

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Future Space Transportation Systems (4)

Author: Mr. Giorgio Tumino
European Space Agency (ESA), France, Giorgio.Tumino@esa.int

Mr. Renato Lafranconi
ESA european space agency, Italy, renato.lafranconi@esa.int
Mr. Stefano Bianchi
European Space Agency (ESA), Italy, stefano.bianchi@esa.int

THE SPACE RIDER PROGRAMME

Abstract

The IXV (Intermediate eXperimental Vehicle) atmospheric re-entry mission flight took successfully place on 11 February 2015, on-board of the Vega successful 4th flight, performing the in-flight verification of critical system and technological aspects of atmospheric re-entry, paving the way for Europe to be able to return from space to Earth safely.

Building on the Vega and IXV mission successes, as well as on the results of a market survey focused on payloads end-users needs, the Space Rider programme objective is to develop a reusable space transportation system integrated with VEGA-C able to provide an in-space laboratory to end-users operating payloads for different applications in-orbit, and to de-orbit, re-enter, land on ground and be re-launched after limited refurbishment.

The combination of the most economic European launch system to access space (i.e. VEGA-C) with a reusable system requiring limited refurbishment after each return mission from space, with developments exploiting synergies and commonalities between one another, is considered the basis for the realization of a competitive European Space Transportation System enabling to routinely “access to”, “operate in” and “return from” space.

Therefore, the Space Rider design activities are building on the extensive reuse of the IXV technological solutions, and the systematic implementation of the technological synergies and commonalities with VEGA-C, with upgrades only where required to fulfil the specific application objectives. The activities have progressed at speed in the past years, reaching the completion of the Phase-C for both the flight and ground segments.

Following the successful outcome of the ESA Council at Ministers level Space19+, the Space Rider programme has received the funding required for the completion of the development and qualification phases up to the implementation of the Space Rider maiden flight planned by mid-2022, currently under implementation.

The IAC paper and presentation will provide an up-to-date insight of the status of the design, development and qualification phase, and the results from the market survey focused on payloads end-user needs.