

Technological Advancements and Innovation: The Drivers of International Aviation

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Abstract : As time passes, humanity will innovate and design new technology in pursuit of making various tasks easier. Whether it is something simple as making an item to socialize easier with others or to be the first to get to a meteor and mine its precious ore, humans will continue to create new ways to achieve their dreams. One industry where it is a requirement to be better, to be more efficient, to be more affordable, and to be safer is the aviation industry. While the aviation industry is struggling to keep pace with the invention of new technology, it must do so to continuously improve comfort, efficiency, and safety. There are advancements in technology and innovation that impact international aviation and that will become more prevalent in the future. Some of such advancements and innovative practices are discussed in this paper and they are as follows: (1) artificial intelligence, (2) autonomous aircraft, (3) glass cockpit, (4) jet engines capable of using kerosene-based jet fuel, (5) electric propulsion, (6) advanced materials, (7) digital twin technology, (8) fly-by-wire flight controls, (9) augmented reality, (10) virtual reality, (11) internet of things connectivity, (12) data analytics and machine learning, (13) biometrics, and (14) sustainable aviation. The research has used online research methods including social network analysis and web scraping for extracting data and information from websites automatically to analyze large amounts of information. The major findings of the study indicate that technological advancements in aviation are significantly impacting global air travel by improving safety, fuel efficiency, operational efficiency, passenger experience, and sustainability through innovations like advanced aircraft designs, sophisticated autopilot systems, improved navigation tools, data analytics, AI-powered decision making, and the development of electric and hybrid-electric aircraft, all aimed at reducing environmental impact and optimizing flight operations across the globe.

Keywords : advances in technology, artificial intelligence, innovation, sustainable aviation

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