The Future of Large Space Systems

A case study on Copernicus Space Component evolution

Recent events in the aerospace world are hinting at a considerable change in the way large space systems of systems are being designed and operated. Projects and companies such as NorthStar, Satellogic, BlackSky Global, Skybox, Urthecast are announcing satellite constellations with hundreds of satellites providing new infrastructure with innovative telecommunication and earth observation capabilities. Lifetime cycles are dropping and getting closer to the technology evolution cycles in IT, real time images and video of the earth are the products these systems aim to provide.

The proposed systems will enter a context largely defined by existing systems such as Meteosat and Copernicus that have consolidated plans in the 2030s and beyond. How will the existing systems be effected by the new ones? Will the new possibilities offered in data distribution force a review of existing baselines?

The stage will be carried out in order to start to address these issues within the context of the Copernicus Space Component.

The following tasks will be carried out :

1. **Collecting and analysing** announced mega constellation capabilities.
2. **Analysing** the potential interactions (at infrastructure and at product level) between the Copernicus Space Component and future mega constellations.
3. **Providing** recommendations related to the future evolution of existing systems to leverage capabilities provided by upcoming mega systems**.**

The work is expected to be carried out initially in a 6 month timeframe.