

IAF SPACE PROPULSION SYMPOSIUM (C4)  
Interactive Presentations - IAF SPACE PROPULSION SYMPOSIUM (IPB)

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CHALLENGES AND OPPORTUNITIES FOR ORBITAL PROPULSION

**Abstract**

**Introduction:** The market for orbital activities is currently in a significant change process that affects the also the propulsion sector. Commercialisation of space, Megaconstellations allow new services and partly replace classical GEO satellites. New launchers with a wider range of applications, significant drop of launch prices and miniaturization of payload, the maturation of electric propulsion and the motivation to be more environmentally friendly and to control space debris. New exploration Missions to Moon and Mars – all these exciting new adventures require propulsion and the manufacturers have to adapt to these needs.

**Discussion** The following factors that influence the actual evolution of orbital propulsion technology will be discussed in this paper:

- Applications (change from GEO to MEO / LEO)
- Commercialisation
- New space logistics concepts
- European exploration Missions
- Electric Propulsion
- Sustainable green propulsion with different technologies
- Clean Space Requirements (Demisability, Deorbit)

**Conclusion** The market for Orbital propulsion is rapidly changing compared to previous decades. This paper describes ArianeGroup's view, its current capabilities but also the development activities that are undertaken to allow to use our universe as effective as possible.