

ISABE – 50 Years Revolution. . .again!

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ISABE started 50 years ago when the ICAS (International Council of Aeronautical Sciences) community identified the need for a bespoke propulsion forum and conference. That was a time of revolution in aviation. The first widebody, civil transports were entering service deploying high-bypass turbofans. The availability of these powerplants enabled aircraft designs that delivered a step-change in engine efficiency, hence a significant reduction in the cost of flying, democratising the benefits of international travel for a very wide community. These high-bypass turbofans ushered in not only a step-change in fuel consumption, but also reduced noise and greatly increased the thrust available per engine. The early 70s also saw the entry into service of Concorde, a magnificent exponent of technology that permitted arrivals in New York before the departure time in London. This was another example of game-changing engine technology. Beyond these commercial successes, there was a host of ideas for supersonic and hypersonic propulsion, NASA's hydrogen aircraft evaluation, variable cycle aircraft engines, turboramjets and other novel aircraft engine concepts.

ISABE now celebrates its 50th anniversary in the midst of another time of great change. The world is gradually emerging from the Covid-19 pandemic after more than two years. Although we are not yet out of difficulties, the impact of Covid appears to be abating, and there are many that believe that this is the beginning of the end of the pandemic as gradually we are learning how to live with it. It is also a time of global turmoil when the invasion of Ukraine, wars in Africa and the Middle East plus unrest in several locations causing great international concern and tensions.

Within the narrower context of aviation, the civil industry is emerging from its deepest downturn and looks forward to a future of cleaner and affordable air travel. There are international efforts to continue to deliver affordable air travel, protecting the very widespread benefits of aviation, and bringing solutions that meet the very deep need to mitigate the aviation impact of climate change. The word 'sustainable' is gradually acquiring its proper meaning, where it indicates environmental protection and continuing economic growth. For a very large proportion of humanity, poverty is a more acute short-term issue than the environment. In the last century, great strides have been made to alleviate poverty globally; there is of course, a great deal of work still to be done. Technology holds the key to safeguarding the environment and socioeconomic benefits of continuing economic growth through aviation.

Urgent and substantial technology investments are now needed in this moment of crisis (noting that the Greek work κρισις means judgement (and decision) to ensure the protection of the environment and continuing economic growth. Aviation is a research and technology intensive field of activity and is a consistent technology donor to many other areas of human endeavour. This long-term, 'spill-over' benefit ratio has been shown to be over 30:1. Our request last year remains current: to balance the protection of affordable air travel and protection of the environment, there are two fundamental tasks our community needs to undertake:

1. to communicate widely and robustly the socioeconomic benefits of aviation
2. to communicate the exciting and important challenge to the younger generation that will deliver and benefit from the transition to 'green' aviation.

ISABE (the International Society for Air-Breathing Engines), strongly allied to the RAeS, is centrally placed to contribute to these endeavours. As we launch our next major conference in Ottawa (25-27 September 2022), this special issue of *The Aeronautical Journal* devoted to ISABE and propulsion gives a foretaste of the contributions from many nations, showing that our community has the breadth, inspiration, knowledge, innovative products and wherewithal to fly through difficult times and take us to a brighter future.