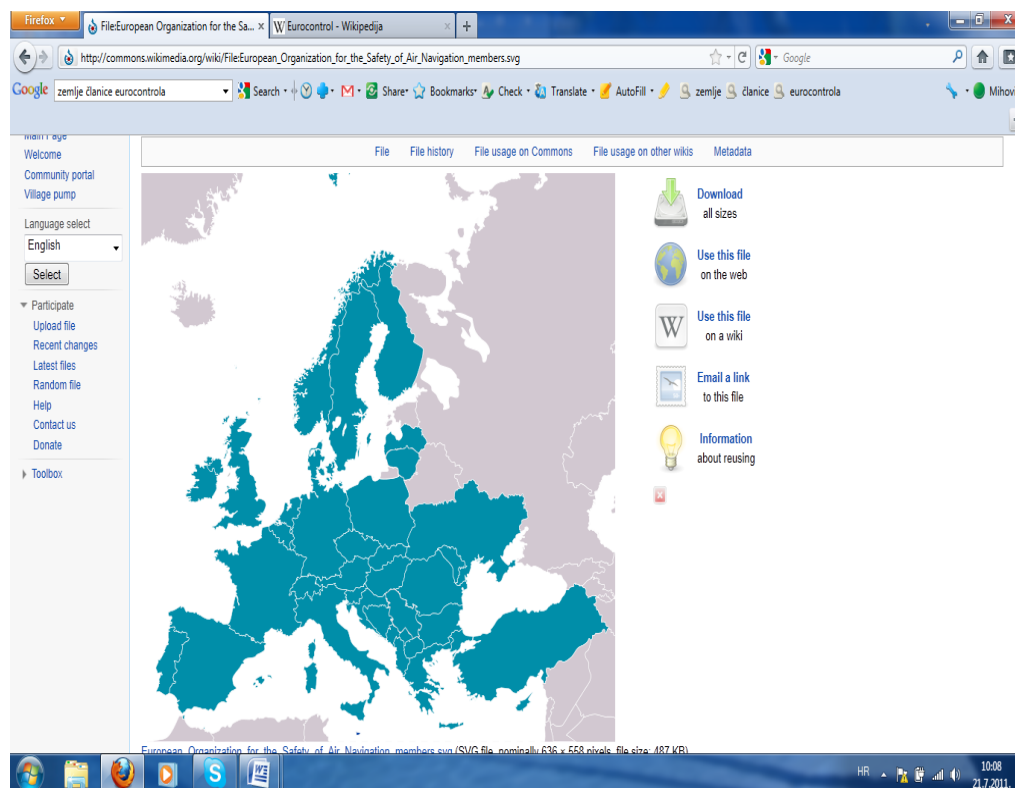
Also at the European level there are a number of organizations that participate and assist in the development and implementation of safety requirements and standards of civil aviation.

3.   **Heinrich's pyramid concept**

The first scientific papers related to the resolution of the problems of industrial safety can be attributed to H. W. Heinrich. In the book "Industrial accident prevention: Scientific Approach" (1931), it is explained the concepts of the triangle events. The concept known as "pyramid security" or "Heinrich pyramid". This concept is today used to illustrate the theory of causality by Heinrich. Unsafe practices can lead to minor incidents, and so far as they do not pay attention, they eventually can lead to serious incidents or accidents.

Picture 2: Heinrich, H.W. Industrial Accident Prevention – A Scientific Approach, 3rd Edition, 1950.

Heinrich pyramid security shows that the 300 accidents in which there had been no injuries nor damage following 29 accidents and one accident, as shown in Picture 2. According to the statistics, it can be concluded that these events preceded this remarkable situation with hundreds where there has been a reduction in safety, but because of their failure to log nothing done to avoid future events off the charts. Modern methodology required by operational staff and management to recognize conceivably threatening situations before they evolve into an accident.

4.   **Human factor**

A broad assortment of examination on human watchfulness has prompted the unavoidable conclusion that people are poor screens and that an assortment of intercessions and countermeasures coordinated toward enhancing observing execution in various settings and undertakings have shown little advantage (Davies and Parsuraman, 1982; Mackie, 1987).

The human factor in aviation is the most flexible, the most flexible and the most valuable element of aviation systems, but also the most vulnerable to external factors that can hinder the performance of duties. Human error is impossible to completely exclude, because man is found in all stages of the design, development, deployment, and therefore the work in the ATM system, which consists of human resources, available tools and procedures.

A significant collection of confirmation recommends that any linkage in the middle of pay and execution is shaky, best case scenario and is presumably immaterial notwithstanding substantially more capable determinants of administrator execution, for example, work plan, execution estimation and criticism, and the match between administrator aptitudes and undertakings (Filipczak, 1996; Guzzo, 1988).

The text in itself human error no decisive importance, but are crucial factors that led up to it, with that, all the investigations focus on how equipment and procedures. The text in itself human error no decisive importance, but are crucial factors that led up to it, with that, all the investigations focus on how equipment and procedures can help, that is, to reduce the "imperfections" of man.

Technological progress has greatly facilitated and contributed to the construction and management of systems of air traffic control, more accurate weather forecasting, aircraft and airports, but still the final decision made by the people (especially the pilots and the air traffic control service providers), and therefore great attention during the selection and training of adequate staff.

5.   **SHELL**

SHELL model was developed to assist investigators in the expansion of the investigation with the traditional system. It describes the interference between man, machine and its working environment. SHELL model devised by Elwyn Edwards in 1972 and modified by Franz Hawkins in 1987.

There are a few ways to deal with investigate mishaps and occurrences. SHELL model, goes for gathering in a proficient way security data highlighted amid the examination process and at controlling the agent into the investigation of the event. The objective is then to have the capacity to disperse this data through information trade, security studies or measurements, chiefly centered around human components and to recognize mischance antecedents. (Hawkins, 1987)

SHELL model was named after the initial letters of four elements:

- S (Software) - regulatory support, which includes: procedures, training, computer programs, rules, etc.
- H (Hardware) - machinery and equipment
- E (Environment) - environment, can refer to the physical working environment, but also on economic, social and cultural environment.
- L (Liveware 1) - the man in the workplace (operator)
- L (Liveware 2) - Man at work (all other relevant for a particular case)

6.   **Information processing**

Although technological advances allow greater efficiency and safety, when air traffic management, however, the same technology still relies primarily on a man who works within the system. People process information in a quick and complex manner, and have the versatility and flexibility to address the dynamic and difficult problems. It can be concluded that human information process in many ways superior to the most powerful computers.

A system of perusers set along transport lines could read the labels' steering data and give input to a framework that could then direct the sacks onto the right way (Nath; Reynolds; Want, 2006).

So that decision could properly make and implement extremely important awareness of the situation. Awareness of the situation is the product of short-term and long-term memory. Information coming from long-term memory has acquired knowledge, procedures and methods, as long as those of short-term memory connected to the perception of the current circumstances, understanding and projecting the same for the future.

One of the greatest difficulties for an aeronautical association is to make and keep up a positive well-being of society. Dr. Robert Helmreich, an authoritative clinician, portrays three critical social situations: national society includes the worth arrangement of specific countries, authoritative/corporate society separates the conduct found in different associations, and expert execution separates the conduct found in various expert gatherings (Helmreich, 1998).

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