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N.V. Glushanytsia, PhD
(National University of Bioresources and Nature Management of Ukraine, Ukraine)
H.M. Bilokon, senior lecturer
(National Aviation University, Ukraine)

Safety culture in aviation

The study results provide a theoretical framework for safety culture in the aviation industry. The results suggest that professional experience influences safety culture. Enhancing safety culture in aviation is essential for ensuring high safety standards and reducing the risk of accidents.

The study aims to reveal the concept of "safety culture" and define the components that affect it. We consider a strong safety culture in aviation effective communication, accountable leadership, and constant improvement. However, the level of safety culture is not sufficient. Cultural aspects impact flight safety management. In the 1930th, the "Five-Dominos Theory" of accidents was developed [1]. According to the theory, the priority domino is an unsafe social environment. Safety culture is provided only if there is an efficient interaction of all levels of an organization whose activity focuses on safety.

The existence of a balance between productivity and safety complicates the efficient realization of a safety culture.

Mínguez Barroso, C., and Muñoz-Marrón, D. provide a descriptive analyzes of air disaster investigation to identify the beginning of a global safety culture which started with the evolution of operational safety [2]. The study results prove that professional experience impacts the classification of safety factors [3].

"The effectiveness of safety management depends on the organization having a positive safety culture, or the shared values, actions, and behaviors that demonstrate a commitment to safety over competing goals and demands" [4].

"The outcomes of aviation safety may sometimes be related to occupational or workplace safety. The organization should ensure that any relevant aspects of occupational/workplace safety are integrated into SMS where appropriate" [5].

Safety culture is important for ground handling. The scientists conduct a holistic assessment of the ground handling safety culture, to avoid accidents at the workplace. They suggest the multiple perspective assessment model to integrate two mixed methods designed with data triangulation [6].

The European Union Aviation Safety Agency (EASA) ensures the safety of European air transport and environmental protection. The International Civil Aviation Organization (ICAO) is responsible for standardizing and prioritizing aviation safety and practices worldwide. These aviation organizations require introducing a safety culture in aviation. In Annex 19 the safety management key components are defined:

- safety management fundamentals;
- safety intelligence development;
- safety management implementation.

Aviation is a key component of the transportation sector. Accidents in this sector should be reduced to ensure timely delivery, sustainable production, and life and property safety. Human error causes 70–90% of all aviation accidents. These errors can be minimized by enhancing the safety culture for individuals [7].

It should be mentioned that the norms of aviation legislation are also crucial for ensuring a strong safety culture since they greatly contribute the flight safety. An effective recruitment process must be developed and implemented. It ensures that recruits possess the required skills, qualifications, and training and will perform their responsibilities properly to provide aviation safety [8].

Safety culture is incorporated into pilots' training to avoid air accidents. It helps ensure that safety principles become a core part of their professional mindset and decision-making. It enhances pilots' safety behaviors and strengthens the overall safety culture within the aviation organization, reducing the risk of accidents and improving operational outcomes.

Conclusion.

Safety culture is a key element of aviation safety management systems (SMS). Incorporating it into pilot training ensures that pilots adhere to industry best practices and meet regulatory safety standards. Pilots trained in safety culture understand their role in maintaining safety and following procedures. They take responsibility for their actions and realize their impact on safety.

Improving safety culture in aviation is essential for ensuring high safety standards and reducing the risk of accidents. A strong safety culture includes values followed by the individuals regarding safety within the organization.

By implementing these approaches, aviation companies can build a resilient and lasting safety culture, resulting in fewer incidents, better operational performance, and increased confidence among both staff and passengers. A positive safety culture in aviation considers safety as not just a set of regulations. It is a fundamental part of everyday operations which promotes accountability across the organization.

Safety culture affects air accidents. A strong safety culture can significantly reduce the likelihood of accidents, while a weak safety culture can increase the risk of air accidents.

A strong safety culture mitigates the risk of air accidents by promoting hazard identification, reinforcing safety-focused decision-making, and encouraging continuous improvement. A weak safety culture can foster unsafe behaviors, poor communication, and operational shortcuts, increasing the chances of accidents.

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