



EU SPACE

EU-funded space research

Access to Space

Access to space is an **indispensable element of the entire value chain of space** and has been recognised as an area of strategic importance towards the direction of Europe's non-dependence. Access to space is a matter of security of supply, industry capability and technology readiness.

The Space Strategy for Europe has confirmed that **Europe shall maintain autonomous, reliable and cost-effective access to space.**

The two main objectives are to rapidly **improve launch competitiveness** (cost reduction increased flexibility) and **expand commercial space transportation offers and services.**

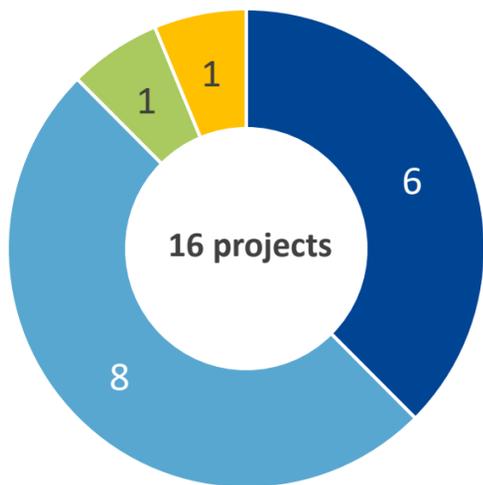
Four lines of R&I activities are carried out:

- Innovation for launchers competitiveness
- Disruptive concepts for access to space
- Fostering and enabling new commercial space transportation solutions
- Modern, flexible and efficient European test, production and launch facilities, means and tools

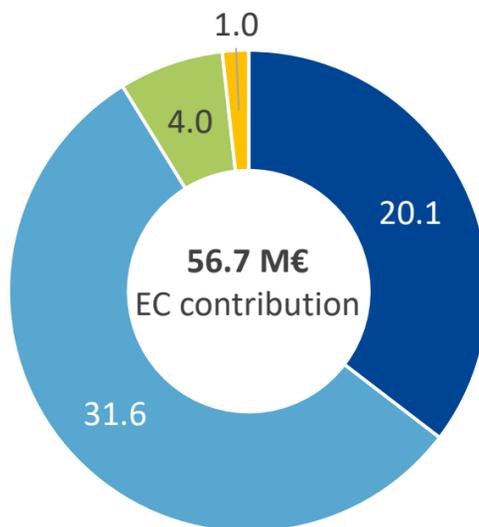


In Horizon 2020 **16 Access to Space projects** have been funded by the European Commission (EC) within these four domains of innovation activities:

Number of projects by domain 2014-2020



EC contribution by domain in M€

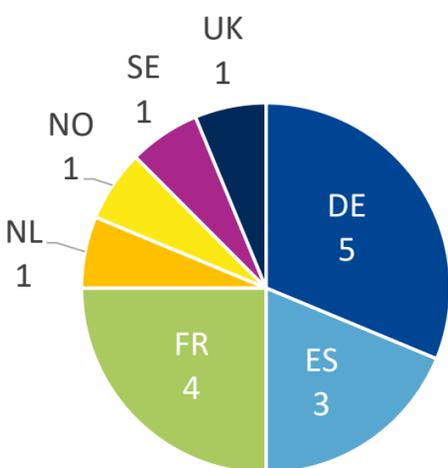


- Innovation for launchers competitiveness
- Fostering and enabling new commercial space transportation solutions
- Modern, flexible and efficient European test, production and launch facilities, means and tools
- Disruptive concepts for Access to Space

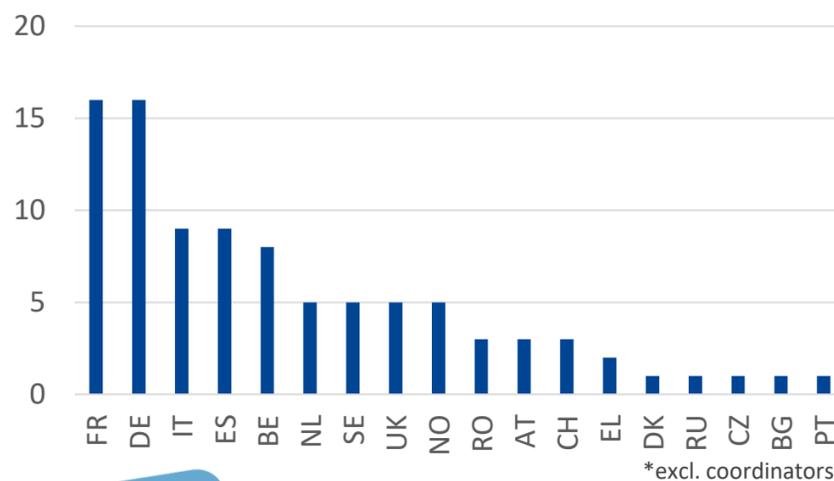


A total of **77 beneficiaries** received funding:

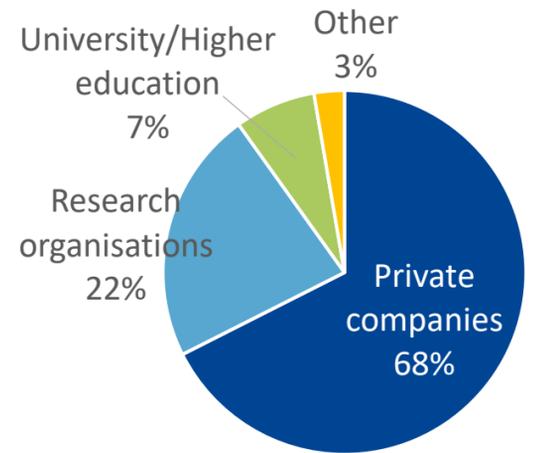
Country split of 16 coordinators



Country split of 95 participants* (incl. associated and third countries)



% of beneficiaries by type (coordinators and participants)



EU-funded space projects with focus on

Access to Space - H2020 projects

Innovation for launchers competitiveness

2015-2017, completed



Rheform – 3.5 M EUR

The project deals with the replacement of hydrazine within space propulsion systems

AT, SE, FR, DE

2015-2018, completed

GRAIL

GRAIL – 3.1 M EUR

Determining if it is possible to replace state of the art solid rocket propellant by using a mixture of new green solid propellant

DE, FR, IT, SE

2015-2018, completed

HYPROGEO

HYPROGEO – 3 M EUR

Studying a propulsion module based on Hybrid chemical propulsion

NO, DE, BE, UK, IT, PL, FR

2015-2018, completed



MaMMoTH-Up

MaMMoTH-Up – 2.7 M EUR

Improving the amount of monitored data from the sensors of a launch vehicle

SE, IT, DE

2019-2022, ongoing

FALCON

FALCON – 2.6 M EUR

Raising maturity of the advanced Reusable Launch Vehicle (RLV)-stage return mode using the “in-air-capturing” procedure

BE, AT, RO, BG, ES, DE

2019-2022, ongoing

RETALT

RETALT – 3 M EUR

Investigating the launch system reusability technology for operational and future launch vehicles

CH, PT, ES, DE

Disruptive concepts for access to space

2015-2017, completed



DEMOCRITOS – 1 M EUR

Mature technologies for nuclear electric propulsion (NEP) systems

DE, IT, RU, UK, FR

2019-2022, ongoing



SESAME

SESAME – 3.3 M EUR

Improving European launchers' manufacturing and operations through digitalisation

IT, ES, RO, FR

Modern, flexible, efficient European test, production and launch facilities, means & tools

Fostering and enabling new commercial space transportation solutions

2016-2018, completed



SMILE – 4 M EUR

Developing a concept for a European launcher system for small satellites

NO, DE, DK, RO, EL, BE, ES, NL

2015-2019, completed



ALTAIR – 3.5 M EUR

Demonstrating feasibility of a new launch system to Low Earth Orbit (LEO) for small satellites

ES, NO, IT, CH, DE, BE, FR

2018-2020, completed

ARION – 2 M EUR

Finalise the design of ARION vehicle, develop a launch infrastructure, and qualify the orbital reusable launch vehicle (sRLV) in space

ES

2019-2022, ongoing

HyTEC

HyTEC – 2.5 M EUR

Developing key technologies for a small, innovative, low-risk launcher and sounding rocket

DE

2019-2022, ongoing

PRIME – 2.5 M EUR

Developing an EU-based orbital micro-launch vehicle based on dual-cryogenic propellants that reduces both the inert mass of similar vehicles and their environmental impact

UK

2020-2022, ongoing



SAMMBA – 2.5 M EUR

Developing base services that provide cost-effective, agile and flexible launch campaigns

FR, DE, BE, ES

2020-2023, ongoing



ENVOL – 4 M EUR

Providing Europe its commercial and green launch service for small satellites

FR, DE, BE, ES, NL, SE, NO

2020-2023, ongoing

RRTB

RECOVERY AND RETURN TO BASE

RRTB – 3.1 M EUR

Investigating the recovery and return to base system (RRTB) for the 1st stage of the MESO launch vehicle by Pangea Aerospace

EL, DE, IT, BE, CZ, ES



EU-funded space research

EIC Horizon Prize on a Low Cost Space Launch

“This prize shows the importance of innovation for space technology. It represents a step ahead in our ambition to stimulate innovation and reinforce an autonomous access to space. Their solution will greatly contribute to supporting our European ambitions in space for an autonomous, reliable and cost-effective access to space”
- **Thierry Breton, Commissioner for Internal Market**

The prize is funded under Horizon 2020, the EU research and innovation programme, as part of the European Innovation Council (EIC) pilot. It launched in June 2018 to reward the most innovative, cost-effective and commercially viable solution for launching light satellites into Low-Earth Orbit, which promotes European technology non-dependence. The finalists were announced on 18 January 2022; Isar Aerospace Technologies GmbH, Payload Aerospace SL and Rocket Factory Augsburg AG.

Isar Aerospace Technologies GmbH has been awarded the **€10 million** EIC Horizon Prize on a Low-Cost Space Launch for their Independent Space Access for the European Revolution in Orbit solution. It features the development of Spectrum, a high-performance launch vehicle based on clean propulsion and specifically designed for light satellites.

The prize was one of the six European Innovation Council (EIC) Horizon Prizes, run under the Horizon 2020 Research & Innovation programme, EIC pilot.

