



The European Long-term Strategy for Space Exploration - Development Approach and Status

Bernhard Hufenbach

European Space Agency, Noordwijk, The Netherlands (Bernhard.Hufenbach@esa.int, Phone: +31715655075, Fax: +31715654499)

The development of the European Strategic Framework for space exploration rests on three major pillars:

- The assessment of strategic drivers and the derivation of European long-term strategic goals for space exploration;
- The development of a broad support base as basis for a sustained European space exploration initiative;
- The analysis of European reference architectures as bases for the European contribution to the development of the International Reference Architecture and international coordination on space exploration strategies.

Two main drivers are currently assessed in detail for future European space exploration activities: (1) knowledge gain and (2) economic development. The first driver responds to the scientific interests in space exploration. Based on initial scientific consultations the scientific interests can be grouped into two themes: (1) emergence and co-evolution of life within its planetary environments and (2) lunar observatories. It is commonly agreed by the scientific community that fundamental science of high quality can be realised at any of the key destinations today considered for future space exploration missions including the Moon, Near-Earth Objects (NEO's) and Mars.

With regard to economic development, space exploration can contribute in two ways: (1) the formulation of future challenges, which can foster technological and societal innovation and (2) the creation of an environment which facilitates the emergence of future business opportunities.

A sustainable long-term space exploration activity will need to respond in a balanced manner to both of the drivers addressed above, but also needs to be rely on a broad societal support base and international coordination and collaboration. The support base includes in addition to the scientific community and the industry/ applied research organisation the general public and the political community. Both the latter two communities need therefore to be engaged from the beginning of the strategy development for ensuring that the overall rationale is well understood and that formulated European goals and objectives are shared and relevant to these communities.

Today it is well understood by all major international space actors that a sustainable long-term space exploration activity requires international coordination and cooperation. International coordination is required for development of a global strategic framework and of an International Reference Architecture for space exploration. The goal to develop an International Reference Architecture for space exploration is widely shared by all major international space agencies with a vested interest in space exploration. Europe's interest to be strongly engaged in the development of this reference architecture is twofold: it will ensure that (1) European exploration goals and objectives can be reflected in this architecture and (2) European competences and capabilities can best be integrated and utilised. International coordination will define the rules of engagement and identify commonly shared interests and thereby facilitate bi- or multilateral cooperation on the space exploration enabling capability development and research or implementation of space exploration missions.

The overall approach for the development of the European long-term strategy for space exploration, as outlined above, and the preliminary strategic orientations will be presented.