INCREASING THE LEVEL OF TRAINING AND SAFETY WITH THE USE OF SIMULATORS

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Annotation

The article is devoted to the issue of increasing the safety of air transport, depending on the use of simulator systems. The first part is dedicated to the safety management system, the second part is devoted to the basic information about the company and its LF training and the third part is devoted to the research activities of the company. Finally, there are sample solutions for the virtual airport, which allow increasing the level of training with the help of simulator systems.

1. Safety Management System

Safety Management System (SMS) and Safety Management System are new requirements for organizations providing courses for obtaining a license.

National Security Programme for Civil Aviation of the Slovak Republic defines the term as: "A systematic approach to managing safety which includes the necessary organizational structures, damages, determining policies and procedures. " [6]

One of the requirements for the approval of the Organization office is to have a management system which also includes clearly defined responsibilities and direct responsibilities for security, description of the approaches and principles of the organization in this field, setting security policies etc.

SMS comprises:

- operational safety regulations;
- safety oversight;
- the investigation of accidents and incidents;
- analysis of safety data;
- safety enforcement.

The benefits that the integration of SMS can bring into daily activities of the organization are:

- improving safety and reducing costs associated with accidents and incidents;
- safety as a priority, which increases employee morale;
- increasing efficiency, which is associated with a reduction in costs;
- effectiveness of the system, which increases credibility;
- effective risk control which reduces the cost of insurance. [5]

It is necessary for the successful functioning of the system to establish its continuous development and respect for all parts that come into the whole system and effective way of communication at all levels of the organization.

Each SMS has to include its staff management structure. Any organization that wishes to comply with the regulations and be approved by the competent authority shall have a named person responsible for security - the head of security. For keeping safety the organization shall have the, so called, Security Review Committee or, where appropriate, the organization may have established, the Task Force Security Service.

The basic tasks are:

- to report and receive strategic guidance from the Committee;
- monitor operational security;
- address the identified risks;
- evaluate the impact of operational changes on safety;
- ensure that security measures will be implemented within the agreed time intervals;
- examine the effectiveness of previous recommendations. [5]

Safety Management System ensures:

- safety policy;
- responsibilities of the accountable manager for safety;
- responsibilities of key personnel in security;
- procedures for documentation management;
- scheme hazard identification and security risk management;
- planning security activities;
- a method of reporting and investigation of incidents;
- planning emergency response;
- change management;
- promoting safety;
- the system of monitoring compliance.

2. Company LET´S FLY Ltd.

Fig. 1 https://www.youtube.com/watch?v=B8HSsVhB51o

- Established in 1997;
- First certification of flight schools in 1997;
- JAVA certification in 1999;
- Certification for all training courses teaching professional pilots in 2002;
- The air carrier certification obtained in 2005;
- AUTO-009 certification in 2014;

Training aids:

- aircraft:
  - o C152;
  - o C172;
  - o Seneca;
- Simulators
  - o Desktop simulators;

o C172

o   FTD

o   FF

- E-learning – WBT – www.letsfly.cz

3. Research of the Company

- E-Learning environment – 2012 – 2014,
  - o PilotLector ;
  - o Aerosecure;
- Project TAČR ALFA – 2014 – 2017,
- Project Simulator TL - 410 NG FNPT – development of a highly sophisticated ICT solution – 2014 – 2015,

Collaborative research:

- Silesian University of Technology Katowice, Faculty of Transport,

- Technical University of Kosice, Faculty of Aeronautics
- Catholic University of Ruzomberok, department of Mathematics, Physics, and Informatics,
- Ministry of Defence, CZ – University of Defence in Brno,
- VSB – TU Ostrava, Faculty of Safety Engineering

4. Virtual Airport of LET'S FLY Ltd.

The simulation is often used in training of civilian and military personnel. This usually occurs if it is too high or too dangerous for students to use the actual device in the real world. The valuable experience is acquired in the "safe" virtual environment. Also the errors that these security - critical systems allow are the advantage while training. However, there is, nevertheless, a difference between a simulation used for training and an instructional simulation.

Flight simulators (FSTD) are used to train pilots on the ground. Compared to training in an actual aircraft, it enables simulation training exercises or manoeuvres different from situations which are for training in the aircraft impractical (or even dangerous) in which pilots and instructors are in the environment that can be characterized as the environment with the minimum risk. For example, electrical systems failure, equipment failure, failure of hydraulic systems or even flight control failures can be simulated without endangering the pilot or aircraft.

"Virtual airport" is designed as a classroom for teaching and training of aviation specialists.
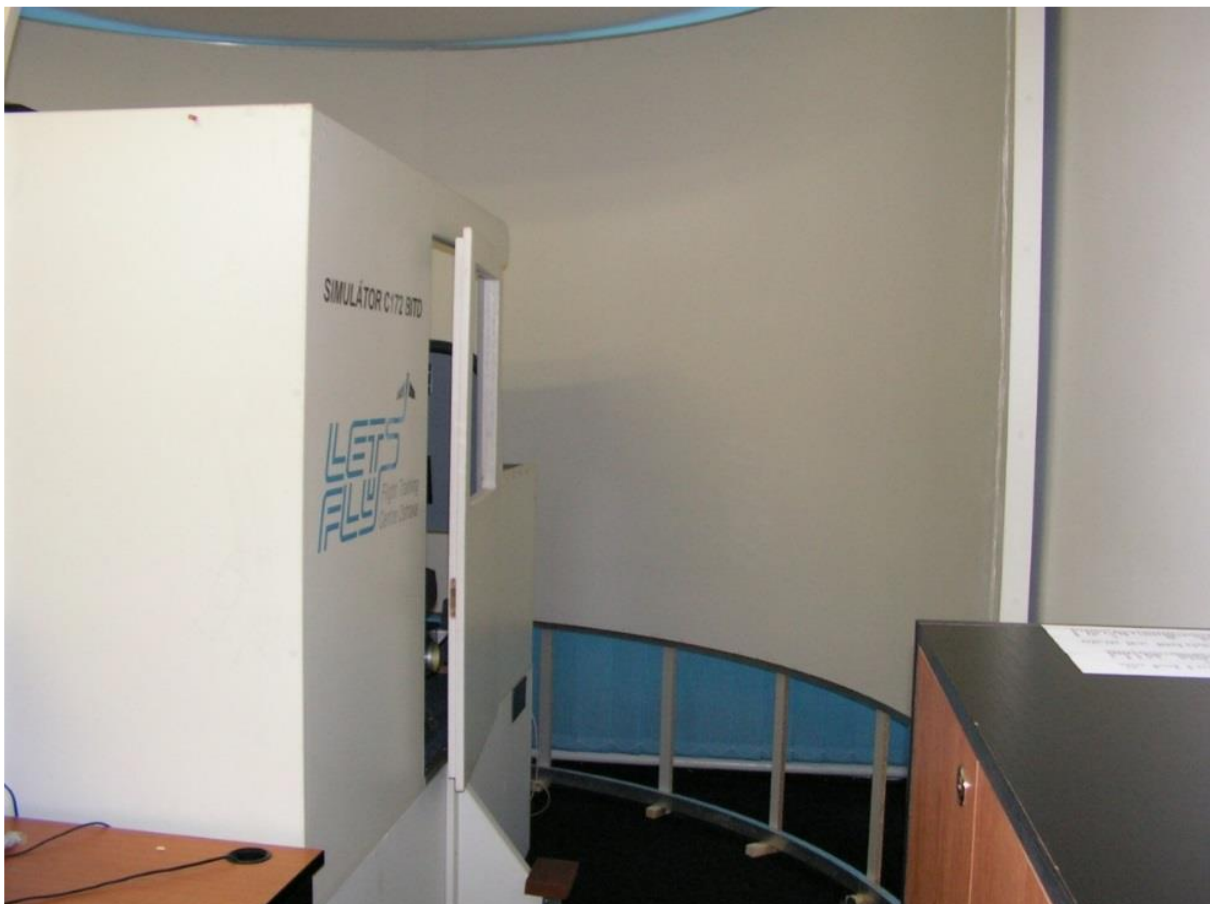
The basic elements are:

- the table simulator system 1-4;
- the simulator system C172 BITD (Basic Instrument Training Device);
- managing workplace mentoring;
- a transmission system.

Links between different elements of the system are provided through the computer network Internet possibly Intranet.

The transmission system is designed to allow connection to the management level and the data transfer between subsystems defined. The transmission is duplex, interactive, which is especially needed to connect the instructor workstations with individual subsystems. Accordingly, the "virtual airport" appropriate to use for simulation teaching and training:

- radio communications for different types of airports and in language versions;
- operating procedure;
- coordinating pilots at an airport.

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[6] Národný program bezpečnej prevádzky v civilnom letectve Slovenskej republiky, 2014, http://www.caa.sk/pdf/letiska/program_bezpecnosti_prevadzky.pdf