**United Nations Office for Outer Space Affairs (UNOOSA)**

Chair Report

[Agenda A: Regulating the management of mega-constellations (system of satellites) and space debris]

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## About the United Nations

The United Nations is the largest intergovernmental organisation that was founded in 1945 after World War II. Consisting of 193 member states, the United Nations endeavours to sustain international peace, security and cooperation, guided by the United Nations Charter.

A replacement for the League of Nations, the United Nations has been the centre of discussion and euphony for multilateral issues such as general disarmament, international security, multilateral cooperation, international economy, human rights affairs and sustainable development. The United Nations is operated under six major organs - The Secretariat, General Assembly, Security Council, Economic and Social Council, Trusteeship Council and the International Court of Justice. The United Nations has also assigned other specialised agencies and rapporteurs in reach for international peace and security.

Sessions of committees pertaining to the United Nations carry arduous responsibilities of perpetuating peace and humanitarian rights. Delegates of member states thrive to represent their designated nation and to form an international consensus on a myriad of agendas.

## Committee Introduction

The United Nations Office for Outer Space Affairs (UNOOSA) is the exclusive United Nations office dedicated to space-related issues, which serves as the secretariat of the Committee on the Peaceful Uses of Outer Space (COPUOS). Its origin dates back to October 1957, when the Soviet Union launched the first artificial satellite, Sputnik 1, which raised concerns about the maintenance of peace in outer space. In response, the General Assembly (GA) declared its establishment in its resolution 1348 (XIII) of 13 December 1958. Since then, UNOOSA has acted as the custodian of international cooperation in space, successfully adopting several multilateral treaties by the GA. Currently, the Office is headquartered in the United Nations Office at Vienna, continuing to play a prominent role in outer-space related conferences, legal frameworks, and GA resolutions.

UNOOSA's core mandate is written as: "to promote international cooperation in the peaceful use and exploration of outer space, and in the utilisation of space science and technology for sustainable economic and social development." In practice, this means the Office works across legal, scientific, and technical fields to ensure that space activities are conducted for the benefit of the entire global society. More specifically, they manage the United Nations Register of Objects Launched into Outer Space, where approximately 88% of all satellites, probes, and outer space elements have been registered through this convention. Additionally, UNOOSA directs the United Nations Programme on Space Applications to make the benefits of space technology available for developing countries that lack financial and technological resources. They even coordinate initiatives such as UN-SPIDER for space-related disaster management and the International Committee on Global Navigation Satellite Systems (ICG).

## Agenda Introduction

Mega-constellations, also known as the system of satellites, are thousands of spacecraft orbiting Earth, and are becoming one of the most significant issues in the modern space era. Since the Space Race during the Cold War, outer space has been a strategic domain for countries to emphasize their technological and military superiority through the launch of their own satellites. This trend persists into the 2020s, as spacefaring nations and private corporations deploy massive numbers of satellites into orbit. Indeed, these projects bring several benefits, as satellites play a crucial role in modern society by enabling communications, navigation, weather monitoring, disaster response, and military operations. However, when these projects aren't managed meticulously, they simultaneously threaten the long-term safety and sustainability of outer space satellites.

The consequences of this issue are diverse, stretching beyond economic, technological, and legal sectors. When mega-constellations aren't properly managed, debris levels will increase exponentially, harming satellite operations. Without these satellites, none of these essential functions will be operated, leading to the disruption of international internet networks, state security and infrastructure services, and any technological system that billions of people rely on, resulting in severe economic losses worldwide. Furthermore, a small piece of debris may totally disable or destroy a satellite worth billions of dollars, and force states or companies to launch a replacement satellite, which is highly costly and further increases the risk of collisions. This vicious cycle makes it harder for developing countries to engage in and benefit from outer space, which widens the technological gap between spacefaring and non-spacefaring nations.

Given these challenges and their significance, delegates of UNOOSA are encouraged to lead the global community in establishing clear and cooperative guidelines that maintain the benefits of mega-constellations while mitigating space debris. This agenda directly aligns with the 2030 Sustainable Development Goals (SDG), particularly SDG 9: Industry, Innovation, and Infrastructure, and SDG 12: Responsible Consumption and Production. It also intertwines with UNOOSA's mandate on the utilization of space science and technology for sustainable economic and social development, while ensuring that all member states, including developing countries, can share the benefits and opportunities of outer space.

## Key Terms

### Mega-constellations

Mega-constellations are extensive networks of satellites that orbit Earth to provide a variety of technological services, including internet systems and weather forecasts. They represent a major transition in the space industry from nation-led missions into commercial operations operated by private corporations. The increasing number of them raises new challenges for orbital safety and international cooperation.

Space Debris

Space debris refers to any orbiting substance without an intended purpose, such as inactive satellites, detached rockets, and tiny fragments from collisions. These materials remain in space for years, increasing the probability of collisions with active spacecraft. Managing this debris is essential to prevent the long-term instability of the space environment.

Low Earth Orbit (LEO)

Low Earth Orbit (LEO) is the outer space area that extends from 160 to 2,000 kilometers above Earth's surface. It is the area where most of the satellites and debris are located due to its proximity and cost-effectiveness for launches. The rapid increase of spacecraft in LEO has made it the most congested and vulnerable orbital region.

Sustainability

Sustainability in the context of space technology refers to activities that protect the orbital environment for future generations. Currently, most space operations are conducted without any sustainable considerations, only pursuing short-term benefits. Achieving sustainability requires long-term strategies that limit debris, promote cooperation, and ensure equal access to space for all member states.

Collision Risk

Collision risk is the probability of satellites or debris colliding in orbit, which increases proportionally with the number of objects. While these satellites are precisely coordinated through tracking systems, space debris hovers unpredictably, making collisions harder to prevent. In order for an object to orbit Earth, it must exceed the first cosmic velocity, which is over 28,000 kilometers per hour, meaning that even a fragment as small as one centimeter can destroy an entire operational satellite, generating even more debris and a higher risk.

## **Historical background**

One of the most prominent treaties designed by UNOOSA was the Outer Space Treaty of 1967, created as a response to the Space Race between the US and the Soviet Union. It declared that the exploration and usage of outer space must benefit all humankind, prohibited the placement of weapons of mass destruction in orbit, and forbade any nation from claiming sovereignty over any astronomical objects, including stars, planets, and moons. It also assigned states full responsibility for all space activities conducted under their jurisdiction. This treaty became the foundation of international space law and set guidelines for how nations must interact beyond Earth.

During the 1970s and 1980s, space technology rapidly advanced. Satellites began to play essential roles in global communication, GPS navigation, and weather forecasting, ultimately transforming outer space into a vital element of daily human activities. Consequently, the increase in launches also proportionally increased the amount of debris. In order to address such issues, the Liability Convention of 1972 required nations to be financially responsible for any damage caused by their space objects. Subsequently, the Registration Convention of 1976 required all countries to register their launched objects to the United Nations, promoting transparency and accountability in space operations.

Regardless of these treaties, the entire space industry began to alter its structure in the following decades. Due to the excessive costs of space operations and the limited budget of governmental systems, many began inviting private corporations to share the financial and technological burden of space exploration. This entry of corporations brought in a new trend in the space industry, with the primary objective shifting from political prestige to profit maximization. Hence, innovation began to focus on reducing costs through technologies such as reusable rockets and smaller, mass-produced satellites. These innovations successfully reduced the launch costs from roughly 54,500 dollars per kilogram during NASA's Space Shuttle program in the 1980s to under 2,000 dollars per launch for SpaceX's Falcon series today. The reduced costs directly led to increased profitability for the space businesses, which attracted more companies to enter the space industry, ultimately transforming outer space into a commercial area.

This particular transformation of the satellite industry made the past treaties ineffective in managing mega-constellations. While the treaties were designed to regulate member states, they were partially applied to private corporations. For instance, Article VI of the Outer Space Treaty reads as: "States Parties to the Treaty shall bear international responsibility for national activities in outer space, whether such activities are carried on by governmental agencies or by non-governmental entities." This explicitly shows that regulation on private corporations are relied on each states' jurisdiction and national licensing, which vary widely. Many states hesitate to impose strict regulations on firms, seeking for economic growth and security advancement, while private corporations pursue mega-constellations for profit maximization. Furthermore, with the rapid increase of these satellites, global tracking lacks accuracy and credibility, which hinders traffic management and collision avoidance.. Hence, an international guideline must be established that aligns with the global trend of mega-constellations for its effective management.

## Status Quo

*Rapid Expansion of Commercial Mega-Constellations*

Currently, the number of space activities in LEO is meeting a new record of growth rate, mainly for the purpose of being part of the mega-constellations. Statistically, annual launches of space objects reached their highest ever in 2023-2024, with 2,895 objects recorded in 2023 alone. (UNOOSA) This is an explosive growth compared to 586 objects in 2019, and the historical steady rate of just 161 objects recorded in 1965. In other words, the growth over the past 5 years is more than 4 times the growth of the previous 6 decades.

The main driving force for this phenomenon is the commercialization of outer space. In 2023, US agencies accounted for 2,234 out of 2,895 objects (77.2%), and 1,935 of those were

SpaceX's Starlink satellites. Other actors are planning to follow this trend, notably Eutelsat OneWeb's first-generation network comprising 648 satellites, and planning for the second-generation constellation with 6,300 satellites. Likewise, Amazon's Project Kuiper aims to deploy 3,232 satellites for easier Internet access. China has also entered the race with the Guowang and Qianfan constellations, each planning to deploy 13,000 and 15,000 satellites. With all these corporations accumulating, the European Space Agency (ESA) projects that with the current rate, around 100,000 satellites will orbit in LEO.

From the perspective of developed countries, the rapid expansion of mega-constellations is driven by economic competitiveness, technological leadership, and the security dilemma. According to the Council on Foreign Relations Task Force on U.S. Strategy for Space (2025), the US considers LEO as a "critical strategic domain" to gain advantage over other spacefaring nations. China similarly frames its mega-constellations as part of its Digital Silk Road initiative: an extension of the Belt and Road initiative (BRI) designed to strengthen global digital connectivity with partners across Asia, Africa, and Latin America. Analysts note that Chinese-controlled satellite networks could enhance China's regional interdependence and expand its technological influence over developing countries. In short, the space race has revived since the 1960s with different competitors.

*Escalating Collision Risks*

The prominent consequence of the rise of mega-constellations is the massive generation of debris. Historic events illustrate the compounding nature of this problem. Notably, in 2009, two satellites, Iridium 33 and Cosmos 2251, collided with each other, creating over 1,800 pieces of debris 10 cm and larger. More recently, in 2021, Russia conducted a direct-ascent anti-satellite (ASAT) missile test, which destroyed one of its own satellites, Cosmos 1408, creating more than 1,500 trackable debris. This debris directly threatened the International Space Station (ISS), forcing the astronauts on board to evacuate in their escape capsules for several hours. These events accumulated into the current massive debris population, further escalating the collision risk. According to the European Space Agency, as of April 2025, there are an estimated 40,500 pieces of space debris larger than 10 cm, around 1.1 million particles between 1 and 10 cm, and hundreds of millions of smaller particles that are too small to be tracked. Compared to 12,149 active satellites as of May 2025, most of the orbiting objects are uncontrolled and potentially hazardous.

Consequently, measurements of current space operations reflect this growing collision risk. In 2023, the European Union Space Surveillance and Tracking (EU SST) detected 15,639 close approaches between space objects, and approximately 1,000 of them were considered high risk, meaning that space operators had to conduct collision-avoidance maneuvers to prevent the collision. Additionally, SpaceX's Starlink performed 144,404 collision-avoidance maneuvers between December 2024 and May 2025. These data even warn, or predict the occurrence of the "Kessler Syndrome," which is a theoretical scenario of a cascade of collisions by a chain reaction of one creating more debris, eventually making LEO completely unusable for satellites or outer-space missions.

*Economic Consequences and Unequal Access*

The orbital crisis not only brings in technical burdens to the operators, but also direct economic implications. Even though the launching costs have decreased over the decades, satellites are still relatively expensive to design, construct, launch, and operate. Even worse, the current situation adds daily expenses, including salaries for extra staff for monitoring, tighter tracking, and frequent engine burns during collision-avoidance maneuvers. Those burns also consume fuel and shorten the satellite's durability, forcing earlier replacements and ultimately higher operation costs. In short, even without actual collisions, the congestion of the orbit brings significant economic burdens.

Meanwhile, malfunctions and losses of satellites generate costs far beyond the space sector. As noted previously, satellites in modern society are irreplaceable due to their prominent role in a variety of sectors, such as communications, navigation, finance, transport, and weather systems. Thus, when satellites malfunction or are destroyed by collisions, this leads to a crucial economic loss across these sectors. A UK government study in 2023 estimates that the loss of Global Navigation Satellite Systems (GNSS) for 24 hours is £1.42 billion, and the loss for 7 days is £7.64 billion. These figures demonstrate the necessity of strict operational management and immediate response plans to minimize these economic losses.

For developing countries, these economic implications translate into barriers to entering the space industry. The statement of the G-77 in February 2025 is written as, "the deployment of mega constellations, if not carried out sustainably and equitably, may pose a risk of congestion of Low Earth Orbit (LEO), which would be a significant disadvantage in the use and exploration of space by developing countries." With additional expenses caused by congestion, the threshold for entrance is raised for these countries. In addition, even after a successful deployment, they do not have sufficient economic and human resources to conduct strict maneuver operations. Hence, a higher risk of collisions prevails for these nations compared to other developed nations. Thus, space operations are unrealistic and unreasonable for developing countries to join in, which discourages investment and capacity building. As a result, the gap between spacefaring and non-spacefaring nations widens, leading to the escalation of unequal access. Ultimately, this gap leaves the management of mega-constellations to a few countries, which will prioritize their national interests and gains over a safe and sustainable orbital environment.

*Weak Regulatory Frameworks*

One of the main causes of the explosive growth in mega-constellations is the transition from national missions to private operations, mainly due to the weak regulatory frameworks that govern and mitigate these private sector corporations. The core treaties that serve as the foundation of today's space law, notably the 1967 Outer Space Treaty, were written in the state-centric era. Thus, these treaties are now outdated as they place obligations solely on states, not directly on companies. This leaves firms to operate under uneven national legislation, which possess significant flaws. The most prominent limitation is weak and ambiguous penalties for corporations who break those regulations. For instance, when DISH Network failed to properly deorbit its satellite, the Federal Communications Commission (FCC) fined $150,000. However, the 2024 research from Brown University revealed that deorbiting satellites costs from $4 million to $13 million. Therefore, from the manager's perspective, breaking the law and paying fines is a financially reasonable decision. Additionally, the fundamental characteristic of outer space as a public good, of being non-excludable and non-rival, reduces incentives for any single actor to take responsibility for long-term sustainability. Hence, it instigates the "tragedy of the commons," in which states hesitate to impose strict restrictions on corporations. As such, national legislations are ineffective in properly restricting its domestic firms, allowing massive deployment without taking responsibility for the resulting debris.

In 2019, COPOUS adopted the Guidelines for the Long-term Sustainability (LTS) of Outer Space Activities, which mitigate space debris, encourage transparency, and require responsible practices. However, these guidelines are still non-binding and voluntary. As firms prioritize profit maximization over any other objectives, they reasonably choose jurisdictions with lighter oversight, ultimately making coordinated space traffic management harder. Hence, this gap between international regulations and market behavior reveals why a new, clear, enforceable international consensus must be established that matches the status quo.

## Past Actions by Nations and Organizations

*United States of America*

In September 2022, the Federal Communications Commission (FCC) introduced a "5-year rule," which requires satellites operating in LEO to be disposed of within 5 years after the mission is considered to be ended. More specifically, the FCC treats "end of mission" as when a spacecraft is no longer able to perform collision-avoidance maneuvers. This regulation shortens the previous time period from 25 years to 5 years, with the main purpose of reducing the accumulated number of dead satellites resulting from the mega-constellations. FCC suggests that this will reduce collision risks by pushing operators to plan earlier deorbiting and prompting regulators to review their own timelines.

One distinctive feature of this regulation is that it applies not only to US corporations but also to foreign operators seeking access to the US market through FCC licensing. As the US is the leading market for the mega-constellations industry, the FCC optimistically views this regulation to have a significant effect beyond the US. However, the requirement applies to satellites launched after late September 2024, meaning that the actual impact of this regulation will be measured after those missions have terminated.

*United Kingdom*

The United Kingdom, through the UK Space Agency (UKSA), launched a national-level debris removal program, named the Active Debris Removal (ADR) mission. This mission requires corporations to safely capture and deorbit at least two dead UK-licensed satellites. On September 26th, 2022, UKSA awarded a total of £4 million to two companies for their mission designs and proposals: £2.25 million to ClearSpace UK for its CLEAR mission proposal, and £1.7 million to Astroscale UK for its COSMIC server concept, which is a robotic debris-removal servicer design. Subsequently, on July 3rd, 2025, the UK government opened a £75.6 million competitive procurement process between those firms to select one supplier for their first-ever ADR mission, which has yet to be publicly announced. This ADR mission is expected to be effective in reducing debris by removing defunct satellites, which are main causes of orbital collisions. Nonetheless, it is targeted for launch by the end of 2028, allowing its effectiveness to be measured and evaluated by then.

*International Telecommunication Union (ITU)*

The International Telecommunication Union (ITU) is the United Nations' specialized agency for information and communication technologies. With 194 member states, including both spacefaring and non-spacefaring nations, it sets global rules for the use of radio spectrum and satellite orbits, primarily through the Radio Regulations, the international-level rulebook. Under these rules, ITU requires all member states to file, coordinate, and notify their satellite networks so that the radio frequencies and orbital data can be recorded. Initially, once a country submitted a filing, it had seven years to place at least one satellite into service on the submitted frequencies. However, as mega-constellations rapidly grew, this single 7-year span was insufficient to manage traffic and coordination between satellites, as firms could file for huge systems but deploy only one satellite within 7 years, leading to "paper constellations."

In response, at the 2019 World Radiocommunication Conference, ITU adopted Resolution 35, which requires operators of large non-geostationary constellations to meet deployment milestones. After the initial 7-year period, operators must launch at least 10% within the next two years, 50% within the next five years, and 100% within the next seven years. If these milestones are not met, the radio frequencies will not be secured. These milestones are inscribed in the Radio Regulations, meaning that they are legally binding on all member states and are applied through national licensing.

The purpose of this action is to stop "paper constellations," and it directly supports the management of mega-constellations and debris. By requiring large systems to deploy in staged steps, it enables the prediction of the growth in the number of satellites in orbit, which helps national regulators to track and manage mega-constellations. Additionally, paced launching lowers collision risks by avoiding a sudden, unpredictable, explosive number of launches at the same time. It gives regulators time to prepare for attaching and enforcing debris mitigation conditions to each launch. However, these milestones still do not limit the total number of satellites deployed by corporations, which fails to address the long-term challenges of mega-constellation size and debris growth.

*United Nations General Assembly (UNGA)*

The UNGA adopted Resolution 77/41 in December 2022, which calls on states "not to conduct destructive direct-ascent anti-satellite missile (ASAT) tests." (UNGA) This resolution was motivated by the Russia 2021 ASAT test mentioned above, which demonstrated that a single ASAT test could generate a significant amount of debris that critically impacts orbital safety. Concerned by its previous incident, this resolution received broad support and has prompted many countries to announce their own moratoria, including the US, Canada, New Zealand, Germany, and more. However, as it was voluntary rather than legally binding, states that disagreed, notably Russia, have not joined the moratorium. Moreover, this resolution targets only one aspect of debris creation, which requires a solution with a broader scope.

## **Stances of Major Countries and Organizations**

*United States of America*

The United States supports the rapid commercial growth of mega-constellations while managing risk through strict national licensing and debris rules. Seen from their FCC 2022 5-year rule, the US now utilizes its market leader position, as it treats market access as leverage, making debris practices a licensing condition for any operator that desires to serve US customers. Additionally, the US promotes voluntary norms and practical coordination that regulators can quickly adapt, rather than waiting for larger global legal frameworks.

Furthermore, it primarily advocates efforts against debris-creating tests, as exemplified by its being the initiator of the UNGA 77/41 Resolution. Allies, including Japan, the UK, and many EU members, generally support this operational approach due to its immediate, direct effects. However, critics argue that it prioritizes the impact on their domestic market and does not put binding limits on the overall size of mega-constellations. In other words, due to their own benefit, they hesitate to tackle the fundamental cause of this issue.

*Japan*

Japan supports mega-constellation growth for its economic and technological benefits, but only with strict debris prevention and active clean-up. It licenses private operators under the 2018 Space Activities Act, and eagerly incorporates UN Space Debris Mitigation Guidelines and the COPUOS LTS Guidelines in its national legislation. More specifically, Japan requires each licensed mission to include a clear, reliable plan for the removal of satellites from orbit once the mission is finished, and the operator must demonstrate its ability to conduct precise collision-avoidance maneuvers while in operation. Moreover, Japan invests in space-situational awareness (SSA) to monitor space debris, track close approaches, and enhance its overall space security. Beyond prevention, Japan funds ADR demonstrations through Japan Aerospace Exploration Agency (JAXA), including their program with Astroscale's ADRAS-J, launched on February 18th, 2024, which is designed to inspect and characterize large pieces of space debris.

*Russia*

As a warring nation, Russia's stance is skewed towards security rather than safety. Russia mainly argues that managing mega-constellations must not only focus on debris mitigation, but also include binding, security-focused restrictions. Russia points out the duality of commercial satellites, as they may be used to support military operations during a crisis. Thus, Russia has long promoted a legally binding international ban on all weapons in space, including the rules about how these constellations should be used in conflicting situations. With this stance, Russia was one of the nine countries to vote against the UNGA's Resolution 77/41, arguing that a voluntary moratorium focused on only one test is insufficient for preventing an arms race in space. Additionally, in 2024, they vetoed a UNSC draft proposed by the US and Japan related to preventing a space arms race with the same justification of calling for a wider ban on weapons in space. Many states condemned Russia's security-first stance and its worsening of the situation with incidents such as the 2021 ASAT test. Meanwhile, a few states, including China, Bolivia, Cuba, and Iran, which are notable for being against the US, agree with Russia's stance on not letting their rivals gain military advantages through their voluntary policies.

*India*

India, as a developing nation, supports the growth of its commercial space sector while balancing sustainability and strategic autonomy on security. On the one hand, India has been involved in international discussions on debris mitigation. The Indian Space Research Organization (ISRO) follows the UN Space Debris Mitigation Guidelines and has established its own space situational awareness initiative, Project NETRA, to improve tracking of constellations. On the other hand, India is protective of its strategic autonomy, which is evident from "Mission Shakti" in 2019, its own ASAT mission that destroyed one of its own satellites in LEO. Moreover, India abstained from the UNGA 77/41 resolution. Meanwhile, as a developing nation, India also calls for equitable access to LEO, requesting spacefaring nations to provide their data transfer and transparency. As a whole, India is cautiously cooperative on space debris mitigation, which aligns with both developed and developing nations.

## Possible Solutions

*Enforceable Global Debris Mitigation Standards*

The biggest challenge for mega-constellation management is weak regulations, which are non-binding and voluntary. To address this, a conversion from current guidelines into mandatory national regulations is necessary. In this model, the international organizations, mainly UNOOSA, would set the standards, and the national space authorities, such as FCC or UKSA, would implement and enforce these guidelines with the integration of domestic policies. This solution is feasible as it does not introduce new obligations, but rather builds upon the existing international guidelines and the requirement of early deorbiting and debris prevention. Instead, the main challenge lies in securing consistent compliance from major states and corporations. This could be resolved through the alignment of national licensing rules among spacefaring nations, providing market incentives for compliant firms, and punishing violating firms with tangible, critical consequences.

When these conditions are met and mandatory regulations are successfully implemented for each country, it would significantly reduce the number of inactive satellites hovering in orbit, which are primary sources of collision risks. In addition, corporations will operate their constellations more systematically with enhanced coordination, reliability, and effective performance on collision-avoidance maneuvers. Collectively, this would mark a substantial improvement in the overall governance and safety of mega-constellation operations. However, stricter requirements may increase costs for emerging operators or small-scale missions, which potentially limits access for developing countries. Thus, international cooperation is essential to ensure that not only spacefaring nations, but all member states can meet shared sustainability targets.

*International Space Traffic Management (STM) System*

Another major issue that hinders proper management of mega-constellation systems is weak communication and cooperation within states. Therefore, an International Space Traffic Management (STM) system would create a coordinated global service to notify satellite launching plans in advance, monitor satellites, share collision warnings, and apply common norms and procedures during collision-avoidance maneuvers. In particular, these procedures would include standardized alerting, data formats, and decision protocols, so that operators from different nations would react predictably during close approaches. Ultimately, a global STM system would reduce redundant conjunctions, mitigate debris growth, and establish predictable, cooperative management of mega-constellation operations worldwide.

Nonetheless, this solution faces significant political and distrust obstacles, as it requires international cooperation and data sharing among polarized rival states. As mentioned above, given Russia's stance of prioritizing security and its concerns about satellites' military usage during war, it is unlikely that Russia and its allies will agree to share crucial satellite data with the US and its allies. Thus, the STM framework must be precisely designed to avoid security breaches and pose threats to any member state. One possible way is to apply the system only on civil and commercial satellites, while exchanging precise data under protected agreements from all member states. Another method is to bring in an independent third-party verification to ensure the neutrality of the system, with no state benefiting from shared data or procedures. Eventually, these arrangements will strengthen trust, widen participation, and further amplify the impact of any solution on the agenda.

*Managing Mega-Constellation Growth*

The most direct way to ease congestion and lower collision risk is to manage the pace and the scale of the growth of mega-constellations. UNOOSA would convene member states and corporations to set the maximum number of constellations in specific orbital layers, preventing overcrowding in LEO. Subsequently, national regulators would translate these norms into official licenses that would authorize deployments to stretch their plans in steps for a longer time, rather than launching them all at once at an unmanageable level. This phased approach would keep the density of the orbit within agreed limits, while allowing services provided by satellites in a controlled environment.

However, it is true that currently, not many states pursue this solution due to the losses that countries and corporations will face. First of all, economic losses are massive. Decreasing the total number of deployments, or even stretching them out, would most likely result in revenue declines and an increase in operating costs, and even a loss in market competitiveness against others that don't adopt these solutions. There are strategic concerns as well. Governments may fear that slowing deployments may cause them to lose technological advantage and create security vulnerabilities towards their rivals. Thus, in order to make this solution plausible, meaningful incentives must be offered to actors who accept this solution. For instance, financial incentives may include tax reductions, fee waivers, or priority access to satellite contracts. Hence, the source, form, and scale of these incentives, with the objective criteria for eligibility, must be negotiated multilaterally and reviewed periodically, so that the benefits of the solution outweigh the costs of compliance for all member states and corporations.

**Questions to Consider**

- What single deorbit deadline should apply in low Earth orbit, and will states verify completion of deorbit through independent tracking or public compliance logs?
- Should there be a numerical cap on satellites per orbital shell or per operator, and if so, who allocates those slots, how are dormant slots reclaimed, and what criteria decides the priority when two proposals compete?
- What exact tracking data must every operator share in near real time, and through what common channel will that data be published so all states can use it?
- How will collision-avoidance maneuver authority be assigned during a close approach, who must maneuver first, and what evidence must be recorded to resolve disputes after an incident?
- What specific requirements will ensure reliable tracking for small satellites without excessive propulsion?
- What global debris-mitigation standard will be the floor for national licensing, and how will states handle operators licensed in countries that apply weaker standards?
- How should compliance be audited in practice, how often should audits occur, and what penalties will apply to offenders?
- What concrete restraints and penalties will the international community adopt on debris-creating tests, such as ASAT tests?
- What technical and financial support do developing countries need to join space management, what training modules are required, and how will their tracking data be integrated and credited in the global society?
- Which information should be public by default, and which information should remain confidential for security while still allowing safety oversight?

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**United Nations Office for Outer Space Affairs (UNOOSA)**

Chair Report

[Agenda B: Capacity building of space technology in developing countries for the mitigation of inequality between countries]

Yonsei Model United Nations 2026

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## About the United Nations

The United Nations is the largest intergovernmental organisation that was founded in 1945 after World War II. Consisting of 193 member states, the United Nations endeavours to sustain international peace, security and cooperation, guided by the United Nations Charter.

A replacement for the League of Nations, the United Nations has been the centre of discussion and euphony for multilateral issues such as general disarmament, international security, multilateral cooperation, international economy, human rights affairs and sustainable development. The United Nations is operated under six major organs - The Secretariat, General Assembly, Security Council, Economic and Social Council, Trusteeship Council and the International Court of Justice. The United Nations has also assigned other specialised agencies and rapporteurs in reach for international peace and security.

Sessions of committees pertaining to the United Nations carry arduous responsibilities of perpetuating peace and humanitarian rights. Delegates of member states thrive to represent their designated nation and to form an international consensus on a myriad of agendas.

**Committee Introduction**

The United Nations Office for Outer Space Affairs (UNOOSA) is the exclusive United Nations office dedicated to space-related issues, which serves as the secretariat of the Committee on the Peaceful Uses of Outer Space (COPUOS). Its origin dates back to October 1957, when the Soviet Union launched the first artificial satellite, Sputnik 1, which raised concerns about the maintenance of peace in outer space. In response, the General Assembly (GA) declared its establishment in its resolution 1348 (XIII) of 13 December 1958. Since then, UNOOSA has acted as the custodian of international cooperation in space, successfully adopting several multilateral treaties by the GA. Currently, the Office is headquartered in the United Nations Office at Vienna, continuing to play a prominent role in outer-space related conferences, legal frameworks, and GA resolutions.

UNOOSA's core mandate is written as: "to promote international cooperation in the peaceful use and exploration of outer space, and in the utilisation of space science and technology for sustainable economic and social development." In practice, this means the Office works across legal, scientific, and technical fields to ensure that space activities are conducted for the benefit of the entire global society. More specifically, they manage the United Nations Register of Objects Launched into Outer Space, where approximately 88% of all satellites, probes, and outer space elements have been registered through this convention. Additionally, UNOOSA directs the United Nations Programme on Space Applications to make the benefits of space technology available for developing countries that lack financial and technological resources. They even coordinate initiatives such as UN-SPIDER for space-related disaster management and the International Committee on Global Navigation Satellite Systems (ICG).

**Agenda Introduction**

In the 21st century, access to space technology has become a defining factor in national development. Satellites provide services of communications, navigation, weather forecasting, agriculture, and disaster management. However, the benefits of these technologies are distributed unequally, with most developing countries lacking the resources or infrastructure to operate their own space programs.

The potential benefits for developing countries are immense. Satellite imagery can support more efficient farming, strengthen water and forest management, and build resilience against climate change. In addition, online communication through satellites can connect remote populations to education, healthcare, and economic opportunities. Moreover, building local expertise in space science and technology creates jobs, fosters innovation, and provides younger generations with skills that would later contribute to national growth. By missing out on these significant opportunities, the gap between spacefaring and non-spacefaring nations will gradually be widened, making this issue harder to solve.

Therefore, addressing this issue is urgent and critical for building a more equal global space order. This agenda links directly to SDG 9: Industry, Innovation and Infrastructure and SDG 10: Reduced Inequalities. Delegates are encouraged to integrate these two SDG goals in exploring policies and agreements that prevent space technology from being monopolized by a few actors, and guide the global community to empower developing states to equally share the benefits of outer space. In doing so, delegates must fully consider the financial limitations and the current capacities of developing nations, ensuring that their proposals are practical and sustainable.

## Key Terms

### Capacity building

Capacity building is the development of essential knowledge, skills, and institutional structures for countries to effectively utilize space technology. It includes training experts, strengthening educational systems for teenage students, and establishing technical infrastructure to support independent space operations. With these capacities, nations are able to become active participants rather than passive audiences in space technology.

### Spacefaring Nations

Spacefaring nations are countries with the capability to conduct their space operations of designing, launching, and managing satellites or other spacecraft. Primarily, the United States, Russia, and China are identified as spacefaring nations, while South Korea, the United

Kingdom, and Germany are emerging as new spacefaring nations. A common feature among these nations is their substantial financial capacity; since space technology is not a primary national objective for nations, only those with excessive financial resources can afford to allocate significant funding to this sector.

Technology Transfer

Technology transfer is the structured exchange of scientific knowledge, equipment, and expertise from advanced spacefaring nations to developing countries through formal agreements, partnerships, or licensing programs. This process enables access to satellite data, launch services, and technical tools that are unattainable from developing countries due to financial and technological constraints. Effective technology transfer helps minimize the global gap between the nation groups and ensures the shared benefits from space applications.

Monopolization

Monopolization in the space sector portrays an emerging issue of a few powerful actors, particularly private corporations, gaining most control over satellites, launch systems, and space data. This concentration of ownership allows them to dictate how technology and information are shared, which often leaves developing nations with limited influence or access. As a result, the space industry is driven by private interests rather than collective progress.

Private Sector

The private sector is a business term that refers to companies and organizations that are owned and operated by individuals rather than governments. In the space industry, private corporations have gradually become prominent actors, taking on the roles that were once dominated by the public sector. This phenomenon may enhance innovation and profitability, but it also operates without strict global guidelines, raising concerns of transparency and accountability in data sharing, decision-making, and international cooperation.

**Historical background**

During the Cold War, the outer space sector was completely dominated by two superpowers, the United States and the Soviet Union. With the development of global media, space operations were powerful instruments to highlight their technological superiority over the other to the global audience. This intense competition eventually instigated rapid advancements in space technology, such as the successful Apollo 11 Moon landing in 1969, which was once referred to as an impossible, unachievable mission. However, innovations and the resulting benefits were concentrated within these two nations, leaving the rest of the world behind.

In the following decades, other nations gradually began to join these two nations. Notably, European nations formed cooperative agencies such as the European Space Agency (ESA) in 1975. Meanwhile, Asian countries, including Japan, India, and China, also initiated their own independent space programs. However, these expansions were also exclusively allowed by a few wealthy and industrialized nations, as the costs of space operations were extraordinarily high. As a result, developing nations were largely excluded from the emerging space technology.

After the Cold War, the importance of satellites and space technology rose exponentially on the agenda of national security and economic growth. Thus, wealthier nations expanded their supplies and infrastructure, while developing countries continued to rely on imported data and services. When the space industry shifted to the private sector, this dominance was inherited by powerful private corporations. Unlike nations that are obligated under international frameworks for technology transfer, there are no binding legal frameworks that require private corporations to do the same. Hence, this trend in the industry even intensified the concentration of ownership in outer space. For instance, as of May 2024, SpaceX's Starlink satellites take up about 60% of the total active spacecraft in orbit.

**Status Quo**

*Widening Access Through Cooperation*

In recent years, international cooperation has significantly increased access of developing countries to space technology, which can be seen from multiple programs worldwide. One key example is KiboCUBE, a partnership between UNOOSA and the Japan Aerospace Exploration Agency (JAXA), which allows university teams from developing countries to build and launch CubeSats. CubeSats are small, low-cost satellites that are roughly the size of a shoebox, and these CubeSats were launched from Japan's "Kibo" module on the International Space Station (ISS). As a result, countries like Kenya, Uganda, and Paraguay have deployed their first national satellites. Similarly, China has opened its Tiangong space station to research experiments from 17 developing countries, while NASA has partnered with universities in Africa and South America on balloon-based astrophysics missions.

Meanwhile, regional cooperation is also a growing trend. The African Space Agency (AFSA), established by the African Union, coordinates data sharing and technical training across multiple African countries. Likewise, Latin American nations formed the Latin American and Caribbean Space Agency (ALCE) to develop shared space missions, while the Arab Space Cooperation Group, led by the UAE, is building regional Earth observation capabilities. These institutions aim to reduce duplication, lower operational costs, and ensure that even countries without launch infrastructure can benefit from satellite services.

However, most cooperation efforts are short-term and are not developed further. For instance, CubeSat programs provide valuable training to university students, but rarely lead to sustained national capabilities without additional investments. Additionally, many developing countries depend on foreign partners for satellite launches, ground stations, or even basic data interpretation, as they lack that infrastructure or humanitarian expertise. Hence, without domestic infrastructure and long-term planning, countries only participate symbolically rather than engage in meaningful space integration.

*Structural and Institutional Barriers*

The most challenging barrier for developing countries is the structural obstacle to the long-term, independent use and development of space technology. Building and operating satellites not only requires massive financial investment but also advanced infrastructure, such as cleanrooms, testing facilities, and ground stations, that is largely unavailable across much of developing countries. Thus, even when countries manage to launch a satellite, they often rely on foreign facilities for mission control, data interpretation, or basic analysis. These gaps diminish sovereignty and make it difficult for these countries to continue performing such space missions.

Another major obstacle is the shortage of human capital. Aerospace engineering, satellite operations, space law, and data science are specialized fields, while developing countries often lack university programs, technical training sectors, or career paths to raise such skilled experts. Even when international training opportunities are available, talented individuals often leave the country due to limited local employment opportunities and lower wages or financial incentives.

Meanwhile, a fundamental issue lies beneath these structural barriers, as there is no reasonable and justifiable driving force in such countries to develop and invest in space programs. Leaders and citizens are skeptical about the value of investing in space, particularly when countries are struggling with more urgent issues directly related to their survival, such as poverty, famine, or interstate and intrastate conflicts. For instance, when India launched Chandrayaan spacecraft in 2019, Seema Mustafa, of the Centre for Policy Analysis in New Delhi, criticized as: “India is a competent event manager capable of undertaking individual projects efficiently, but incapable of sustaining any long-term developmental endeavours.” Additionally, these governments lack dedicated space agencies, making it harder to integrate space technology into broader national plans. Hence, such skepticism is amplified as space activities appear disconnected from urgent development needs.

Finally, many developing states lack basic rules and institutions that sustain space capacity. Their national space laws are incomplete, satellite licensing is unclear, and the public authority responsible for space missions has narrow mandates. This results in weak governance of space missions, which harms financial credibility and reduces foreign investment, ultimately leading to missed opportunities for international cooperation. In addition, even though they conduct their own space operations, the outcomes aren’t effectively integrated into other sectors of the nation, limiting the benefits of such missions and the necessity to participate further.

*Financing and Sustainability of Capacity*

Notably, unstable financing is an overarching issue that widens the gap and worsens the situation. As mentioned earlier, space missions are highly costly and require higher capital financing compared to other national missions. Unlike developed nations that can fund their own space missions, developing countries are unable to do so. Some developing countries lack the money to participate in space missions, and even when they fund the first mission, they cannot sustain those funds to continue participating. Therefore, developing countries often rely on foreign grants or development aid from other countries, which are vulnerable to external factors or shifting donor priorities. In the worst case, the government may cut funding for other uses, dismissing trained experts and shutting down ground stations and data services. This cycle forces developing nations to be limited to short-term projects, and they struggle to convert early access into long-term capability.

Even worse, the costs for operating space missions are increasing. Indeed, technological advancements have decreased launch costs. However, due to stricter guidelines and higher premiums, operational costs have been increasing recently. This is reflected in the rising price of insurance costs for space operations, with the market size expected to grow from $0.69 billion in 2024 to $0.97 billion by 2033. Thus, even when a nation successfully launches a satellite, it is incapable of converting those launches into financial and technological benefits. If they rely on foreign companies for those operations, they lose control over any operational strategies or decision-making and struggle to build their own internal systems. Eventually, this leads to inefficiency, increasing long-term costs for space missions. As a result, financial burdens deepen the inequality between spacefaring and non-spacefaring nations.

## **<u>Past Actions by Nations and Organizations</u>**

### *UNOOSA & Space2030 Agenda*

UNOOSA led a global effort to frame space orbits as a tool for development and equity. In October 2021, at the COPOUS, all member states reached consensus to approve the Space2030 Agenda, a UN policy framework that calls on governments and partners to link space technology to the SDGs and expand access to the benefits of space missions. Subsequently, UNOOSA practised the agenda through programmes and initiatives. One was the

"Access to Space for All" initiative, which aimed to create practical pathways for developing countries to conduct their first space mission. The CubeSat deployment was part of this initiative, and it also provided microgravity research opportunities to universities from developing nations, including "Universidad Central de Venezuela" from Venezuela, "Universidad de Antioquia" from Colombia, and "Universidad Catolica Boliviana San Pablo" from Bolivia.

Another significant initiative is UN-SPIDER, the UN Platform for Space-Based Information for Disaster Management and Emergency Response. Since 2006, UNOOSA has deployed technical advisory teams to national agencies, focusing on establishing methods for translating satellite imagery into usable products. For instance, in Sri Lanka, UN-SPIDER supported the Disaster Management Centre with national training in April 2017 to build a flood rapid mapping capacity, drought early warning capacity, and to establish a Virtual Mapping Unit. These capacities were not single-use, but have been continuously utilized by the Sri Lankan government, including their response to the 2024 October Sri Lanka floods. In short, UNOOSA uses multiple tools to advance the Space2030 Agenda, primarily to build capacity in developing countries, ultimately reducing their reliance on foreign nations and enabling them to transform satellites into valuable information.

*Asia-Pacific Space Cooperation Organization (APSCO)*

APSCO is a treaty-based intergovernmental organization created by a convention signed in Beijing in 2005 and inaugurated in 2008. Full member states are documented as Bangladesh, China, Iran, Mongolia, Pakistan, Peru, Thailand, and Türkiye. With full international legal personality from its headquarters in Beijing, its purpose is to turn regional cooperation into shared capacity, not through short-term, unstable donations.

APSCO pursues its objectives through unique programs, including joint management of regional space projects, common training programs for students and engineers, and linking ground stations of member states to operate each other's satellites and share data. More specifically, APSCO runs the Student Small Satellite Activity with Beihang University from China, which recruits students from member states and takes them through the full cycle of a real space mission. By 2024, the programme had enrolled 25 master's students from all member states and had launched three minor satellites, including one microsatellite (SSS-1) and two CubeSats (SSS-2A and SSS-2B). Through these programs, students gained valuable experience that is expected to be the core of humanitarian capacity-building in these Asian countries.

However, uneven funding and sustainability remain the biggest obstacles for these operations. As developing and developed nations are mixed within the organization, technological and economic levels differ sharply, leaving the burden for only a few states, especially China. In order to minimize reliance and to accomplish their purpose of shared capacity and equal rights, the APSCO Convention Article 18, Sub-article 6, is written as: "No Member State shall be required to make financial contribution in excess of eighteen percent (18 %) of the approved budget of the Organization." However, voluntary contributions aren't limited, as seen in China's donation of logistical resources, such as the headquarters, and in its provision of universities and facilities for training operations. As a result, APSCO faces the same challenges as other cooperative organizations. Trained people frequently leave the sector or the country due to a lack of infrastructure, budgets, or clear mandates. Thus, benefits are often temporary and short-term, and they struggle to convert into a long-lasting national capacity.

*Regional African Satellite Communication Organization (RASCOM)*

Similar to APSCO, RASCOM was set up as a treaty-based African organization, with 45 member states in total. However, RASCOM's main objective is service delivery, in which it owns and operates African geostationary communications satellites to provide telephone, TV, and internet services across the member states. They agreed to implement a commercial model by founding a company, named Rascomstar, to raise capital by selling satellite-based connectivity and broadcast services, and build satellites through those profits. Their first satellite, RASCOM-QAF1, was launched in December 2007, but suffered a helium leak, which drastically shortened its initially planned lifetime and its service capability. Hence, they launched RASCOM-QAF1R in 2010, which replaced their first satellite and successfully provided direct telecommunication services to member states.

On the one hand, RASCOM created an African platform with legal identity, successfully conducted its own launch, and demonstrated its operational capabilities on space missions. On the other hand, the failure of their first satellite delayed benefits and increased replacement costs. Even worse, its financing and governance are complex because it relies on commitments from member states and private investments. However, due to their financial credibility, they face challenges in attracting sufficient private investment. Moreover, commitment from member states is low due to other priorities and their lack of financial and technological capabilities. As a result, no further launches were conducted after the launch in 2010, and Rascomstar still owns and operates only one satellite. As their initial plan was to deploy 14 satellites, it is clear that RASCOM has failed to operate as anticipated.

## Stances of Major Countries and Organisations

### *China*

China positions itself as the global leader in space cooperation and capacity building. It works through regional and international channels, including its position in APSCO and the joint operations with the UN on the Tiangong space station. The Chinese government frames these actions as South-South development, which is a collaborative approach in which developing countries in the Global South share knowledge and skills to achieve specific goals. In practice, China supplies satellites, installs or upgrades ground stations, trains local engineers, and deploys a technical team for a period of time until the partnering nation can operate the system independently. It also provides substantial funding for capacity building, as shown by Egypt's new satellite assembly and test center funded by China, which was used to assemble the EgyptSat 2 satellite.

Many developing countries view China's stance positively, as it widely supports capacity building and equal access to space missions. However, critics argue that China's true intention is to expand its sphere of influence by increasing developing countries' dependence on Chinese platforms and standards. In this context, China's goal is viewed as reducing the reliance of developing countries on traditional Western donors, including the US, and shifting them towards China. Critics fear that this can limit long-term autonomy for developing countries.

### *Nigeria*

As a developing African nation, Nigeria urges the global community to promote capacity building and institutional development. They propose that space must serve public needs such as agriculture, disaster management, mapping, and internet access. Nigeria supports its stance with concrete domestic actions. In recent COPOUS statements, Nigeria highlighted the launch of GEO-NIGERIA in May 2023, which is the country's national Group on Earth Observations (GEO) coordination mechanism led by the National Space Research and Development Agency of Nigeria (NASRDA). This mechanism brings together ministries, agencies, universities, and partners to produce, share, and utilize observational data from satellites in a unified way.

As a result, Nigeria requests partners for cooperation that results in lasting capacity. It wants projects to include ground systems, job training, and stable funding for operations. Furthermore, it supports open data sharing between spacefaring and non-spacefaring nations, and practical missions with UN bodies and regional organizations. The international community generally views Nigeria as a constructive voice for service-focused capacity building. However, its main constraints in pursuing its stance are ensuring stable, consistent financing and retaining trained staff.

*France*

France supports capacity building mainly through transparent data policies, multilateral training, and long-term institutional support. Primarily, it promotes the worldwide use of Copernicus Earth observation services, the European Union's satellite data run by the European Space Agency (ESA). France was one of the nations that led the EU in adopting the joint consensus of allowing free and unlimited access to Copernicus satellite data. Additionally, through CNES (French national space agency), France funds expert missions and joint projects with regional centers and UN partners. For instance, in 2024, France funded a total of €1.05 billion to ESA, making it the second largest national contributor after Germany. Thus, France is viewed as a steady partner for open data, skills, and institution building that directly narrows capability gaps between spacefaring and non-spacefaring nations.

*Space Generation Advisory Council (SGAC)*

SGAC is a global youth network that focuses on developing human capital for the space sector worldwide. It specifically targets people aged from 18 to 35 and connects students and young professionals with space agencies such as NASA, private corporations such as Airbus, and universities such as the University of Luxembourg. Its program includes training workshops, mentoring programs, and international events such as the Space Generation Congress and the Fusion Forum. To keep these events as diverse as possible, workshops are held in every region each year, along with several other local events, so participants aren't required to travel long distances to attend such events. Furthermore, scholarships are offered to students who lack financial resources, providing a great opportunity for citizens of developing countries. Thus, SGAC supports capacity-building in humanitarian areas by providing equal opportunities to people from all nations.

**Possible Solutions**

*Operations-First Capacity Grants*

The current actions by states and multilateral organizations face the same problem, where unstable financing limits the benefits of those actions in the short term, eroding their value over time. Here, unstable funding often results from private investments or donors from developed countries. These actors can legally change priorities and withdraw funding reasonably at any time. In order to resolve this problem, UNOOSA may run an operations-first funding model that covers three to five years of capacity-building costs. Longer terms may result in increased dependency or misuse of funds, while shorter terms do not give operations and capabilities enough time to stabilize inside the country. Under UNOOSA's rigorous design and control, member states, banks, and foundations would donate money through the grant. These grants would not only support existing global initiatives and projects such as the Space2030 Agenda or UN-SPIDER, but also regional organizations such as APSCO and ESA that are capable of directly delivering services for developing countries.

One obstacle to this solution is the motivation for developed countries to initiate and agree on such grants. Some countries argue that UNOOSA lacks the mandate to compel them to participate, which will lead to a lack of voluntary funding. Thus, this grant must explicitly display the results of these grants. Donors must receive reports on monthly outputs, such as flood maps or weekly weather forecasts. Additionally, money must not be given all at once, but should be disbursed by milestones. When such milestones are achieved, additional funding should be provided to encourage rapid installations and stabilization in the country. Financial or technological incentives may also be considered, particularly for private donors, enabling them to view it not as a simple donation but as an investment with potential profit. In short, these grants must be meticulously designed to be successfully adopted and become meaningful.

*Open Data and Technology Transfer (ODTT) Mechanism*

The establishment of the ODTT mechanism is essential to immediately allow access for any country, bridging the technology access gaps that cause inequality. The global space agencies, including NASA, ESA, and JAXA, would provide the content of these mechanisms. These agencies would have to commit to continuously providing essential, valuable data. Meanwhile, UNOOSA would serve as the central coordinating body of this platform, which ensures standardized data formats and equitable distribution. This mechanism may also involve private corporations through a private-public partnership, in which private corporations receive incentives, such as tax reliefs or government subsidies, and supply high-resolution data. However, these data platforms will be useless for developing countries unless they establish the necessary national data policy frameworks and digital infrastructure to actually download and utilize the massive datasets.

This particular solution is highly feasible as it doesn't require new developments or massive financial investments, but instead relies on leveraging existing space assets. Moreover, UNOOSA is capable of funding any essential financial resources under the Space2030 Agenda, such as building a digital platform with high accessibility and recruiting software engineers to manage it. Nonetheless, the biggest challenge in securing commitments from member states is their reluctance to support free data sharing. States are primarily concerned with such platforms due to potential risks of national security breaches, financial losses, and the protection of intellectual property (IP). Therefore, it is UNOOSA's job as the main organizer to draft strict resolutions that address these concerns. For instance, a legal framework may be adopted that limits data usage to non-commercial, developmental purposes, while encouraging states with appropriate levels of incentives.

*Policy and Regulatory Capacity Development*

Unlike the two previously proposed solutions, this solution focuses on establishing the essential legal and institutional infrastructure in developing countries. Without concrete national space legislation, these developing countries cannot attract stable private investment, comply with international treaties, or effectively utilize the space assets provided by the other two solutions. Additionally, developing nations would be unable to prevent the brain drain of space technology experts without legal frameworks to protect them. Altogether, this would lead to long-term sustainability issues and result in alienation from the global society, necessitating such solutions. The responsibility for formalizing this solution is assigned to UNOOSA, as they have already been conducting Technical Advisory Missions (TAM) with the objective of raising awareness of international space law and encouraging its adoption in the national context.

An obstacle that must be overcome for this solution to be effective is political inertia in developing countries. Although such legal reforms and enactments would be beneficial for their capacity building, leaders and lawmakers would be hesitant to make changes. This phenomenon occurs for several reasons, such as other national priorities, corruption, concerns about political intervention, or low awareness of the importance of implementing these policies. As a result, this committee must attempt to eradicate the possibility of interventions by all member states. However, directly imposing such restrictions on member states is a mandate overreach, which leaves options of requiring these processes to be transparent for international scrutiny, calling on the UNGA to invite states to adopt a code of conduct for legal assistance, and more. Additionally, this solution must propose methods to raise awareness of not only the lawmakers but also the general public. Generally, an effective solution to political inertia is civic engagement, which creates external pressure for change. When the public understands and desires such benefits, leaders will naturally recognize them and accept those shifts.

## **Questions to Consider**

- Which public services will be prioritized first, and what criteria will be used to set that order at the national level?

- What is the minimum team size, expertise combination, and budget needed to publish satellite-based products?
- How will universities and local firms be engaged through internships, research projects, and small service contracts, and what budget share will be reserved for local participation?
- How will success be measured each quarter, including products delivered, users served, delivery timeliness, and documented decisions supported in government?
- How will regional bodies coordinate shared ground systems, tasking rights, and timely data exchange, and what governance prevents a single member from dominating decisions?
- What conditions will development banks and donors be consistent on providing financial support so that training, tool handover, funded posts, and open publication are guaranteed?
- What dispute process will resolve conflicts over data sharing, tasking priorities, or staffing, and how quickly must it deliver a decision?
- How will coordination with UN-SPIDER and Space2030 Agenda be structured so that country projects receive technical advisory support without duplicating effort?
- How will UNOOSA resolutions persuade all member states with self-centered interests without mandate overreach?
- How can UNOOSA ensure that the development of space technology and the exploration of space become a tool for equality rather than a source of further division between developing and developed nations?

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