

Contribution by ClearSpace SA to the Workshop of the Working Group on the Long-term Sustainability of Outer Space Activities

ClearSpace, an in-orbit servicing (IOS) company dedicated to the development of a safer and more sustainable space ecosystem, is pleased to provide its written contribution to the workshop of the Working Group on the Long-term Sustainability of Outer Space Activities as part of the sixty-first session of the Scientific and Technical Subcommittee (STSC) of the Committee on the Peaceful Uses of Outer Space (COPUOS).

ClearSpace is creating the technologies that will support a wide range of services in orbit, from inspection and transport to life extension and disposal. These foundational capabilities set the stage for even more advanced in-orbit operations such as assembly, manufacturing, repair, and recycling. ClearSpace is actively working on three missions – two to remove derelict objects from low Earth orbit and one in geostationary Earth orbit to extend the life of communications satellites – that will trailblaze the commercialization of such services.

In-orbit servicing and maintenance will soon become the backbone of the space ecosystem, as critical elements for ensuring the safe and sustainable use of space in the long term. The development of such capabilities is a concrete way in which the industrial sector contributes to the implementation of the Guidelines for the Long-term Sustainability of Outer Space Activities (LTS guidelines). The availability of servicing capabilities will help stakeholders implement effective space debris mitigation and remediation measures and better address the risks to people, property, and the environment from space activities.

While effective debris mitigation practices are essential for ensuring the long-term sustainability of space activities, many experts think that this alone will not be sufficient. The availability of efficient and affordable in-orbit servicing solutions to remove obsolete objects and improve the management of satellites' end-of-life is also necessary. Additional services, such as in-space refueling, repairing, repurposing, and upgrading, not only hold the potential to create a more sustainable space economy but also to enhance the reliability of space infrastructure while unlocking novel opportunities for space exploration. In-orbit servicing capabilities are a significant step towards a circular space economy that more efficiently uses finite terrestrial and space resources, while limiting pollution and adverse effects from space activities.

Efforts by the international community and national governments to facilitate the development and commercialization of these services are material examples of how the LTS guidelines are being implemented today. One area where the international community and national governments could do more to facilitate the emergence of commercial in-orbit services is the establishment of a pragmatic approach to licensing commercial in-orbit servicing activities. Clear mission authorization pathways are instrumental to securing private investment necessary to the establishment of a robust in-orbit servicing ecosystem. Such authorization pathways need to recognize the diversity of in-orbit servicing activities and the benefits they bring to the near-Earth environment and the long-term use of space. The net benefits of those activities need to be holistically evaluated to enable their rapid licensing.

Another area where the international community and national governments can help the realization of trailblazing missions and, in a second step, wide-scale adoption of servicing capabilities, is the clarification of third-party liability aspects associated with such operations. Standardizing international

agreements that clarify liability apportionment amongst stakeholders in servicing missions will simplify licensing, insurance, and even the servicing contracts themselves.

Finally, national governments have a major role to play in setting up a viable ecosystem by providing development funding for novel in-orbit servicing capabilities and by procuring such services once commercialized, as a way of providing the early-adopter demand signal needed to launch new markets.

ClearSpace SA is grateful for the opportunity to raise these important topics with the Working Group on the Long-term Sustainability of Outer Space Activities of the STSC.

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