

Chapter 13

Influence of Artificial Intelligence in Aviation Management

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ABSTRACT

Artificial intelligence (AI) technology is playing a crucial role in the aviation industry as airlines are investing in AI to help them become more efficient and competitive. Flight planning and optimization—AI can analyze weather patterns, air traffic, runway conditions, and other variables to generate optimal flight plans that minimize fuel costs and emissions while maintaining safety. This chapter gives an overview of the role of technology in Aviation industry with respect to tourism and travel.

INTRODUCTION

More and more, people are putting pressure on the aviation industry to use AI to boost efficiency, safety, and competitiveness. The use of artificial intelligence (AI) has been pushed for by prominent aviation organizations as a means to transform operations and overcome challenges. The aviation sector is undergoing a dramatic transformation as a result of the rapid development and broad adoption of sophisticated technology. Flight planning and aircraft maintenance are two of the many contemporary aviation domains that are embracing AI-driven technologies including machine vision, natural language processing, and machine learning. New developments in artificial intelligence may one day make flying safer and more efficient, in addition to enhancing human capabilities. But it also brings up some new issues with aviation education and training. Professionals in the aviation industry need skills in new technology and how to use them if they want to be successful in AI-mediated workplaces. A thorough familiarity with these technologies is essential for this paradigm shift. In order to equip the next generation of aviation professionals with the skills needed in an AI-driven sector, this article delves

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into the importance of reviewing and changing aviation curricula, teaching techniques, and learning objectives. Using AI in the aviation business and incorporating AI into aviation education are the two main components of the flight and AI combination. Consequently, getting the hang of AI calls for both theoretical grounding in the field's foundational principles and hands-on experience building, testing, and managing AI systems. The ethical, moral, and legal ramifications of relying on AI technology for vital transportation infrastructure and services are important considerations for aviation professionals. Having a large pool of recent grads with the right set of abilities is critical if the aviation sector is going to successfully integrate AI.

. The study aims to analyse the transformation of aviation education in preparation for a future driven by artificial intelligence. There are two significant reasons why it is both timely and important. The aviation sector is seeking graduates with AI competences from institutions to meet the increasing need for AI skills. Furthermore, in order for aviation programmes to stay up-to-date and in line with the requirements of the business, it is imperative that they adapt and incorporate AI-related curriculum that enhances students' skills in this crucial field.

BACKGROUND OF THE RESEARCH:

The aviation sector is progressively utilising machine learning (AI) to improve several facets of activities, safety, and customer experience, as stated by Abubakar et al (2022). The advent of Industry 5.0 in 2023 signifies a new stage in the industrial age, characterised by the amalgamation of cutting-edge technologies with a focus on human needs and preferences. The focus is on fostering cooperation between humans and robots, promoting sustainability, and enabling personalisation. Ćosić and colleagues (2024). The mental well-being of aircraft and air traffic control officers is of utmost importance in ensuring aviation safety. AI-powered psychological management systems provide promising options for monitoring, evaluating, and improving the psychological health of aviation personnel. According to Coelho et al (2023) and Raja et al (2023), Industry 5.0 is a novel stage in the development of industries that emphasises the harmonious relationship between machines and human beings, sustainability, and customisation. This period capitalises on the technological progress of Industry 4.0, while placing a stronger focus on approaches that prioritise human needs and experiences. The aviation sector in 2020 is increasingly dependent on big data and intelligent information management technologies to improve efficiency in operations, safety, and customer service. Ivan et al (2024) describe grey relationship analysis (GRA) as an MCDM (multi-criteria decision-making) technique that is employed to analyse systems that have partial or ambiguous information. Integrating GRA (Grey Relational Analysis) with AI (Artificial Intelligence) techniques can improve processes for making decisions and operational effectiveness in aviation management. The incorporation of machine learning (AI) in aviation, as demonstrated by Kabashkin et al (2023), is necessitating the development of fresh skill sets and the emergence of novel professional positions.

These responsibilities are crucial for overseeing, upkeeping, and progressing the utilisation of AI technologies inside the sector. The aircraft sector in Merlo (2024) is progressively utilising artificial intelligence (AI) to improve operational efficiency by implementing predictive maintenance. This methodology employs artificial intelligence algorithms to forecast equipment malfunctions prior to their occurrence, enabling preemptive maintenance and reducing unforeseen periods of inactivity. The authors Mendes et al. published a paper in 2022. Effective risk administration in the aviation industry

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