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Author: Ms. Giuliana Rotola  
Space Generation Advisory Council (SGAC), Italy

## INTEROPERABILITY AND OPEN STANDARDS FOR FUTURE LUNAR EXPLORATION

**Abstract**

Interoperability standards will be critical for the future development of lunar activities. Section 5 of the Artemis Accords states that parties will commit to utilizing current interoperability standards for space-based infrastructure and establishing such standards when current standards do not exist or are inadequate. However, some problematic aspects could slow or limit their exchange and implementation. The first aspect is the balance in space activities between international cooperation and national security, which finds a response in export control issues and the consequent limitation to transferring technologies. The second aspect arises when implementing the standard necessitates the use of technology and inventions protected by patents and licenses. This work looks at the limitations that export control poses to international cooperation and offers a solution through the development of open source technology, which constitutes an exception to the application of export control regimes in the US EAR regime and the European Union legislation. It also looks at the potential incentives for open innovation to allow interoperability improvement both for the industry and the public sector. The adoption of standards would lead to a more effective and sustainable application of competition and innovation models. Standards guarantee more excellent stability and offer more significant opportunities for competition between partially different but interoperable products. The solution of open sources adds to this a more incredible chance of international collaboration at the government and agency level and the inclusion of different actors, including commercial ones, regardless of geographical limitations. Therefore, although export control issues remain a limit in general to development and innovation in the space sector, open innovation can provide an excellent collaborative solution.