Paper ID: 75986
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IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Emerging Space Ventures, including Space Logistics and Space Safety for Sustainability (9-D6.2)

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THE ROLE OF SMALL LAUNCH VEHICLES IN DEMOCRATIZING ACCESS TO SPACE

Abstract

Small launch vehicles have emerged as a potential game-changer in the space industry, enabling cost-effective and timely access to space for a wide range of stakeholders, including startups, academic institutions, and developing countries. The paper starts with analyzing technological and market trends that have enabled the emergence of small launch vehicles and assesses their impact on the space industry's competitive landscape. Further, it examines the role of small launch vehicles in democratizing access to space and highlighting their unique features and benefit, such as lower payload capacity, shorter production time, and reduced launch costs, comparing them to larger launch vehicles. These features make small launch vehicles ideal for a wide range of applications, including small satellites or technology demonstrations. Innovative small launch vehicles, such as the Rocket Lab Electron, the Virgin Orbit LauncherOne, and others, which offer affordable and accessible launch services to a wide range of customers are carefully scrutinized in this paper. Finally, paper covers challenges faced by small launch vehicles, including regulatory barriers, supply chain constraints, and market competition and proposes solutions on how to overcome them. Overall, the paper argues that small launch vehicles have the potential to transform the space industry by making access to space more affordable, accessible, and inclusive, and creating new opportunities for innovation and entrepreneurship.