

Terrae Novae - European exploration strategy 2030

ESA/Eurospace/SME4Space

At the occasion of a well-attended workshop conducted the 21st and 22 of June with the whole panoply of European space industry (Large System Integrators, Mid-Caps, SMEs and start-ups) and also representatives of non-Space Industry, ESA revealed the first elements of what will become Europe's exploration strategy for the next decade.

The industrial attendance to the workshop represented well over 80% of the European industrial base and had the opportunity of providing their comments and points of view to the ESA 2030 Exploration Strategy.

“As shown by the overwhelming number of candidates for the current ESA astronaut selection (22500), young Europeans are enthused by space exploration; decision-makers must be made aware that we have bold plans to make such dreams a reality”. Didier Schmitt, head of strategy and coordination for robotic and human exploration, ESA.

At the start of the workshop, ESA explained the geo-political scene: at a time when the USA and China clearly state that they will ensure permanent presence in low Earth orbit, on the Moon and eventually on Mars, Europe must prepare now to remain a relevant geo-political actor in space exploration.

Due to the time lag between initial mission concepts and implementation in the space domain, a robust strategy needs to be in place a decade before it delivers the first tangible capabilities. The long term strategic objective formulated with the motto: *“more European identity, autonomy and leadership in selected areas”* will drive European capabilities and evolved cooperation with international partners. Strategic discussions span from commercially-driven post-ISS LEO infrastructures and test-beds for long-term deep space survival, to a large lunar lander (compatible with self-standing missions or in conjunction with Artemis landing), or mastering entry, descent and landing on Mars.

Plans are also ongoing to complement this picture by “multi-domain” projects across ESA directorates, such as a telecommunication and navigation system around the Moon or a versatile transfer vehicle in the Earth-Moon environment.

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In the ESA Agenda 2025, the ambition of the new Director General of ESA is tangible: an European on the Moon surface by end of the decade and a significant participation in a Human mission to Mars to have Europeans being part of the voyage.

The renaming of the programme - Terrae Novae – is a sign that that we are ready to discover new territory; the Council meeting at ministerial level end 2022 will be crucial for maturing of the Terrae Novae programme to be commensurate with the stance of Europe visa vis the US and China. David Parker, Director of Human and Robotic exploration, ESA.

Industry representatives highlighted many interesting and disruptive points during the workshop:

- European companies acknowledge and support the growing European ambitions towards global exploration endeavours, but underlined the enormous budget (and capability) gap between Europe and its partners and competitors, notably the USA and China, and is advocating for renewed and expanded commitments from European nations in view of the ESA Ministerial Council of 2022. There are strong expectations for Europe to develop and contribute to autonomous capabilities and to secure prominent roles for Europe in the global exploration scenarios.
- Many companies have stressed the European technology and capability heritage in key areas (such as transportation and in-space propulsion, robotics and autonomy of operations, high power systems, health management and support, in situ resources utilisation...), highlighting that European investments in space exploration will find a fertile ground to quickly develop into future European operational missions.
- Industry representatives have advocated for the roll-out of more frequent missions to build-in more resilience and safety and to build-up heritage. Balancing high profile ambitious long-term missions with smaller, faster and more affordable missions, will enable earlier take-up of new technology and provide a test bed for innovation.
- Industry participants also noted the promising role of private initiatives regarding the expansion of the services required in LEO, around Moon and Mars, walking in the steps of such programmes as ESA Moonlight or NASA CLPS (Commercial Lunar Payload Service). This would require to de-risk technology, enable anchor tenancy from ESA for services, promote interoperability and to enable industry models to lower the cost of resources.

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