THE COST OF SAFETY AND ITS IMPACT ON THE EFFECTIVENESS OF AN AIR ENTERPRISE

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The thesis is an analysis of the cost in a security and its impact on the efficiency of an air enterprise. The author compares the basics cost elements of enterprises in air traffic, justifies spending essence to eliminate threats, which ultimately led to an increased level of safety in the air transportation process. The theoretical part provides information on aviation safety and security, effectiveness, costs and relations between them. The present labor deals with the risk analysis, the complexity of security threats, and requirement for solutions to security measures. The empirical part of thesis discusses some of the results of the survey respondent´s views on the safety and effectiveness of investment in the air traffic.

K e y w o r d s: safety, security, effectiveness, costs, risk analysis, threat, air traffic, research.

1 INTRODUCTION

The modern history of mankind is directly lin—ked with the development of transport. Traffic to make available human world and has become an essential part of everyday life. Land transport began to write its history a little earlier than air transport, so that air travel can be characterized as the youngest, most modern, fastest and most comprehensive form of transport. Along with scientific and technological developments experienced in the 20th century, its significant development to the extent that there was a need to identify the general principles and rules on aviation. Any human activity that we are not natural or automatically given, brings problems and flying into this category belongs. Incidents and accidents are becoming more and more part in the actual process of flying. It was only a matter of time before there are more stringent rules and standards, which had the task to minimize risks and increase safety.

2 HISTORY AND DEVELOPMENT OF SECURITY ISSUES IN AIR TRANSPORT

The first historical mention of acts of unlawful interference on board aircraft date back as early as 1954 in the territory of Israel, where Israeli terrorists tried to hijack the Syrian civilian aircraft.

Black capital letters to chronicle terrorism enrolled flight of Pan American World Airways facing from London Heathrow Airport to New York's John Fitgeralda Kennedy, who was terminated by exploding plastic explosive Semtex, in Czechoslovakia, over the Scottish town of Lockerbie. The result was the 270 victims of the 11 people who died under the rubble of aircraft on the ground.

11th September 2001, a day that went down in history a series of kidnappings aviation aircraft in the U.S.. Four commercial airplanes were hijacked by nineteen men from the militant Islamic organization Al-Qaeda. Two of them crashed into the World Trade Center in New York, which caused the collapse of both towers. The third crashed into the building management of the Ministry of Defense, called the Pentagon in Virginia. The fourth plane crashed in an uninhabited area in Pennsylvania after the passengers and managed some of the crew members to get the aircraft under its control. No one on board the said aircraft survived. The attacks have required 2,995 victims, including hijackers.

Figure 1. Special forces during training intervention

Terrorism in aviation does not only apply to the hijacking ended with the destruction of the passengers in the airspace at high altitude and crashed into the towers. May be attractive to such. large sports halls, stadiums and sporting events or attacks directed at oil refineries, power plants and strategic businesses. We must not forget that, as in other emerging industries as well as aviation is no exception, he could be a danger of attack by IT. Modern cyber attacks on various infrastructure are yet merely warning against various security threats capabilities traffic, such as the decommissioning of computer servers airlines or airports to attack servers and computer equipment for decommissioning sites aeronautical telecommunication services or radar work.

3 SAFETY, SECURITY AND RISK ANALYSIS IN AVIATION

The term safety and comes from the Latin, which generally means carelessness, guarantee of safety, security, but also peace of mind. The term security company or organization can be understood systematic and efficient use of all resources, ensuring stable operation at present and stable development in the future.

Safety in air transport process can be defined as preventing or risk of injury. The concept of safe transport means that all processes and procedures performed were

carried out without any incidents or feelings of threat and danger. Security at individual airports and aircraft themselves dealing with the selection and adoption of such security measures, which tend to the utmost to eliminate the threat of danger. In aviation in general on two types of security concepts derived from English - ,,safety and security ".

Safety by ICAO is a condition in which the risk of personal injury or property damage is reduced and maintained at or below an acceptable level through a continuing process of hazard identification and risk management.

Security is a set of measures and human and material resources intended to safeguard civil aviation against acts of unlawful interference.

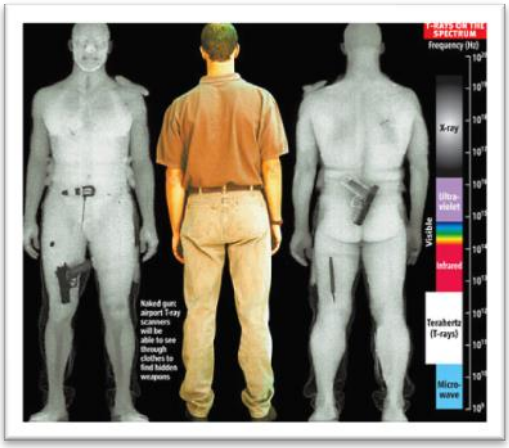

Figure 2. Scan of human body

Aviation security is associated with an airport screening of passengers, goods and provisions for crew. Threats against acts of unlawful interference with civil aviation have introduced a series of steps implemented in all countries of the European Union, which comprises:

- monitoring of possible acts,
- analysis and risk assessment,
- from common rules,
- performance of the individual steps.

Air transport is a prestigious form of transport and the actual attack on one of the parts causes great publicity in the national and global scale. Aeronautical products and the planes themselves are often highly costly. Likewise areas of airports, buildings, gates and all elements of airport infrastructure, as the other airside and on the landside are perceived as financially highly expensive items, because they are attractive to attackers.

The aim of aviation security is to address the threats posed by terrorism in the air transport system. A rational and effective security strategy must therefore be a reflection of security concerns, they should be clearly identified and matched with the correct information to the nature of gravity to be able to help determine the degree of priority and value of different security strategies. In domestic policy-making, the use of risk analysis becomes central to the decision-making.

Risk analysis essentially provides a common basis for comparison between the outputs of the various terrorist attacks, incidents, accidents and other dangerous events. The core of the risk assessment is likely dangerous events will occur to them and will certainly occur in the future. Result of both values can be compared to more common and less dangerous incidents may be related to other scarce reality.

Risk analysis is the common denominator of any adverse events, but can not be the sole basis for sound decision. It helps to identify the level of uncertainty in the estimates of different types of hazards during different time periods. Its aim is to assess the need for protective measures, whereas specific risk assessment is a prerequisite for any similar measures.

Risk analysis evaluates specific events, based on relevant information about dangerous factors, resource dissemination, timing and target group to which the risk applies in different circumstances.

At present, we must not only concentrate on the problems stemming from focusing only on recent threats or just the projection, because it can be abused by terrorists. Our understanding may even give rise to our enemies opportunities to manipulate our behavior to your advantage. In conclusion, it will be necessary to build a broader and more qualitative approach combining both types of information, which provide a basis for research Security Strategy.

4 EFFECTIVENESS OF AN AIR ENTERPRISE

Nowadays, many companies are looking for a way to compete with competitors, and to offer customers the best possible service and to maintain the profit margin from the previous period and also to be able to offer their services and products for the current lower price. It sounds unrealistic, but it's often the only way to survive, because if a company fails, it will do its competitors. To increase the efficiency of business there are many tools used by the airlines, law firms from this industry are the most "pushed" to the use of effective management tools.

Modern economics states that price is the result of a conflict between supply and demand. Price is in fact a sign that demand side saying how much buyers want the product, literally as rate it, and on the supply side, the price at which the producers are able to produce the product, offer and sell.

In the aviation industry, passengers using air transport services meet particular process with two types of companies. The first is the airline (airline) and the second one is the start and end point using aviation airport.

5 COST ITEMS IN AVIATION

Current client using air transport is essentially faced with two types of businesses, which are the airline

(airline company that transports passengers from point A to point B) and the airport (the starting point and end point of the air transport process). A third very important part of the air transport process as LPS (air traffic services), which are designed to comply with the safe and orderly flow of air traffic. The following sections briefly describe the basic cost elements of each company. Like the basic cost elements, as well as security costs are divided into direct and indirect. I can move between direct labor costs, internal or external staff. More indirect - costs for depreciation, interest and latest trends are also costs for disposal or recycling.

6 SECURITY COSTS EXPENDED AIRPORT

The place where the passenger to the greatest extent interferes with the security control measures and the airport. Review of passengers generally consists of the following steps:

- Identity Check (in some cases, passport and customs control).
- Go through the WTMD.
- Checking handheld scanner (in some cases).
- Weighing and baggage directed to the cargo area through the X-ray detection device.
- Control of cabin baggage through the X-ray detection device.

There are a number of proposals and projects disponujúcich modern technology features. Modern dynamic time leads us to the steady progress being made. The development of new technologies, we often simplifies routine operations, but so also brings us new challenges to which we need to create countermeasures and work on their improvement. Resources devoted to increasing safety margins and reducing levels of risk are the subject of many discussions. Harmonization of aviation security measures at European level largely makes traveling in all EU countries, where the same rules apply. However, Member States may apply more stringent security measures, provided that they are objective, non-discriminatory and proportionate to the risk. In combination with a general increase in security threats lead to standards adopted by a large number of follow-up security measures at the national and global level.

Among the modern trends in aviation safety include biometric data. Analysis and statistics they predict a great future. For airports may benefit from economic or time reasons. The advantage of biometrics lies in the uniqueness of the iris. Each person is unique, and so can not cause a confusion. With the introduction of this technology would reduce waiting time and so there would be more rapid clearance of passengers at the same time. A major benefit of introducing technology would be mainly for large and busy airports, which would definitely lead to efficiency gains in the number of passengers handled. This program is still in its development, the full use should be made more effective data sharing, which will require the creation of large databases and sort out international legislation. Along with the growth of passengers, the use of biometric data could play an important role. In addition to the economics, biometrics can help prevent boarding parties with the intent to exploit the aircraft or cause an accident or otherwise endanger the safety of other passengers.

7 SPIDER ANALYSIS

Between security, cost and practicality pays a relationship. This relationship is sometimes referred to as the triple constraint. Graphically, this relationship can be expressed best by an equilateral triangle, each side is just one measure. In general, if one variable is changed, the change is at least one additional or changed and all the rest. Each peak of the triangle are attributed to the following titles: safety, efficiency and cost. To effectively evaluate and compare different solutions can be used such as MS Excel or spider web graph.

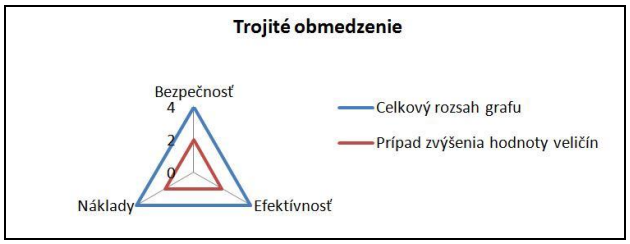

Figure 3. Spider analysis

In this case, to evaluate the safety, availability and cost of use scales <0-4>. In the figures below we simulate different combinations in terms of an airline that can occur in various cases when changing individual variables.

Safety : If we try to increase the level of safety achieved, we need to increase efforts for the total cost, and usually deteriorate the efficiency and the rate of actual usability of the solutions to the operator. In the particular case of the airline increased security measures reflect the increased costs, such as increased number of security personnel on the payroll, or the introduction of more checks need to expand the space and the number of control devices. This will result in deterioration of life for the airline, passenger extend the time horizon and more elements of the control itself. The inspection process is time-consuming and less efficient in terms of time.

Usability and Efficiency : In the event that will focus on improving the efficiency and yet we want to maintain or increase the level of safety and cost us grow. Factor will be useful for the operator to open more opportunities will benefit and increase efficiency, but without increasing the cost will be less safe. Therefore,

the rate of increase in life must also pay attention to the cost increase, which leads to an increase in the overall level of safety.

The costs : If necessary cost reductions will result in a decrease of the level of security solutions as well as the mere usefulness to society. The funds spent on security at a reduced cost will be less effective.

When designing any security solution must consider how much will cost the development, implementation, operation, support and disposal. It is necessary to assess what the total cost of ownership (TCO). In addition to the total cost of solution and care should be taken into account for the actual usability, because it depends mainly on the resulting success. Create such security measures that would be to run an easy to use, high level of safety and cost affordable, usually a real problem. On average, it happens that just security, which must be ensured, receding into the background. From the perspective of the participants, who in the development of solutions work, security costs only increases the total cost. Convince others of the need for the introduction of safety features is possible only on the basis of risk analysis involving the assessment of the consequences and impact of threats and vulnerabilities.

8 ANALYTIC PART

In the formulation of research objectives, research problems and research hypotheses I came from previous research findings, authors working in the field of aviation safety and subsequent summation of knowledge in the field of aviation safety.

Research objective: Examine the attitudes and opinions of respondents on air safety and effectiveness of funds spent related to its security.

This raises the following milestones:

- Identify behavioral characteristics of respondents according to selected socio-demographic factors (gender, age, frequency of use of air transport).
- Identify personality traits of men and women according to the preferred attitudes related to safety in aviation.

The main and sub-problems :

- What is the nature of the differences in the level of attitudes and opinions on the safety of air transportation depending on the frequency of its use?
- What is the degree of determination of gender characteristics of the currently preferred position on the safety of air transport?

9 RESEARCH RESULTS

Exploring variables to assess the safety of passengers I have received answers to the research problem, the estimated level of attitudes and different views depending on the frequency of its use and the age and gender characteristics. Opinions and attitudes of respondents, depending on the observed socio-demographic and socio-economic factors (gender, age, frequency of use of air transport)

The file was uneven representation. The research sample consisted of 308 respondents, of which 55.70% were men and 43.72% women, with permanent residents. The average age of participants in the group under 24 years was 22.5 years. The youngest respondent was 16 years old. In the group of 25 to 39 years: 27.1 years, in the third group (40-59 years) - 52. And the last group over 60 years, the average age of 61.4 years. The oldest respondent was 65 years old. The questionnaire survey therefore constituted the largest group respondents in younger age groups, t. j. aged 0-39 years. Based on gender, it was 145 males and 121 females. At least I got responses from the oldest age group, in which I asked the opinions of respondents older than 60 years (4 men and 2 women). In the age group 40-59 years I have received responses from 25 men and 11 women.

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