

# WG on Technologies From Space Exploration

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Image of Mars Gale Crater  
Courtesy of NASA, JPL/Callech

Image of Uranus  
Courtesy of NASA

# Space Exploration

Space exploration one of three key components of the WG strategy.

In the context of science driven human and robotic exploration programmes:

- Positioning of exploration, innovation and associated technologies in the H2020 programme.
- Focus on EU competitiveness by fostering regional collaborative links.
- Frame exploration in a global exploration roadmap with international cooperation as an important component.
  - Target is the Heads of Space Agencies Summit in Washington in January 2014.
  - Position paper will be an important element in this strategy.
- Space exploration important in an increasing global exploration agenda and necessary to keep Europe competitive in upstream space segment

# Technologies and Societal Benefits

- Exploration programmes where science return, human curiosity/ambitions or political factors are drivers, in all cases enabling technologies are required.
  - Technologies for societal benefits - e.g. advanced materials, power generation systems, sensors etc...
  - Impact on European citizen.
  - Maximise technology exchange from different sectors.
  - Solutions with multiple applications.
  - Exploit unique position of the scale and breadth of national, ESA and H2020 programmes.
  - Encourage structured international cooperation activities that will maximise the return for Europe.
  - Low TRL development to in orbit demonstration including small platforms, ISS and “disaggregated” systems.
  - Commercialisation (e.g. in-orbit servicing) and technologies complementary to Earth centric programmes (EO, Galileo, GMES)
- Create mechanisms to establish and sustain the partnerships between industry and academia that will deliver the technology solutions.

# Outreach, Education & Training

## Preparing a robust succession plan

**“Exploratoria”**: centres across Europe that work together with the common agenda to educate and inform the public about the benefits of space, exploration, technology development and inspire the next generation of scientists and engineers.

There are many such centres: Cité de l'Espace , National Space Centre, Planetario di Torino - Museo astronomico e dello spazio, Space Expo, etc....

Mechanisms to enable these centres to work together more effectively.

- Inspiring the next generation of scientists and engineers through educational initiatives (e.g. Space Exploration Development Systems MSc/Master’s Degree - Politecnico di Torino, Italy; ISAE, Toulouse; University of Leicester, UK)
- Cross cutting initiatives across themes particularly where technology transfer and exchange are key features, e.g. energy sector and space sector working in tandem and using techniques, methods materials etc... in structured training initiatives).
- WG Workshop – October 2013 in Leicester, UK will target all 3 elements in WG strategy. Extend an invitation to the CET-WG and Cluster-WG to participate.