

IAF SYMPOSIUM ON COMMERCIAL SPACEFLIGHT SAFETY ISSUES (D6)
Commercial Spaceflight Safety and Emerging Issues (1)

Author: Mr. R Ashok
R V College of Engineering, Bengaluru, India

Mr. SIDDARTH KIRAN GOLE
R V College of Engineering, Bengaluru, India
Ms. Yashaswini P Bhagavath
R V College of Engineering, Bengaluru, India

NAVIGATING THE CHALLENGES AND OPPORTUNITIES IN SPACE TOURISM

Abstract

Space tourism is a rising area that poses both obstacles and benefits, with the potential to transform our concept of human exploration and economic business. This abstract gives a succinct summary of the fundamental challenges and prospective paths for growth in the field of space tourism, covering a wide range of topics from cost concerns to regulatory frameworks and the transformational influence on national economies and public image. The most significant hurdle to space travel is the high expense. Mitigating these costs requires novel propulsion technology solutions, infrastructure optimization, and coordinated efforts between the public and private sectors to simplify operations and save costs. In parallel, the regulatory framework controlling space operations is fragmented and immature, with no comprehensive requirements for safety, liability, or space traffic management. Addressing these regulatory gaps needs international coordination to build clear and equitable frameworks that promote safety, inspire innovation, and support commercial activity while protecting all stakeholders. The commercialization of space exploration has emerged as a revolutionary factor in the development of space tourism, lowering prices and boosting technical advancement. Access to space is becoming more accessible as commercial spaceflight businesses and reusable launch vehicle technologies emerge, encouraging competition and variety in the market. This privatization also fosters a thriving ecosystem of space entrepreneurs, encouraging investment in research, infrastructure, and market development. Beyond its economic ramifications, space tourism has significant benefits for governments who participate in this emerging sector. From boosting economic growth and job creation to furthering scientific research and technological innovation, the benefits of a robust space tourism industry go well beyond national boundaries. Furthermore, space tourism has the ability to inspire and educate the general public, instilling a desire for exploration and discovery through educational outreach programs, public engagement efforts, and immersive experiences. To summarize, addressing the problems and embracing the potential inherent in space tourism necessitates a collaborative and diverse approach. By tackling critical concerns such as cost reduction, regulatory harmonization, and public engagement, the space tourism sector may attain its full potential as a worldwide driver for scientific advancement, economic development.