

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
In-Space Transportation Solutions and Space Logistics (8)

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EMPOWERING THE SPACE TRANSPORTATION ECOSYSTEM: SAB'S VISION FOR THE
FUTURE OF LOGISTICS IN SPACE

Abstract

The evolving landscape of space logistics and transportation is driven by an escalating demand for orbit insertion, ride-shares, and active debris removal, fueled by the flourishing in-space economy and more affordable access to space. In the longer term, the lunar economy and the vast potential for In-Situ Resource Utilisation (ISRU) are also becoming key drivers for in-orbit services (IOS) and expanding access to higher orbits and ex-GEO. As this demand intensifies, the Agencies are envisioning a future where the supply of in-space transportation capabilities facilitates access to new destinations and missions, such as spacecraft servicing, refuelling, life extension, and Active Debris Removal, to name a few of the future services.

In this context, SAB Space Logistics presents its visionary stance for the future of in-space transportation, extending beyond traditional access to space. The framework includes a hub of launch and in-orbit services prioritising flexibility and cost-effectiveness by integrating modular and expandable design of its vehicles and by establishing international cooperations with key players, eg for refuelling. The in-space logistics infrastructure encompasses building blocks for LEO, GEO and lunar orbits in the shorter, medium, and longer term respectively:

- IOSHEX, a revolutionary hybrid solution for ride-share orbit insertion and robotics In-Orbit Services, leveraging the successful VEGA's SSMS ride-share platform. In collaboration with the Space Rider platform, IOSHEX extends its capabilities to enable interoperability and exchange of payloads, hosting experiments for extended microgravity environments. Enhanced by the ECHOS (Effective Combined Hub for OpErations in Space) initiative, fostering collaboration in a broader IOS ecosystem, SAB envisions an industrial environment with multiple entities cooperating, optimising resources through a cooperative, building-block approach.
- GEOHEX, a space transportation vehicle delivering small satellites from GTO into GEO and providing IOS in GEO, is a pivotal component of this visionary ecosystem.
- MONHEX serves as a reliable shuttle service between Earth and the Moon, facilitating the delivery of satellites into lunar orbit, hosting payloads, and delivering landers and rovers to the surface.

In conclusion, SAB's vision transcends commonplace narratives of space exploration, foreseeing a future where in-space transportation plays a pivotal role in scientific discovery, commercial endeavours, and global connectivity. Through SAB's integrated ecosystem, spanning launch services, innovative solutions like IOSHEX, collaborative ventures with Space Rider, and the introduction of space tugs such as GEOHEX and MONHEX, SAB aims to strategically shape the future of logistics in space.