Programme overview

- ESA-sponsored initiative
- Incremental approach to develop technological building blocks
- Targeted at advancing European systems for Space access with a micro-launcher design as the guiding line
- Payload capacity (<180kg) focused on small satellites
- Led by Omnidea

Activity Overview

- Early/conceptual design phase of the larger programme
- Mission definition for a flight vehicle technology demonstrator
- Two parallel and complementary studies: Suborbital Vehicle & Flight Engine
- Conceptual and initial sizing, product decomposition and lower level requirements definition
- Preceded by a launcher-level viability study that focused on a micro-launcher serving polar and SSO from the Azores
- To be succeeded by multiple parallel activities focusing on concurrent and interrelated development of several of the vehicle's and engine's subsystems

esa

European Space Agency

Omnidea

CEiiA

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ΔV

Preparation of enabling space technologies and building blocks

esa

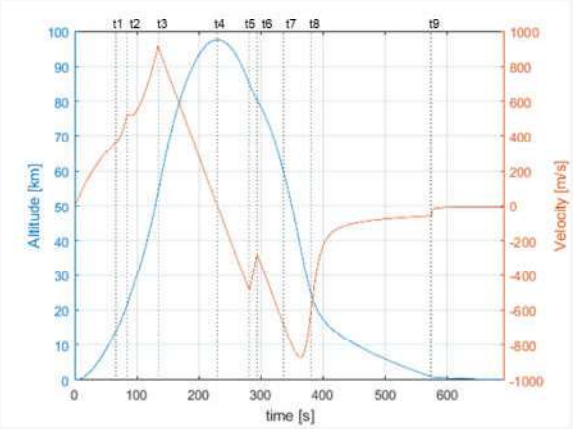
Mission

SOV Objectives:

- Validate the propulsion system design
- Validate the GNC (partially) and its development flow
- Develop and validate operational aspects: AIT, launch operations, logistics, range safety and communications and tracking
- Vehicle recovery and survivability

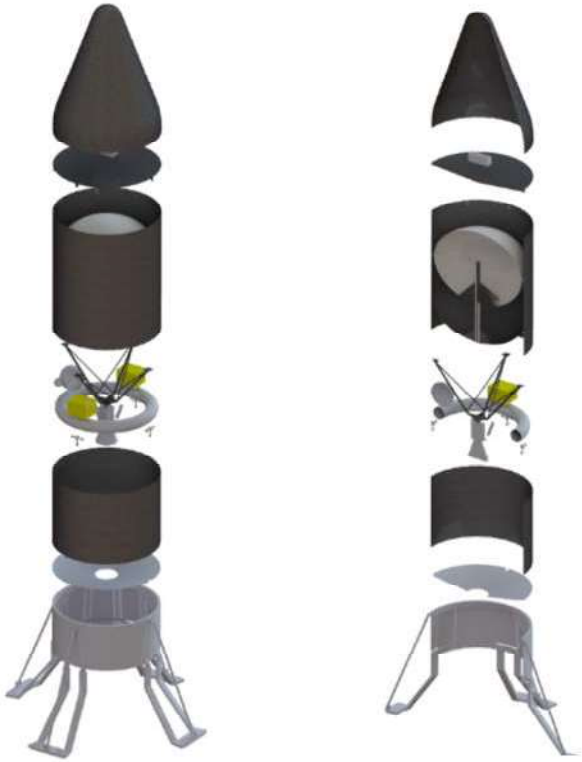
Test campaign:

- Gradual de-risking, parameters tuning and validation
- Hold-down tests – mostly aimed at the propulsion system
- Tethered tests – tune control parameters
- Sub-orbital flight – perform an end-to-end f light, gather flight data and test critical systems in a relevant environment



SOV Overview

- Suborbital vehicle derived from the 2nd stage of the orbital launcher early design
- Adapted as a technology demonstrator to fulfil the test and mission objectives
- Reconfigurable and instrumented to meet different test objectives
- De-risking key launch vehicle technologies and paving the way for future launcher development
- Developed using a building blocks approach



Flight Engine Overview

Flight Engine Overview

- Pump-fed LOx-LNG engine
- Environmentally friendly cryogenic propellants
- Battery-powered electric pump cycle
- Throttleable and re-ignitable
- Gas-fed torch igniter
- Developed using a building blocks approach
- Optional nozzle extension for use in booster and upper stages.

Key figures

Nominal thrust category	**>25 kN**
OF	**3.1**
Mass	**< 60 kg**
Specific impulse	**> 300 s @ SL**