

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)  
Upper Stages, Space Transfer, Entry & Landing Systems (3)

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ADVANCED EUROPEAN RE-ENTRY SYSTEM BASED ON INFLATABLE HEAT SHIELDS:  
EFESTO-2 PROJECT OVERVIEW**Abstract**

EFESTO-2 (European Flexible Heat Shields: Advanced TPS Design and Tests for Future In-Orbit Demonstration – 2) is a project funded by the EU program Horizon Europe. It aims to further increasing the European know-how in the field of Inflatable Heat Shields (IHS), an innovative technology used for thermal protection during re-entry. The project builds upon the great achievements of the father

project EFESTO (H2020 funds No 821801) and seeks to improve further the Technology Readiness Level (TRL) of IHS. The project has four main pillars: (1) to consolidate the use-case applicability through a business case analysis for a meaningful space application; (2) to extend the investigation spectrum of the father project EFESTO to other critical aspects of the IHS field; (3) to increase the confidence-level and robustness of tools/models; (4) to consolidate the roadmap and guarantee continuity in presiding the IHS field in Europe among the scientific and industrial community. This paper presents the project's objectives, achievements, ongoing activities, and planned activities up to completion. The aim is to provide a comprehensive overview of the project's contributions to the European re-entry technology roadmap. This project has received funding from the European Union's Horizon Europe research and innovation program under grant agreement No 1010811041.