RISKS AND CRISIS PHENOMENA IN AVIATION INDUSTRY AND THEIR CLASSIFICATION BY CHARACTER OF AVIATION COMPANY

Patrik Popelič – Robert Klír

Article points to the security risks in the aviation industry and their impact on the security of civilian air traffic. It explains the entire process, from the identification of risks, through their classification and evaluation, until after the draft measures and responses to these security risks in all types of aviation enterprises.

K e y w o r d s : Crisis, Risk, Hazard, Incident, Crisis Phenomena, Safety Risks

1 INTRODUCTION

The aircraft became the natural means of transport, which meets every day with many risks, and these can cause the crisis phenomena. These reasons led to the formation of the thesis, which is aimed at the identification of these risks and crisis phenomena, which occur in air transport. The work consists of three main parts the first is the entry into a given issue, then the General familiarisation with the theory. The second part of the work includes the theory of transferred to the aviation industry. In the last and at the same time the largest part are acquired knowledge from the themes applied to the aviation enterprises.

2 RISKS, HAZARDS, CRISIS PHENOMENA

Each day happens the meeting with a series of risks and threats, which may or may not result in the crisis phenomena, then may cause disaster of huge proportions. All these risks and threats can cause material and financial damage, injury, or loss of life. In different environments may these terms have different understanding.

Therefore they are divided to social processes and to the technical and technological processes.

2.1 Understanding of Crisis Phenomena

For understanding the individual connection is necessary to clarify the basic concepts used in describing the status and level of security. These are in social processes and in technical and technological processes differ in the base definition, but also in the order of action, as follows:

- **in social processes** are used terms:
  - Risk (Potential Danger);
  - Threat (Current Risk);
  - Crisis (Crisis Situation, Crisis State);
- **in technical** (technological) **processes**:
  - Danger;
  - Hazard;
  - Risk;
  - Extraordinary Event.

2.2 Diversification of Crisis Phenomena

Some crises phenomena can be relatively accurately characterize and describe the basis of monitoring and the subsequent analysis of the developments of particular crisis factors. A particular crisis phenomenon may endanger the fundamental values and goals of a body with high probability, but another (entity) may not cause the same crisis phenomenon any loss, he will bring profit and, therefore, its assessment of both entities will be different.

3 CRISIS PHENOMENA, HAZARDS, RISKS IN AVIATION COMPANIES

Aviation requires large investment and a great responsibility. In the air, the pilot can rely only on the machine, electronics and their abilities. The Pilot is responsible for all of the people on board. In aviation there are a number of factors, which may endanger the lives of the passengers and crew, and possibly the people on Earth. Some factors can eliminate, mitigate or they cannot affect the other. In all of these threats and risks, there may be material damage, injury or loss of life. Given that there are a number of factors and

safety risks, and in any environment, they may have different consequences these risks can be divided into four groups according to the place of occurrence. For the airline industry are these places very specific and inherently are characterized by fundamental types of air companies, namely:

- Airport;
- Airline;
- Air Traffic Control Enterprise;
- Aviation Manufacturing and Repair Businesses.

3.1 Statistics

Flight safety foundation deals aviation since 1943 and leads statistics, who has the task to record each event in which could be caused by injury, loss of life, material damage. The security database is updated every week and is conducted from 1943 to the present. The database contains descriptions of more than 12 200 security events, military transport aircraft, transport aircraft and corporate jet aircraft. Thus, all accidents, incidents of kidnappings recorded, and other cases that occur in aviation and result in material damage, injury or loss of life.

3.2 Risk Analysis

The aim of risk analysis is correct to identify security risks. The analysis also provides a summary of information about the environment the emergence of risks and serves to assess emerging risks. A correct evaluation of the security risks has several phases, which include:

- Analysis of the Environment;
- Identify Safety Risks;
- Classification of Safety Risks;
- Risk Assessment;
- Determination of Priorities.

3.3 Analysis of the Risk at the Airport

The airport is the place where users of air transport (passengers, product carrier) in the widest range of encounters with the services of the individual entities participating in this process. Here is the custom transport starts and ends. Here is an important way to decide on its quality and effectiveness. At the airport there is ongoing coordination between the major providers of air traffic services, air carriers, Airport ATC undertakings and enterprises. The airport is geographically defined and appropriately treated surface, a distinction is made for:

- **airside** or even be private/airside with a predominance of areas and buildings directly tied with the basic function of the airport.
- **landside** with predominance of areas and buildings intended for commercial use.

The airport had been selected as the most serious security risks for these:

- low visibility,
- adverse weather conditions,
- the bird's nest, the location of birds,
- the bomb at the airport, terrorism.

3.4 Analysis of Risk in the Airline

Air carriers transporting persons, goods and shipments from one point to another for remuneration. Their customers are individuals, travel agencies, companies, and entrepreneurs. Due to the nature of its activities and the liberalization of business environment in air transport is working today, most of the carriers in the developed markets in a highly competitive environment. This leads to the fact that each of them needs to make fundamental decisions concerning the focus of its services.

For the airline as the most serious security risks, these have been selected:

- problems on board of the aircraft, terrorism, nonconformists,
- turbulence, passengers panic,
- clash with birds.

3.5 Analysis of the Risk of Air Traffic Management in the Enterprise

Traffic control is a service provided by air traffic control personnel on the ground, who manage and coordinate the aircraft on the ground and in the air. This activity is carried out by air traffic controllers, who also directs the movement after the airport areas and is responsible for the continuity of flow of air traffic within the airspace. In many countries, the services are provided by ATC in almost the whole airspace and these services are available to all users. Air traffic management for the enterprise were selected as the most serious safety risks:

- low visibility, collision with other aircraft,
- incorrect navigation, the human mistake.

3.6 Analysis of Risk in Air Production and Repair Enterprises

Avionics repair and manufacturing establishments engaged in the manufacture and repair of aircraft, alternatively with production of individual components for aircraft. For air production and repair businesses have been selected as the most serious safety risks:

- the delay in production, loss of customers,
- the lack of material, the delay of supply,
- clash with birds.

4 SOLVING OF CRISIS PHENOMENA

Crisis phenomena can cause huge damage in the aviation industry and air companies with the objective reality, which counted with them as they cannot avoid. Therefore, they have drawn up detailed contingency plans, procedures, methods, and various technologies even before the emergence of these crisis phenomena. In the aviation industry is concentrated a lot of funds. It is therefore necessary to crisis management was a part of each of the decision-making process, the management activities and development programmes. In different environments can have different effects, but the most important is the same risks of an adequate response to these crisis phenomena. Appropriate action, and various actions can not only reduce the risk, but also completely eliminated.

4.1 Airport

Among the preventive measures for the *low visibility* would be appropriate to include the use of light transport with controlled intensity. In addition to the highest point of the airport, would also all other tall buildings, or high points at the airport should be marked with a red light, the outlines of the buildings may be highlighted light means (the LED strips) visible even in the fog, or for reduced visibility.

Among the preventive measures for *adverse weather conditions* the obligation to install heated windscreen in the pilot cabin. It is of course the use of chemical agents for the repulsion of rainwater.

In possibly the occurrence of *avian nests near the airport* is proposed preventive measure to bird hunters, or special trained snipers.

Among the preventive measures for the *bomb at the airport* should be specially established by section pyrotechnics in the rescue forces at the airport. In addition, the camera system to monitor each location at the airport. Security guard should be strengthened in times when most people are at the airport.

4.2 The Airline

Among the preventive measures against *problems on board, terrorism,* it is appropriate to established a fighter training for stewards and stewardess. At the same time, together with the crew of an aircraft to travel Security Service staff in plainclothes. The aircraft would have been installed several emergency buttons that would inform the management components on the ground on an emergency situation on board the aircraft. Access to it should has only the crew of the aircraft.

During *turbulences* can help the modernization of aircraft with gyroscopic chairs to minimise the vibrations. Those settled into the chair position and so passengers less perceived by tremors.

In *case of clashes with birds* should be a necessity of each aircraft quality unbreakable windscreen. The birds could be shot down by hunters, or special trained snipers.

4.3 Air Traffic Management Enterprise

By preventive measure in *low visibility* is the designation of aircraft significant light visible even in the fog. Workers and vehicles to the airport are also visible in the fog, and reflective elements on the label. The pilots are informed of the current weather at the airport, or on the coming changes in the weather. And also are informed of any personnel and vehicles located in the vicinity of the airport motion areas.

Among the preventive measures at the *wrong navigation or error of the human factor* should include a short discussion with management before the start of the working time of workers in respect of their mental well-being, possible family problems or other important matters which might affect at work.

Measuring instruments connected to the body of management workers should their environmental functions, and according to assessed their psychological comfort them during services.

4.4 Aviation Manufacturing and Repair Businesses

Among the preventive measures in cases of *delay in production and loss of customer satisfaction* surveys should be carried out regularly by the aviation enterprises personnel aimed at working conditions, wage assessment, work atmosphere or benefits. Employees should be encouraged in the form of a variable component of their salary premiums for early completion of the projects.

To avoid the *lack of material, or reduce the delay of supply* will help the regular checking of stock and timely order of new stock. Management of the enterprise ordered goods only with reliable suppliers, which has many years of experience. Actively search for new suppliers, due to the formation of the stock.

5 CONCLUSION

The created proposal provides an overview and evaluation of specific types of risks in a given environment possible way. Includes preventive measures for the early identification, possibly to avoid the crisis phenomena. Due to the complexity of the themes was only a limited amount of attention paid to the risks, and it just creates space for further work. In this issue there are many unanswered questions, provides several options, because each type of air company may affect other risks, possibly the same risks have direct effect in another aviation company.

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AUTHOR(S)´ ADDRESS(ES)

Patrik POPELIČ, Bc.
Letecká fakulta technickej univerzity v Košiciach
Katedra manažmentu leteckej prevádzky
Rampová 7, 041 21 Košice, Slovenská republika
e-mail: patrik.popelic@gmail.com

Robert KLÍR, Ing., PhD.
Letecká fakulta technickej univerzity v Košiciach
Katedra manažmentu leteckej prevádzky
Rampová 7, 041 21 Košice, Slovenská republika
e-mail: robert.klir@tuke.sk

Reviewer: Luboš Socha, Ing., PhD.