

The Effect of Human Factor for the Flight Safety in the Air Traffic Control System

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Annotation: This article discusses the impact of the human factor on flight safety, lists and highlights aspects of the impact of human performance characteristics on air traffic control. The safety and quality of the performance of flight exercises depends to some extent on the condition of the air traffic control specialist. In order to reduce the number of accidents and incidents in aviation safety, it is necessary to take into account the influence of the human factor in the air traffic control system.

Keywords: human factor, air traffic control, specialist, factor, aviation evidence, flight control, flight, flight safety, supplement, crew.

The human factor (HF) is one of the central concepts used when considering the problem of ensuring flight safety. This concept is extremely voluminous and serves to characterize all phenomena in aviation practice related to the multifaceted human activity. The term «factor» (derived from the Latin FACTOR making, producing) means the reason, the driving force of the ongoing process, what influences it, is one of its conditions.

Therefore, the BSF is understood as a set of ideological, moral, social, psychological, physical, professional and other qualities of a person that influence the results of his activity.

Due to the increase in the intensity of the air flow during aircraft control, as well as the excess of the throughput capacity of the air traffic control (ATC) sectors, inevitably leads to a lack of time required for a complete analysis of the air situation and the adoption of a competent decision by an ATC specialist, which can often be the cause of aviation incidents.

Therefore, the role of the Black Sea Fleet in ensuring flight safety is enormous. This is due to the fact that in aviation all processes for the organization, support and performance of flights are carried out by people - aviation specialists.

Listed below are some of the most common aspects of Human Factors affecting human performance in ATC.

1. Physical factors - the physical ability of the individual to perform the required tasks:

- vision - the ability to physically see the development of events (for example, from a control tower);
- hearing - the ability to distinguish different statements in a noisy environment;
- physiological strength;

➤ height, arm length.

2. Physiological factors - factors that affect the internal physical processes in a person and can have an adverse effect on his physical and cognitive characteristics:

➤ the presence of oxygen; general health, illness or disease;

➤ tobacco, drug or alcohol use; personal stress and fatigue.

3. Psychological factors - factors that affect the psychological readiness of the individual to cope with all the circumstances that may arise:

➤ memory (important for maintaining a three-dimensional picture of the situation in dynamics);

➤ vigilance as a counterbalance to distractions and boredom;

➤ pressure factors in the workplace (from superiors or managers, sometimes from colleagues);

➤ motivation and state of mind (under the possible influence of domestic or other external problems);

➤ resistance to stress (and, as a result, stress-induced

➤ diseases);

➤ logical thinking;

➤ nature of habits (for example, conscious simplification of operations);

➤ cultural differences between users of the ATC system (eg, military and civilian users, different companies, foreign and domestic users, speakers of different languages, behavior patterns).

4. Psychosocial factors - all external factors in the social system of individuals that put pressure on them in working and non-working situations:

➤ a dispute with superiors (management);

➤ labor conflicts between colleagues and superiors;

➤ death in the family; personal financial problems or other domestic frictions.

5. Factors related to equipment:

➤ display design and workplace organization;

➤ ease of use of the software, including the ability to adapt to changing situations;

➤ automation tools.

6. Information transfer problems:

➤ RF channel overload;

➤ confusion with callsigns;

➤ auditory expectations;

➤ language comprehension and accent;

➤ use of non-standard phraseology.

7. Workload considerations:

➤ intensity and complexity of air traffic;

- number of sectors involved;
- situational awareness (maintaining the “big picture”);
- mental images used in decision-making (for example, the use of empirical methods (observation and experiment));
- the time elapsed since the last break;
- the impact of shift work, schedules and overtime;
- chronic fatigue.

8. Organizational factors:

- corporate safety culture;
- approach to working in a team, using methods to optimize teamwork;
- sufficiency of professional training;
- work experience, competence and period of validity of the permit of an air traffic control specialist;
- the quality of first level leadership;
- relationships between colleagues and management;
- effective standardization of procedures and phraseology;
- effective control of daily activities.

Air traffic control specialists control all aircraft under their control, control all airspace in their area of responsibility. The results of their activities directly affect the outcome of flights, which can be divided into two components and can have a different impact on the outcome of the flight:

positive, when an air traffic control specialist successfully performs his professional functions and, using experience, professional skills, fends off dangerous deviations arising under the influence of adverse factors, thereby ensuring the necessary safety of the airspace.

Activation of the positive influence of the Black Sea Fleet in all types of activities of ATC specialists is a powerful means of improving the level of flight safety.

The main means of activating the positive impact of the Black Sea Fleet is to cultivate a high sense of responsibility for flight safety, increase business professional competence, improve moral and economic incentives, and implement the principles of social justice;

negative, when in the course of work an air traffic control specialist accidentally or due to professional incompetence himself commits incorrect, erroneous actions that pose a threat to flight safety.

The negative impact of the Black Sea Fleet is manifested in all its links and is the main source of dangerous phenomena in ensuring flight safety.

Considering the impact of the Black Sea Fleet on flight safety, it is necessary to take into account their consequences.

However, since in aviation the study of the Black Sea Fleet was carried out mainly in connection with the investigation of aviation accidents and was used as a formulation of the cause of aviation accidents, the concept of the Black Sea Fleet in the problem of ensuring flight safety has acquired a

negative meaning and is identified with the negative consequences of human impact on the outcome of flights.

In order to minimize the number of incidents related to with air traffic control, it is necessary to understand the role of the human factor and take it into account when organizing air traffic control.

At the same time, one should not forget that «without knowledge there is no control», which in turn implies the readiness of an airspace management specialist to work in various conditions of the situation, both in normal situations and in the event of non-standard and emergency situations on board an aircraft or at air traffic control facilities.

Conclusion: in conclusion, we can say that the attention to the person in flight as an object of management is not accidental: «The human factor in aviation more than anywhere else plays one of the last directions in ensuring flight safety».

Aviation psychology emphasizes the importance of taking into account the characteristics of the pilot as an object of management: «Flight management is, first of all, the management of people, taking into account their level of training, degree of diligence and discipline, characteristics of the psychological and human warehouse, as well as education».

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