

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)  
Commercial Human Spaceflight Programmes (2)

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COMMERCIAL HUMAN SPACEFLIGHT PROGRAMME – ENTICING OPPORTUNITIES &  
SCARING CHALLENGES**Abstract**

Enticing possibilities and benefits of commercial Human Spaceflight (HSF) on one side and the challenges and possible roadmap ahead for the commercial Human are brought out in this paper. The whole gamut of space research, development and applications has been originally taken up and traditionally limited to government owned agencies for about four decades. The involvement and even advancement by the commercial entities is on the rise since the past two decades. In this voyage, many private enterprises have proven their ability in designing advanced space crafts and developing suitable and challenging launch systems. True to the human aspirations and innovations, the world is witnessing a move towards increased HSF activity and many nations including India are embarking on these adventurous missions. Not surprisingly, some diverse but interlinked and positive developments towards Commercial HSF are witnessed in the last one decade. The role, participation and vision of commercial enterprises in HSF are also equally increasing in tandem. Success stories of SpaceX and entry of many new entrepreneurs like Blue Origin as commercial space industrialists mark the beginning of new era of commercial human spaceflight. In addition to the government funded programmes, commercial tourism including weddings in space by affordable adventurers are some of the business opportunities encouraging the industry to pitch-in the cost intensive, high-risk HSF. Jeff Foust describes them as provision of products and services involving private capital at risk; existing, or potential, nongovernmental customers for the activity; the commercial market ultimately determines the viability of the activity and primary responsibility and management initiative for the activity resides with the private sector. While the literature suggests pleasing opportunities and prospects for commercial Human Spaceflight ventures, there are equally challenging issues before the industry. The challenges are in the spheres of technology, legal and policy regime, Economics, safety and security of the assets; to name a few. Each of the technology and policy international legal regime issues in Human Spaceflight in itself is separate subject matter to be dealt at length. This paper brings out the possibilities, benefits and opportunities of HSF programme and delves on challenges in terms of the economic aspects like the investments, Return on Investments, viability etc., to be addressed by the stakeholders. Most importantly the outcome is expected to be useful in drawing the highest attention of these challenges for long-term success of these adventurous ventures and aid in drawing-up a suitable roadmap for future.