## **Data Science in Aerospace**



Project - Aircraft Certification

## Project

In this project, we are looking at investigating on whether the braking distance of an aircraft is significantly affected by certain factors, such as runway surface conditions and aircraft weight. These analysis provide value insights that can be used to enhance safety protocols, optimize landing procedures, and improve aircraft design.

The data collected<sup>1</sup> requires an analysis of braking distance of different aircraft operating on different runway surface conditions. Data processing and analysis must be made using Python.

## Tasks

- 1. Design a preprocessing phase for data inconsistencies.
- 2. Describe the obtained sample using descriptive statistical tools.
- 3. Test the normality of data.
- 4. Conduct comparison tests of the means and variances for the braking distance of an Airbus A350-1000 operating in different braking conditions, assuming normality if necessary.
- 5. Conduct further analysis that you believe could enhance the analysis's value.
- 6. Prepare a final report<sup>2</sup> that must include the following sections:
  - (a) The objectives of the study
  - (b) The methods used
  - (c) Results and discussion
  - (d) Conclusion and recommendations
  - (e) References
  - (f) Attachments
    - Must include the Python code developed for the analysis
    - When using AI tools, add a section called *Declaration of Use of AI and AI-Enhanced Technologies* with the following statement:

"During the preparation of this report the author(s) used [NAME TOOL / SER-VICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the present report."

<sup>&</sup>lt;sup>1</sup>Data for this project was artificially generated.

<sup>&</sup>lt;sup>2</sup>Plagiarism will invalidate the project's contribution to the evaluation. Upon submission, authors are required to disclose the use of generative AI in the project's writing. AI tools should be employed solely within the writing process to enhance readability and language proficiency.