

AERO 2050 CHALLENGE: **YOUNG MEMBERS INNOVATION COMPETITION.**

CONTESTANT GUIDE

Introduction

Welcome to the Aerospace Young Member's Engineering Innovation Competition.

This initiative, established by the IMechE Aerospace Division Young Members Committee, seeks to foster creativity and innovation in line with one of the Institution's Strategic Objectives for Membership Development: *"Enable and support members to effectively promote engineering, inform opinion, and stimulate innovation for the benefit of society"*.

The competition aims to highlight the commitment of the industry to develop future talent by engaging Young Members who are solving real-world engineering challenges, while simultaneously enhancing their research, communication, and presentation skills.

Competition Objectives

1. Promote innovation within the aerospace engineering community by enhancing visibility and providing a platform for Young Members to showcase engineering solutions to complex problems.
2. Develop participants' skills in communication, problem-solving and critical thinking.
3. Provide Young Members with the opportunity to research, analyse and communicate findings on an innovative aerospace idea of their choice to allow them to demonstrate both technical and non-technical skills.

Competition Challenge

Participants are invited to submit a short abstract and an 8-minute video pitch explaining an innovative idea in response to the below challenge set by the Aerospace Division.

The entry can be submitted individually, or by a lead contestant on behalf of a group of participants.

The competition challenges participants to respond to the central question from the IMechE Aerospace Division's [Aero 2050 – Flying More Sustainably Paper](#):

"How can commercial air transport and its supporting infrastructure be reinvented for a future where the required energy is supplied sustainably, without inflicting serious damage to the planet's environmental health?"

Entrants are invited to submit an innovative idea related to one or more of the following focus areas discussed in the paper:

- Transformation of fuel energy into propulsive thrust
- Current and future aviation fuel demands and emissions
- Supply and demand of alternative fuels (UK/global)
- Distribution of alternative fuels from production to airport
- Cost and economic enablers of sustainable fuels
- Certification of new propulsion systems and fuels
- Workforce knowledge and skills requirements

The idea could address any engineering challenge related to the focus areas, for example:

- Distribution of alternative fuels: How might ground operations at airports be transformed to support sustainable flight (energy use, refuelling, turnaround efficiency)?
- Current and future aviation fuel demands: How could the aerospace sector repurpose existing fleets and infrastructure for a greener transition period?
- Cost and economic enablers of sustainable fuels: How can emerging technologies (AI, digital twins, data analytics) help airlines operate more efficiently and sustainably?

Prize

The winning individual or team will receive a £200 voucher as well up to £200 reimbursed travel costs to attend the IMechE Uncrewed Aerial Systems Challenge Annual Flyoff or alternative IMechE Aerospace Division event to present the innovative idea and receive the award.

Eligibility

This competition is for Young Members within the IMechE. As per the IMechE's [definition](#) of a Young Member, this includes any Affiliate, Associate, or member who has become professionally registered within the last ten years (EngTech, IEng or CEng). This competition is therefore open to undergraduates, postgraduates, apprentices, and industry professionals and we encourage applications from all groups.

Timeline

- Competition Launch: Monday 1st June
- Application Form and Abstract Deadline: Tuesday 30th June 1700
- Video Submission Deadline: Sunday 12th July 1700
- Winning Announcement: Week Beginning 13th July
- Winner Presentation at IMechE Aerospace Division Event: TBC

Entry Format

Step 1: Application Form

Follow the [link](#) on the webpage to complete the online application form with your (or your group's) details, the title of your idea, and a short abstract outlining your proposal by the application form deadline.

Step 2: Video Submission

Following your application, you will be sent a secure link to upload your video pitch by the video deadline.

Step 3: Video Pitch

Your video should cover:

- Define the problem being addressed within the context of the challenge
- Present the proposed innovative idea and how it addresses the problem
- Address feasibility, cost considerations and sustainability impact
- Outline a roadmap for implementation of the idea

Your video can take any format that best showcases your idea: presentation of slides, a prototype walkthrough, a live demonstration, or even a series of short form content clips. The final video should be no more than 8 minutes in length.

With your consent, the video submission could be used for promotional and educational purposes (e.g. social media, event coverage), however all IP rights will still remain with the submitter. If your submission contains commercially sensitive or proprietary Intellectual Property, please indicate this on the application form. Your video will only be accessible to authorised IMechE staff and the judging panel.

Entry Judging Criteria

- **Originality & Creativity:** Your idea should be innovative. Draw inspiration from existing solutions where relevant, but we want to see your thinking and creativity in how you present it.
- **Feasibility:** Your solution should be logical and grounded in reality. Show that you have thought critically about the realistic implementation of your idea.
- **Cost Efficiency:** Demonstrate financial awareness. Consider the costs involved and highlight where your solution offers value or a viable lower-cost alternative.
- **Sustainability:** Consider the full impact of your solution such as environmental, social and economic considerations. Show that your choices are informed and well-reasoned.
- **Presentation:** Communicate clearly and professionally, and make sure your pitch covers all aspects of your idea from concept through to proposed implementation.