Innovation lies at the heart of Europe’s planetary exploration programme, which aims to understand the Solar System, the Earth’s place in space, and the conditions needed to support life. Planetary scientists and engineers seek to answer difficult questions in some of the most challenging environments known to humanity. The innovative technologies they develop to gather and return data from across the Solar System have practical and unexpected uses back on Earth.

Companies with links to planetary missions span Europe and cover the range from multinational corporations to small suppliers of niche components. Most companies do not work solely on planetary science projects; however it is planetary missions that push the envelope of space technology most rapidly and where innovation is the most essential component.

The Europlanet 2020 Research Infrastructure (RI) provides a forum for planetary scientists and their industrial partners to identify the science and technological goals of the future and work together to find solutions.

Technological breakthroughs from planetary missions have led to viable products with commercial potential in health and defence sectors.

Technology transfer case study
Technology originally developed for ESA’s Rosetta mission has been repurposed to detect signs of bed bug infestation in hotel rooms and sniff out evidence of stomach ulcers on patients’ breath.

Innovation through planetary exploration

» Technology developed for planetary missions is by its nature innovative. Spacecraft must survive extraordinarily hostile conditions, including massive vibrations on launch, temperature extremes and high radiation doses. In building spacecraft and instrumentation to meet increasingly ambitious science goals, engineers must push the boundaries of technology and materials science.

» Instrumentation carried by space missions needs to be robust, reliable, compact and low-mass. These qualities can make space technologies highly adaptable for commercial applications.

» The international, multidisciplinary nature of planetary research is a strong driver for European innovation and collaboration between academic institutions, SMEs and industry.

» Commercial applications of technology and instrumentation derived from planetary missions have led to patents and numerous commercial ventures, both through partnership with existing companies and through start-ups.

Useful Links:
Europlanet: www.europlanet-eu.org/outreach/policy
Eurospace: www.eurospace.org/
SME4Space: www.sme4space.org/
Network of European Regions Using Space Technologies (NEREUS): www.nereus-regions.eu

www.europlanet-eu.org