

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS (D2)
Future Space Transportation Systems Verification and In-Flight Experimentation (6)

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THE INTERMEDIATE EXPERIMENTAL VEHICLE DEVELOPMENT STATUS

Abstract

The European ambition to return autonomously from Low Earth Orbit (LEO) was always considered a cornerstone opening to a wide range of space applications ranging from future launchers, to space planes, cargo transportation, robotic servicing of space infrastructure and so on.

The idea to feed this ambition through the development of the Intermediate eXperimental Vehicle (IXV) in Europe dates back to 2002, where an ESA inter-directorate assessment study harmonized several ESA and national activities related to experimental vehicles.

Since the beginning, the IXV was conceived as a technology platform to perform the step forward from the successful Atmospheric Re-entry demonstrator (ARD). Today's interest is increasing with respect to those robotic applications spinning-off directly from the IXV performance advantages, which will be flight proven in three years from now.

In fact, in a worldwide scenario increasingly striving for the commercial exploitation of space, the IXV mission experience will provide a unique opportunity to verify in flight competitive assets which will be useful for the preparation of future robotic space transportation developments (e.g. limited sizes, operational flexibility, and potential reusability) at limited risk and cost.

The IXV main objective is the design and the development, up to in-flight verification, of an autonomous European lifting and aerodynamically controlled re-entry system. The ongoing activities are mainly concentrating on the critical design in 2010, the subsystems qualification in 2011, and the vehicle integration for flight in 2012/13.

The 61st IAC presentation and article will give the up-to-date insight on the IXV project design and development phase, focusing on the technical and programmatic status and challenges.