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Author: Dr. Jason Forshaw
Surrey Space Centre, University of Surrey, United Kingdom, j.forshaw@surrey.ac.uk

Mr. Andrea Turconi
Surrey Space Centre, University of Surrey, United Kingdom, a.turconi@surrey.ac.uk
Prof.Dr. Guglielmo Aglietti
Surrey Space Centre, University of Surrey, United Kingdom, g.aglietti@surrey.ac.uk
Mr. Didier Gignac
Airbus Defence and Space (DS), France, DIDIER.GIGNAC@astrium.eads.net
Mr. Jean Luc Macret
Airbus Defence and Space (DS), France, jean-luc.macret@astrium.eads.net
Mr. Philippe Troyas
Airbus Defence and Space (DS), France, PHILIPPE.TROYAS@astrium.eads.net
Prof. Emmanuel Sarris
Athena SPU, Greece, esarris@athena-spu.gr
Mr. Konstantinos Margaronis
Athena SPU, Greece, Kmargaronis@athena-spu.gr

ROADMAPPING FOR EUROPE: SPACEPLAN 2020 – FINAL RESULTS

Abstract

Keeping track of technology developments within the space sector and assessing potential priorities is an ongoing and difficult task. Space agencies and organisations perform regular reviews and periodic assessments to gauge the status, identify trends and plan potential developments for each technology category, typically in the form of technology roadmaps.

SpacePlan 2020 (SP2020) is an EU FP7 funded project that seeks to identify key space technologies that will be important in the near future, specifically in the areas of: GNC, propulsion, launch vehicles (broken into structures, avionics, and propulsion), small satellites, space exploration, and robotics.

SP2020 proposes a "bottom-up approach" technology assessment methodology which utilises a series of in-person workshops to assess the importance of different technologies. Each proposed technology development is chosen to meet a growing need, address a recognised issue and focus on specific research gaps and next-generation technologies. In the latter parts of assessment, the post-workshop technologies are categorised into themes (8 in total) that include various space applications, disruptive technologies, and critical or non-dependent technologies for Europe.

This paper presents the final results of the study, which are a series of technologies (up to 7 per theme) in the core areas plus technology-level roadmaps for all relevant technologies. SP2020 doesn't compare with ESA or NASA harmonisation programmes as the project is a one-shot effort for fixed time duration. However, it aims to have a small, yet useful, contribution to roadmapping and technology development in Europe. A core part of the recommendations are in the launcher domain and the outputs from SP2020 have been harmonised with ESA's Future Launchers Preparatory Programme (FLPP). Furthermore, the recommendations have been designed to feed into the European Commission (EC) H2020 work programme to help drive future bids.