



Perspective Blog - July 2023

## Commercial Space Technology Transfer in Challenging Times

Tatiana Quercia

*The war in Ukraine has highlighted the momentum and impact of commercialization in the space industry. Comprehensive guidelines for upholding open access to new technologies and international, intergovernmental and public-private partnerships are imperative.*

### Justifying Comprehensive Guidelines

The invasion of Ukraine caught space institutions unprepared and left the whole space community astonished. The space industry has a long history of cooperation and interdependence, achieved after the first decades of fierce technological competition between Russia and the US. After over one year of war, the space industry once again faces the challenges of division concurrently with an ongoing revolutionary wave of commercialization. For example, Roscosmos unilaterally suspended all Soyuz launches operated by Arianespace in response to EU sanctions. Upholding an ethic of unity and collaboration under these circumstances is a difficult task, but referring back to international laws and treaties can help show the way. The UN Office for Outer Space Affairs represents the authority in global space agreements. Its ASTRO portal (Accessing Space Treaty Resources Online)<sup>1</sup> is a database collecting the most important national and international legislations and policies on space activities. For example, the Outer Space Treaty<sup>2</sup> is a foundational work accessible within ASTRO, as it defines the principles regulating space exploration. These works are a great starting point for conversations on access and collaboration, but a truly global agreement on open access to new technologies, focused on more than the space industry's most powerful actors, has yet to be formulated.

### Promoting Commercialization

Idea-sharing and innovation requires talent acquisition with a global, collaboration-focused mindset. Constant exchange is required for this process to happen. Initiatives such as INNOspace Masters<sup>3</sup>, an innovation competition sponsored by the German space agency at DLR, offer the setting to foster this teamwork. Other examples are the Technology Commercialization Office at George Washington University<sup>4</sup>, which supports ideas from the lab to customer delivery, as well as the NASA Technology Transfer Program<sup>5</sup>, which ensures new space technologies are broadly available to the public. Originating from the program, NASA Spin-Off<sup>6</sup> offers an overview of NASA's commercial success stories.

---

<sup>1</sup> United Nations: Office for Outer Space Affairs. "Accessing Space Treaty Resources Online (ASTRO)," URL: <https://astro.unoosa.org/astro/en/index.html>.

<sup>2</sup> Outer Space Treaty (English version). United Nations Office for Outer Space Affairs (UNOOSA). URL: [https://www.unoosa.org/pdf/gares/ARES\\_21\\_2222E.pdf](https://www.unoosa.org/pdf/gares/ARES_21_2222E.pdf).

<sup>3</sup> INNOspace Masters. "INNOspace Masters Home Page". July 7, 2023. URL: <https://innospace-masters.de/>.

<sup>4</sup> The George Washington University. "Technology Commercialization Office". URL: <https://commercialization.gwu.edu/>.

<sup>5</sup> NASA Technology Transfer Program. "NASA Technology Transfer Portal Home". URL: <https://technology.nasa.gov/>.

<sup>6</sup> NASA Spinoff. "NASA Spinoff Home Page". URL: <https://spinoff.nasa.gov/>.



### Adopting Military Tenets

The risk of misuse of space technology during conflict justifies the institution of a global space governance<sup>7</sup> aimed at non-interpretible rules and regulations, evolving from the pre-existing treaties with the consequences of conflict in mind. Like in the military, openness and transparency should be emphasized within defined boundaries. Intentions and purposes for a technology should be declared before transfer, in order for the appropriate body to judge its compliance with global interests. As the transfer can occur between different entities<sup>8</sup>, [public, private and international](#), its traceability throughout the process must be ensured. Research conducted in The Netherlands concluded that Small and Medium-sized Enterprises (SMEs) transfer technology as a spin-in to the defense sector<sup>9</sup>. Given the severe US policy restrictions on transfers, particularly with China, SMEs should be supported by external institutions to ensure the safe and fair transfer of new technologies.



**Author Bio:** Tatiana Quercia is a space engineer with a Master in Satellite Systems and Services (2021, Sapienza University of Rome). She is Assistant Project Manager at Large Space Structures GmbH. She has worked in Project Management for customers like the European Space Agency and Airbus.

---

<sup>7</sup>Goguichvili, S., Linenberger, A., & Gillette A. "The Global Legal Landscape of Space: Who Writes the Rules on the Final Frontier?" Wilson Center. URL:

<https://www.wilsoncenter.org/article/global-legal-landscape-space-who-writes-rules-final-frontier>.

<sup>8</sup> "Transforming Remote Sensing Data into Information and Applications". Chapter 4, paragraph "Transferring Technology". National Research Council. 2001. Washington, DC: The National Academies Press. DOI: 10.17226/10257. URL: <https://doi.org/10.17226/10257>.

<sup>9</sup> Sezal, M. A., & Giumelli, F. "Technology transfer and defence sector dynamics: the case of the Netherlands." URL:

[https://pure.rug.nl/ws/portalfiles/portal/253680452/Technology\\_transfer\\_and\\_defence\\_sector\\_dynamics\\_the\\_case\\_of\\_the\\_Netherlands.pdf](https://pure.rug.nl/ws/portalfiles/portal/253680452/Technology_transfer_and_defence_sector_dynamics_the_case_of_the_Netherlands.pdf).