

The European Union space policy

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Space: an highly strategic sector

- Space technologies, data and services
 - satellite navigation and timing, Earth observation, telecommunications, access to space (launchers)
- Highly strategic
 - space technology, data and services have become indispensable in the lives of Europeans
 - daily life and economy, environmental disasters and emergency management, global challenges and climate change, security and defense
- Fast growth and deep transformation
 - space economy expanding by 7% per year over the past 13 years
 - commercialization, private investments

European setting - I

- Industrial sector
 - state-of-the-art and leading sector worldwide
 - overall space economy employs 230,000 professionals (manufacturing and services)
 - estimated value: 53-63 billion euros (2017)
- National capabilities
 - industrial sectors: **France, Germany, Italy**, United Kingdom, Spain
 - national space agency: CNES, DLR, ASI, UKSA, CDTI

European setting - II

- European Space Agency
 - world-class: R&D, European and international programs
 - intergovernmental organization; 22 MS (EU and non-EU)
 - € 6.68 billion (2020)
- European Union
 - Since the last two decades, leading actor of the European space policy

EU Space policies - I

- Treaty on the Functioning of the European Union (Lisbon, 2009)
 - shared and specific competence (articles 4.3 and 189 TFEU, 2009)
 - technical and scientific progress, industrial competitiveness, policy implementation
 - measures may take the form of a European space programme

- Initial measures
 - Research and development (FP7, H2020),
 - Flagship programs: Galileo, GMES (nowadays, Copernicus)

EU Space policies - II

- Space strategy for Europe (2016)
 - Communication from the European Commission (COM (2016) 705)
 - 4 strategic objectives: maximization of benefits; competitiveness support; autonomy in accessing space; strengthening the global role of the EU
- Space Regulation (2021-2027)
 - adopted 12 May 2021. In force, retroactively to 1 January 2021
 - establishes the European Union Space Programme and the European Union Agency for the Space Programme (EUSPA)
 - replaces the previous legislation

EU Space Programme - I

- 4 components
 - satellite navigation (Galileo / EGNOS)
 - earth observation (Copernicus)
 - governmental satellite communication (GOVSATCOM)
 - space situational awareness (SSA)
 - satellite surveillance and tracking, SST; space meteorology, SW; near-Earth objects, NEO
- Other measures
 - access to space
 - competitiveness and space ecosystem

EU Space Programme - II

- Galileo/EGNOS
 - satellite navigation programme
 - Galileo: 26 satellites in orbit; in service since 2016; the most accurate
 - EGNOS: geostationary satellites; in service since 2009; increases GPS accuracy
- Copernicus
 - earth observation program (best-in-class)
 - space component (Sentinels), in-situ component

EU Space Programme - III

- GOVSATCOM
 - reliable and secure satellite communications for institutional users
 - implementation started in 2018, with study activities
 - possible evolution: multi-orbit satellite constellation for global connectivity
- Space situational awareness (SSA)
 - main components: satellite surveillance and tracking (SST)
 - sensors (radars and telescopes) and data processing
 - mitigation of the risk of collisions in orbit, operational since 2016
 - other components: space meteorology, SW; near-Earth objects, NEO
 - possible evolution: space traffic management (STM)

EU Space Programme - IV

- Access to space (Art. 5)
 - Support to the launch services sector
- Competitiveness and space ecosystem (Art. 6)
 - Support measures: CASSINI initiative
 - groups and strengthens existing tools
 - hackathons, awards, product demonstration in orbit, accelerators, start-up and business development funding
 - 1-billion-euro investment fund dedicated to space

EU Space Programme - V

- Budget
 - 14.88 billion euros (current prices)
 - 9 billion for Galileo / EGNOS and 5.4 billion for Copernicus (roughly)
- Implementation
 - Commission; EUSPA; delegated bodies, including:
 - European Space Agency, ESA
 - EUMETSAT
 - European Center for Medium-Range Weather Forecasts, ECMWF

Other programmes (MFF 2021-2027) - I

- Europe Horizon Europe
 - EU framework research program
 - Space in Cluster 4
 - Strategic Research and Innovation Agenda (SRIA)
- Invest EU
 - Financial instruments
 - Space is an investment window
 - Dedicated instruments, in particular capital investments (equity)
- European Defense Fund (EDF)
 - Synergies: "Action plan on synergies between civil, defense and space industries"
 - Directorate General for Defense Industry and Space (DG DEFIS)

Other programmes (MFF 2021-2027) - II

- Digital Europe
 - Destination Earth (DestinE): the digital twin of planet Earth
- Next Generation EU
 - Recovery and Resilience Facility (RFF)
 - Priority: green and digital transitions
 - National plans

Destination Earth (DestinE) - I

- Objective: to develop a "digital twin" of the earth to monitor and simulate natural phenomena and human activities to support the definition and implementation of environmental and socio-economic policies
- Basic elements
 - Cloud-based modeling, simulation and predictive analytics platform
 - fast access to data and high connectivity capabilities
 - supercomputers and artificial intelligence
 - Data
 - Copernicus / Earth Observation
 - environment, ocean, users' own data

Destination Earth (DestinE) - II

- Basics (cont.)
 - Digital twins
 - adaptation to climate change, extreme weather conditions, biodiversity, oceans, urban environment
 - Applications and services
 - value added services of/for private/public entities
 - available through the platform and digital twins
- Funded by Horizon Europe and the Digital Europe Program
- Development delegated to ESA, ECMWF, EUMETSAT
 - initial services in 2025
 - consultations with institutional users are in progress
 - role of Italy: Technopole of Bologna and Frascati

Thank you for the attention

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Space Attaché

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