Presentation

Francisco Heber Lacerda de Oliveira[1,*], Fabiano Rocha[2,3], Mauro Caetano[3], Evandro José da Silva[3], Giovanna Miceli Ronzani Borille[3]

1. Universidade Federal do Ceará – Departamento de Engenharia de Transportes – Programa de Pós-Graduação em Engenharia de Transportes – Fortaleza/CE – Brazil.
2. Instituto Federal de Educação, Ciência e Tecnologia do Ceará – Departamento de Ensino – Fortaleza/CE – Brazil.
3. Departamento de Ciência e Tecnologia Aeroespacial – Instituto Tecnológico de Aeronáutica – Divisão de Engenharia Civil – São José dos Campos/SP – Brazil.

*Corresponding author: heber@det.ufc.br

Air transport management enables global economic and social development by connecting people, goods, and markets in an agile and efficient manner. Regions with sparse populations, rugged terrain, and limited surface-transport options depend even more heavily on air services. Balancing expansion, modernization, and mitigation of environmental impacts must be a priority for public administration, airport and airline operators, authorities, and researchers, requiring solutions based on scientific evidence.

The strategic and operational challenges facing air transport now demand more finely tailored studies on integrating transport modes, developing and implementing sustainable technologies, and accommodating the sector's rapid growth. The International Civil Aviation Organization (ICAO 2024) projects that global air traffic will climb by roughly 4.3% per year over the next two decades. Key research fronts include applying artificial intelligence to air-transport operations (Patriarca *et al.* 2022; Sadou and Njoya 2023), devising solutions for sustainable aviation (Allal-Chérif *et al.* 2022), and advancing the field of advanced air mobility (Fox 2020; Schweiger *et al.* 2022).

In the context of infrastructure, the increased demand for air transport requires investments in runways, terminals, and air navigation systems. Studies on planning, modernization, and infrastructure optimization are necessary to ensure the system's capacity. Operational efficiency, in turn, is essential for the competitiveness and economic sustainability of the sector. Modernizing the occupations related to air traffic control, airport operations, and maintenance is essential to attract and retain a skilled workforce – an imperative rendered even more urgent in the post-pandemic era. Strategies to mitigate noise and local congestion are key to integrating with surrounding communities. The intersection of these elements constitutes a research frontier that demands collaboration between different areas of human expertise.

Continued research is essential to shrink aviation's carbon footprint and achieve net- zero emissions, yet significant academic challenges remain with respect to energy sources (Lau *et al.* 2024) and advances in aircraft technology and fleet composition (Abrantes *et al.* 2024). Airspace organization is likewise critical for sustainability, especially as urban air mobility (UAM) and drones are introduced (Aposporis 2024). This thematic section, "Air Transportation Systems: Infrastructure, Operations, and Environmental Integration," seeks to enrich both scholarship and practice by welcoming studies on topics ranging from the optimization of airport airside operations and physical infrastructure to air traffic management, regulatory frameworks, aviation sustainability, and the incorporation of electric vertical takeoff and landing (eVTOL) vehicles. The contributions are directly aligned with Sustainable Development Goals 9 and 13 (UN 2025), reinforcing the pursuit of a resilient and sustainable aviation system.

This thematic section grew out of the joint work of the Brazilian Air Transport Research Society (SBTA) and the Academia Cearense de Ciências Aeroespaciais (ACCAER). Through a series of scientific initiatives and meetings, both organizations stimulate research and dialogue on the educational, technological, economic, social, and environmental dimensions of air transport. The Journal of Aerospace Technology and Management hopes to deepen knowledge about the sector's challenges and propose viable solutions for a more efficient, safe, and environmentally responsible future of air transport by promoting dialogue and cooperation between sectors.

Received: Dec. 07, 2024 | **Accepted:** May 03, 2025
Peer Review History: Single Blind Peer Review.
Section editor: Alison Moraes

CONFLICT OF INTEREST

Nothing to declare.

AUTHORS' CONTRIBUTION

Conceptualization: Oliveira FHL, Rocha F, Caetano M, Silva EJ, and Borille GMR; **Methodology:** Oliveira FHL, Caetano M, and Silva EJ; **Formal analysis:** Oliveira FHL, Caetano M, and Silva EJ; **Investigation:** Oliveira FHL, Caetano M, and Silva EJ; **Writing - Original Draft:** Oliveira FHL, Caetano M, and Silva EJ; **Writing - Review & Editing:** Oliveira FHL, Caetano M, and Silva EJ; **Supervision:** Oliveira FHL and Silva EJ; **Funding acquisition:** Rocha F, Borille GMR, and Silva EJ; **Final approval:** Silva EJ.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable.

FUNDING

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior
Grants No: 304528/2023-4 and 304919/2022-5

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the financial support provided by the sponsors of SITRAER 2024 – Organização Educacional Farias Brito, Lufthansa Consulting, M. Dias Branco, and INFRACEA. Valuable institutional and logistical assistance was received from the Brazilian Air Transport Research Society (*Sociedade Brasileira de Pesquisa em Transporte Aéreo* [SBTA]), Academia Cearense de Ciências Aeroespaciais (ACCAER), the National Civil Aviation Agency of Brazil (Agência Nacional de Aviação Civil [ANAC]), the Brazilian Ministry of Ports and Airports, the Federal Institute of Education, Science and Technology of Ceará (*Instituto Federal de Educação, Ciência e Tecnologia do Ceará* [IFCE]), the Federal University of Ceará (Universidade Federal do Ceará [UFC]), the Aeronautics Institute of Technology (Instituto Tecnológico de Aeronáutica [ITA]), the Department of Airspace Control of Brazil (Departamento de Controle do Espaço Aéreo [DECEA]), Aeroporto de Fortaleza, Eve Air Mobility, Conselho Regional de Engenharia, Agronomia do Ceará (CREA-CE), Federação do Comércio de Bens, Serviços e Turismo do Ceará (Fecomércio CE), Brazilian Association of Airlines (*Associação Brasileira das Empresas Aéreas* [ABEAR]), and Interline Aviation School.

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