



Moon Dialogs

Registration Mechanisms for the Moon

A Moon Dialogs Salon Report

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Context

The fifth research salon focused on operational considerations for registration mechanisms. We looked at how the current registration system can evolve to include lunar and cislunar activities and what capabilities and infrastructures will be required, considering operators' incentives, policy considerations, and tensions about transparency.

The discussants were Michael Newman, Legal Officer for UNOOSA, which maintains the world's official registry of space objects; and Johnathan McDowell, an astrophysicist at the Harvard-Smithsonian Center for Astrophysics, who independently maintains the largest open database of artificial space objects in the world.

Michael Newman presented the role of UNOOSA in executing the UN Secretary-General's responsibilities under the Registration Convention, collecting information concerning objects launched into outer space, and making that information available through an online index on the UNOOSA website. Newman discussed the history of registration, going back to Resolution 1721B (XVI) as the General Assembly in 1961 called upon States to establish a public registry to disseminate information, promote international cooperation, and guarantee the peaceful uses of outer space. The Registration Convention expanded and refined the notion of registration, going beyond the mere establishment of States' jurisdiction over space objects, to require basic information about the space object itself, including orbital parameters, to link the State of jurisdiction to the State responsible for national activities, and provide a link between the OST art. IV (peaceful purposes), VI (authorization and supervision of national activities), VII (liability), and VIII (registration). With the increasing number of launchers and space activities, in 2007, the COPUOS Legal Subcommittee recommended to the UN General Assembly to adopt a Resolution on registration practices (A/AC.105/891). This further advanced registration practices by creating a form for States to file information about space objects (A/RES/62/101). Today, the State Party on whose registry an object is launched to outer space inform UNOOSA through the official counterpart that usually is the Ministry of Foreign Affairs or the Department of State in the United States. Information comes in the form of a formal communication that UNOOSA receives and translates into the UN's official languages, and then disseminates without altering or changing the content, through the office's online index, for transparency and confidence-building.



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CONTEXT CONTINUED:

Johnathan McDowell explained that the difference between a registry and a catalog is that a registry is something where an object's owner provides information under some regulations, whereas a catalog looks at what people truly know about that object. The Registration Convention aims to deliver complete, accurate, and timely information. Still, he argued, these goals are not currently achieved because registering States often provide data with gaps and even incorrect information. Catalogs like McDowell's offer external validation, and are critical for assessing what is in the registration documents, as well as being useful for other applications.

Lunar Catalogs

The discussion moved to the lunar case, and it was noted how historically there is a lack of information on objects operating beyond Earth orbit. Although the UN's registration form provides a space to indicate the celestial body the object is orbiting around, today, state practice does not generally provide information on items located beyond Earth orbit.

There are existing catalogs concerning surface objects, collecting information on all the items located on the Moon, like the one created by the non-profit organization For All Moonkind. However, most of these registries contain historic records. There are also a number of independent efforts proposing to act as private lunar registries but these would need to address questions of authority, legitimacy or endorsement as the keeper of new records.

For new and ongoing lunar activities, different data is needed, especially moving from an orbital context to surface operations. For example, we need to consider aspects like latitude and longitude instead of apogee, perigee, and inclination. This is one reason why currently, McDowell's catalog does not include landed objects. Newman noted that international law does offer the possibility of providing this information through art. XI OST; however, it is upon States what data they want to present.

It is also more difficult to track objects beyond Earth Orbit, so there is a qualitative difference with a lunar exploration registry. Yet, with radio signals and optical tracking, we are starting to pick up signals at a lunar distance, so this is the right time to start putting together an official record of what is out there on the Moon. The issue is identifying for whom and for what information such registration would be required, or how to incentivize voluntary participation.



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Incentives and the Role of Operators

An aspect considered is the existence of incentives for space actors to share relevant information and create a lunar registry. According to Newman, initially, States' motivation was not committing a wrongful act in front of the international community. Today, the meaning of legality of space activities has changed; actors operating in space are different, and so will be their future interactions. Considering activities concerning space resources, for example, if a single actor or a group of partners does not see the need for seeking these activities' legality in an international dimension, there will not be any substantial interest that draws countries to debate these issues and find compromises. Until now, the legality of space activities was linked to the possibility of creating damage on Earth. Today instead, some states may feel left out, but there will not be any substantial damage to those not involved in lunar activities. McDowell disagreed on this point, as there are likely to be conflicts for activities conducted on a particular location on the Moon, like the Peak of Eternal Light on the Lunar South Pole. And this is the sort of conflict that could provide incentives to states to come to the table and discuss coordination mechanisms.

Another participant considered that registration is one of the critical aspects of how we operate in space and how the evolving commercial activities are handled, also and above all, since the liability regime depends on the registration of space objects. Countries are unwilling to register objects on which they don't have control anymore after the launch, as they are deemed responsible and liable for damages created through their nationals' activities. To enforce effective registration mechanisms, States should indeed develop policies on jurisdiction and responsibility perspectives, creating informal or formal agreements on the possibility of registering space objects without prejudice to their rights and obligations under the Liability Convention. Viewpoints from different sorts of operators were also presented. From a governmental operators' perspective, they have to be authorized and supervised by a regulatory agency. Viewpoints from different sorts of operators were also presented. Regarding governmental operators, their activities are licensed by regulatory agencies if meeting the national legislation requirements.

In the event of damage, despite the state being the one deemed liable, government operators could be claimed against and are therefore incentivized to maintain the license in compliance with its requirements. From the commercial operator's perspective, not all the actors are even aware of the existing problem, and many consider likely operating in their ecosystem without reflecting on potential interference with other players. Therefore, guidelines for future lunar activities are needed to educate private companies on considering these issues, even if the regulatory requirements will become more apparent with a more concrete understanding of the lunar environment and its drawbacks.

Top-down or Bottom-up Regulations

A relevant aspect touched during the salon was the question of the registration for lunar operations. One participant underlined that the existing system regulates the registration of space objects, hence not including the notification of space activities. The current legal framework provides the basis for recording such information through Art. XI of the Outer Space Treaty, which encourages member states "to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such (space) activities." Today, this provision has only been used in a limited number of cases*. However, the application of Art XI OST would create a link between the notification of activities and the due regard principle established by Art IX OST, as the dissemination of information by the Secretary-General would notify space actors and create a duty to consult in case of harmful interference. Operators must realize that if States are not active in this regard, it is in their interest to educate regulators to do this on their behalf.

*[HTTPS://WWW.UNOOSA.ORG/OOSA/EN/TREATYIMPLEMENTATION/OST-ART-XI/INDEX.HTML](https://www.unoosa.org/oosa/en/treatyimplementation/ost-art-xi/index.html)

Future Perspectives

A participant observed that we need to look at the big picture before moving to the Moon or Mars. The number of concerns related to space is increasing, for example the tension between mega-constellations and astronomy or the threats of orbital debris. On the Moon, pursuing international cooperation can save a lot of time, money, and duplication. It was proposed to let an international body similar to the UN decide what has to be done to plan our human exploration of space. This institution could propose missions, and operators should then bid for contracts to conduct them.

It is clear that existing systems are inadequate for the activities that will take place beyond Earth Orbit, and there is the need to cooperate internationally for the creation of a new mechanism encompassing the interests of both state and commercial actors. In the short term, we need practical solutions. To this aim, it could be useful to use the existing framework provided by art. XI, and the creation of a relevant practice by major space actors.

Policy Recommendations

As a result of the considerations refined during the webinar, thanks to the interactions between conveners and the more open Moon Dialog community, we concluded that there is a need to ensure a minimum degree of coordination among upcoming lunar activities. Registration of activities in some form will also be key to future space resource governance frameworks. This calls for a two-stage approach to improve existing mechanisms in the short term and create new ones in the long-term.

In the short term, lunar activities (as beyond launch registration, already covered under the Registration Convention) could be notified through a combination of national registration and international communication.

- First, each State involved in Lunar activities should promptly register them preferably in a national lunar registry or, alternatively, in a dedicated section within its existing national registry of space objects.
- Following, each State should promptly and accurately communicate its registered lunar activities to the United Nations' Secretary-General under Article XI OST, to ensure their international dissemination. As reminded by Newman during the webinar, the UN is prepared to receive and disseminate collected information.

Subject to the reliability and verifiability of the information provided, this mechanism would then trigger the obligations to pay due regard and consult in case of foreseeable harmful interferences under Article IX OST, thus significantly reducing the risk for conflict.

In the long term, this system should be stabilized by developing an international register maintained by an international organization (e.g. ITU, UNOOSA, or a new institution), to secure global coordination and enhance the verification process of registered activities.



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POLICY RECOMMENDATIONS CONTINUED:

In this context, it is also noteworthy the role and responsibilities of commercial actors, as lunar operators should be aware of national regulatory processes and, when sharing information about their activities, they should consider the recipients of that information and how to serve the purposes of the registration agreement best. First steps in this direction would be:

- Member States at COPUOS to adopt an agenda item on this topic to further develop norms and shared agreements or channel the discussion through existing agenda items:
 - Agenda item n.6 could host discussions on international communication (through the combination of Articles IX and XI OST);
 - Agenda item n.8 could host discussions on the role of national registries and explore the potential for a minimum harmonization.
- A respected third party forum or an entity created ad hoc for this purpose with a mandate of a limited number of years, to host a series of meetings for government and private operators to discuss mutual interests and the contents of lunar registration.
- Adoption of guidelines to operate, in the beginning, in conjunction with the existing registration mechanism.
- Envision a verification process of the provided information through the intervention of the third party or ad hoc entity and/or encourage the Member States to voluntarily provide evidence to back up their registration. Incomplete or non-verifiable information could be regarded as insufficient to trigger the obligations under Article IX OST.
- Creation of a standard template to streamline the registration and communication processes for lunar activities. It could be created: Within the work of the third-party forum or ad hoc entity, Through a Code of Conduct stipulated between private companies.

As emerged during the conversation, the existing mechanism in use under the Registration Convention, aimed at the registration of space objects, will not be sufficient to collect valuable information on the myriad of activities that may soon occur on the lunar surface or in lunar orbit.

A future lunar registry, which will be the key to underpin all future sustainable resource utilization governance frameworks, should receive complete, accurate, and up-to-date information, and recognize that this should happen in the interest of private actors and will be critical to its implementation.