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Olkhovik M., Assistant,
Kononenko A., Student for higher education
of the first (bachelor`s) level,
National Aviation University, Kyiv, Ukraine

USE OF ARTIFICIAL INTELLIGENCE IN THE FIELD OF CIVIL AVIATION

In the modern world, it is difficult to imagine our lives without the use of Internet technologies and artificial intelligence. We have become accustomed to making life easier and more enjoyable in almost all areas, especially in civil aviation. Despite the relatively slow deployment of artificial intelligence in the aerospace industry, its technologies have already simplified some processes, forcing the world's leading carriers, training centers and aircraft manufacturers to invest in artificial intelligence. Over the last few years, AI has found a wide range of applications in the industry - from ground handling services to airport security and air traffic management (ATM) - and now there is room for more.

First of all, to get acquainted with the application of artificial intelligence in aviation, it is necessary to understand its essence. In other words, artificial intelligence is the ability of a computer to perform tasks that humans can perform. These technologies include machine learning / deep learning, speech / gesture recognition, chat robots, neural networks [1].

An example is the first applied technology of artificial intelligence, which brought a tangible result, was the use of digitization in civil aviation. In this case, paper processes are gradually being replaced by digital ones. Manuals for computers and electronic flight bags are now available, control rooms are no longer without a roof, and most aviation information is exchanged through digital databases. All these changes are part of the overall digitization of aviation [2].

The use of artificial intelligence technologies to train future pilots is also one of the most effective ways of practical training. According to industry experts, artificial intelligence will allow pilots to make even more realistic simulations by providing pilots with a full visual range with augmented reality. For example, the US Air Force has launched the Future Pilot Training program to try to find a new way to train pilots using modern biometric systems, artificial intelligence systems and virtual reality in their simulators. These AI-driven simulators reproduce real-life missions to help students better understand and correct mistakes. The

introduction of artificial intelligence allows the US Air Force to train more pilots each year, creating a fast and effective way of learning and practice [3].

In terms of reducing the workload of pilots, it is also one of the most important artificial intelligence features available in aviation, as it provides pilots with better information about the situation and reduces the time required to operate the instruments. The suitability and effectiveness of artificial intelligence in this case is proven by Intelligence technology. Intelligence allows pilots to talk to the aircraft - to communicate in the cockpit using simple voice commands. It is now certified and available for use. Another important invention is the implementation of artificial intelligence in the ALIAS DARPA system (Aircrew Labor-in-Cockpit Automation System). The pseudonym is a humanoid machine, more precisely a robotic arm that takes up a person's physical space: it takes the place of a co-pilot, pushing and pulling on controls. Such a system could increase the level of aircraft automation and provide the possibility of flights with reduced flight crew. ALIAS also aims to take control of the entire mission from launch to landing. The main goal of ALIAS technology is to replace the physical work of the pilot and to enable the pilot to be more of a leader than a performer [3].

One more example, in the case of airlines, is the Airbus that uses AI for observational tasks such as computer vision, time series analysis and natural language processing, predictions such as hybrid modeling and decision-making. Sky wise, Airbus' data analysis platform, in turn uses artificial intelligence and machine learning to collect aircraft flight data. Sky wise helped Airbus respond to the COVID-19 pandemic by enabling them to analyze flight restrictions and air traffic fluctuations [4].

After analyzing all the above information, it can be noted that the list of technologies already implemented is quite large and those that are currently being processed are even more extensive. Of course, some of them may not prove their feasibility and effectiveness, but most of them will also improve services of air carriers and the level of safety. The only obstacle that currently exists in the use of artificial intelligence in civil aviation is the lengthy process of verification, certification and implementation. Because it can take years, because before you put technology on the market, you need to make sure it's safe and truly effective.

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