Governmental engagement Policy paper

Internet Society Foundation

Decolonizing the Internet
Global Governance of LEO Satellite Broadband

Satellite broadband as a policy challenge

Satellite broadband presents significant opportunities and challenges. Governments should use their best efforts to take advantage of its benefits while defining and addressing the associated concerns. Otherwise, they are destined to rely on the circumstantial status quo resulting from the current, uninhibited technological competition by companies from the Global North. Learning from similar 5G policy debates, now is the time to make informed decisions on LEO satellite constellation-reliant internet. If developing countries fail to implement informed policies, the strategic rivalry of the globe's major powers and a few commercial actors will shape the policy discourse. Bearing in mind that these systems operate under national laws and regulations developed in compliance with the general principles of international treaties, primarily on telecommunications, trade, and outer space, the states should utilize these platforms to promote and protect their interests. Governments should assess whether they possess the awareness, expertise, and statutory guidelines to make informed decisions about allowing or disallowing access to their telecommunication infrastructures. Most are already concerned about the risk of unauthorized access to their vulnerable information, digital assets, and communication data. These and other important issues concerning the use of satellite broadband lie at the cross-section of multiple regulatory frameworks, including cybersecurity, privacy, data protection, trade, telecommunications, and outer space law. An informed policy framework regarding authorization of LEO satellite-based broadband in a country must be made upon a proper balance of benefits and risk-based analysis of all relevant laws and regulations and operational and technical expertise regarding network and design. A holistic approach will produce the best policies and decisions.[1]

A diligent approach to securing national interests in LEO satellite-based broadband access requires following and engaging in current policy debates within the ITU, WTO, and the COPUOS, as well as those at the regional policy and economic forums. Jurisdictions hosting key economic actors in this developing commercial field have also been actively legislating and developing policies to ensure stable economic conditions for users and infrastructure providers, and operators. For your convenience, a list of relevant international and regional regulatory documents has been listed at the end of this paper. The competing approaches are currently observed (2023) at the ITU 2023 World Radiocommunication Conference, Radio Regulations review.[2]

An effective satellite broadband policy

An ideal international policy intervention regarding LEO satellite-enabled broadband ensures sustainable and equitable internet access for all and is shaped with due regard to the interests of developing countries and other stakeholders. These require:

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[1] This policy paper includes sections from the complete project report by Berna Akcali Gur and Joanna Kulesza, "Decolonizing the Internet: Global Governance of LEO Satellite Broadband" Grant Request ID G20210704813, abbreviated and completed with actionable policy guidance for governmental engagement.

[2] The ITU World Radiocommunication Conference 2023 (WRC-23) is to be held in Dubai, United Arab Emirates, 20 November to 15 December 2023. See more details here : https://www.itu.int/wrc-23/. Retrieved Feb. 8th, 2023.

- a **thorough understanding of technical aspects of broadband services provided by** LEO satellite constellations.
- a **SWOT analysis** of competing economic interests and available services, including a **security risk assessment** for the **supply chain;**
- ensuring **fair market access** to all service providers, with due regard to other competing interests,
- and revising or developing legislation to **ensure the application of fundamental rights protection** for all users, particularly the right to privacy. These considerations should be included in the SWOT analysis named above.
- having due regard to the **current multistakeholder model of Internet governance** and policy protocol development, which might impact national legislative action and law enforcement.

The policy challenge of LEO satellite broadband access stems directly from the history of telecommunications infrastructure development. The internet has been developed by industrialized societies and still largely relies on infrastructure and applications built, operated, and owned by them. The public and private companies from the countries that lead these communication technologies compete to extend their presence and influence. The resulting ownership and control structures expand the gap with others, especially with developing countries that rely on others' ICT goods and services. Their deepening dependencies are becoming more challenging to counterbalance, as well as their power to protect their national interests. In the context of global communications infrastructure, these concerns are generally expressed concerning the consolidation of power in data-based international economic activities and their link to cybersecurity.[3] The expression 'colonization of the internet' has been used to highlight the global inequity in sharing the benefits of internet technologies and infrastructure. The dependence and use of non-domestic infrastructure and applications and cross-border data transfers have come to be assessed concerning their national security and economic security risks. In the face of their concerns, countries continue their best efforts to invest in and acquire technology and infrastructure that will facilitate their

digital transformation, which is essential to meet developmental steps.

Universal connectivity, meaning availability for all, in and of itself, is insufficient. The Broadband Commission complements it with meaningful connectivity that is *the possibility for everyone to enjoy a safe, satisfying, enriching, productive, and affordable online experience.*[4] According to a document prepared by the UN, Office of Secretary General's Envoy on Technology, and the International Telecommunications Union (ITU), the use and quality of connectivity are complementary. They depend on several factors, including affordability of connection, access to and affordability of mobile and/or fixed devices, digital skills, connection security and navigation safety, and infrastructure.[5] When connectivity becomes universal and meaningful, applications can be utilized to create social and economic impact, which can lead to economic development and innovation. The national and international law and policy frameworks can be used to support the process. In an ideal scenario, a more level playing field will be achieved when more countries achieve these benchmarks. Consequently, concerns regarding internet colonization will also be mitigated.

THE AVAILABILITY OF BROADBAND INTERNET IS ESSENTIAL FOR DEVELOPMENT, WHICH IS NEEDED TO DEVELOP THE CAPACITY TO BENEFIT FROM ITS USE FOR A WIDE RANGE OF FUNCTIONS.

In that context, the ITU has defined SDG 9 (Industry, Innovation, and Infrastructure), SDG 17 (Partnership for the Goals), SDG 4 (Quality Education), and SDG 5 (Gender Equality) as the most relevant goals for its activities. The ITU also added SDG 11 (Sustainable Cities and Communities), SDG 10 (Reduced Inequalities), SDG 8 (Decent Work and Economic Growth), SDG 1 (No Poverty), SDG 3 (Good-Health and Well-Being) as goals where Information Communication Technologies (ICTs) will have the most significant impact.[6]

RECOMMENDATIONS

A wide range of laws and policies are justified concerning international law, especially those related to issues of global concern. The major powers' influence and dominance in international organizations and policymaking are much greater

[3] Laura de Nardis, The Internet in Everything (Yale University Press 2020) 212.
[4] ITU/UNESCO Broadband Commission for Sustainable Development (2020). 'Manifesto: Global Goal of Universal Connectivity'. Available at: https://www.broadbandcommission.org/publication/manifesto2020. Retrieved Feb. 8th, 2023.
[5] ITU, UN Office of the Secretary General's Envoy on Technology (2022). 'Achieving universal and meaningful

digital connectivity: Setting a baseline and targets for 2030.' Available at: https://www.itu.int/itu-d/meetings/statistics/wpcontent/uploads/sites/8/2022/04/UniversalMeaningfulDigitalConnectivityTargets2030_BackgroundPaper.pdf. Retrieved Feb. 8th, 2023.
[6] ITU, (2020). 'UN System and SDG implementation guidance.' Available at: https://sdgs.un.org/un-system-sdg-implementation/international-telecommunication-union-itu-24522. Retrieved Feb. 8th, 2023.

than that of developing nations. Over the years, developing countries have become more active in these organizations to put forward and negotiate policies in their interest. After a long pause, the recent developments in space-based technologies, especially the large satellite constellations in LEO, have brought them back to the international agenda. As space-faring nations are leading the negotiation of normative responses to these developments, the other nations should also realize that as current and future co-beneficiaries of these services and potential future space-faring nations, it is also their interests that are at stake. Awareness, capacity-building, expertise, and forming alliances to defend common interests will enhance their chances of benefiting from the latest advancements for their sustainable development goals and supporting measures for the sustainable use of space. Participation in shaping policies and regulations concerning satellite constellations in LEO is a starting point in this endeavor.

Universal satellite broadband services can increase the resilience of the internet, complement mobile telecommunications technologies, and consequently enable further growth and bring these advantages to the regions deprived of the benefits of connectivity. An initial list of our recommended actions for developing counties is as follows:

1. They should reassess and revise domestic rules and regulations that apply to licensing and authorizing broadband services via satellites. The regulatory interventions of space-faring nations with a comprehensive understanding of technology could guide this process. Different business models need to be considered. Whether the companies will seek to be authorized as direct-to-end user service providers or in partnership with incumbent telecom service providers will depend on the market and regulations of each jurisdiction. An important decision is to be made regarding gateways. Technically there is no need to establish a gateway in each jurisdiction. The decision will have to be made with its potential impact on cybersecurity and cybersovereignty concerns of each jurisdiction. Regional alliances will increase market efficiency.

2. The frequency spectrum and the Earth's orbits are limited natural resources, the use which the ITU coordinates. The ITU is committed to connecting all people, wherever they live and whatever their means. They also play an active role in promoting development through the ICTs and standard setting for interoperability. The ITU has an almost global membership. The members should actively participate in decision-making processes at the ITU, particularly the world radio conferences held every three to four years, to review and revise the RR. Regional groups that already exist would be beneficial for pooling resources and enhancing expertise for achieving effective representation of shared interests.

3. The commitments under the WTO treaties and their preferential trade agreements are also relevant as to whether the countries have agreed to allow market access to satellite communications services from their trading partners. Countries should reassess their commitments under these treaties and reconsider their interests and priorities associated with satellite broadband technology.

4. COPUOS is tasked with facilitating cooperation in peaceful uses of outer space, encouraging space research programs, and studying legal problems arising from the exploration of outer space. Developing countries should participate in this committee and take advantage of the capacity-building and expertise-enhancing educational opportunities the UN Office for Outer Space Affairs offers. Increased awareness of international space law is necessary. Developing nations should recognize that they all have the potential to become space-faring nations, and sustainable use of space is also in their interest. So, the utilization of space resources shall be limited by considerations of space sustainability. Joining space law treaties may provide the nations with additional rights and should be considered by all non-space-faring countries. Pooling resources via regional space agencies are recommended to strengthen their space law policies.

5. The transparency of national regulators and operators of LEO satellite constellations will build confidence in potential markets and clear the way for the harmonization of domestic and regional policies, which will facilitate the integration of the emerging LEO satellite technology into the global communication infrastructure recently enhanced by 5G.

6. The national policies regarding all aspects of satellite broadband shall be produced and determined holistically. The national regulatory agencies should align their policies with each other and with the relevant international organizations.

Annex I: International laws and regulations on LEO satellite broadband

GENERAL INTERNATIONAL LAW
Treaties

- UN 1962 Convention on Registration of Objects Launched into Outer Space [Registration Convention]

- UN 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies [Outer Space Treaty]

- UN 1972 Convention on International Liability for Damage caused by Space Objects [Liability Convention]

Secondary Sources of international law

- IADC 2002 Space Debris Mitigation Guidelines

- UNIDROIT 2012 Draft Protocol to the Convention on International Interests in Mobile Equipment on Matters specific to Space Assets

- UNOOSA / ITU 2015 Guidance on Space Object Registration and Frequency Management for Small and Very Small Satellites

- UN 2020 Committee on the Peaceful Uses of Outer Space Scientific and Technical Subcommittee, Revised Draft "Space2030" agenda and implementation plan

INTERNATIONAL ORGANIZATIONS
EU

- EU 1985 Convention Establishing the European Telecommunications Satellite Organization [EUTELSAT]

- EU 2018 DIRECTIVE 2018/1972 establishing the European Electronic Communications Code

- EU 2021 Starlink EU/UK/EEA Privacy Policy

ITU

- ITU 1992 Constitution of the International Telecommunication Union

- ITU 2002 Telecommunications Convention

- ITU 2019 World Radiocommunication Conference (WRC-19) Final Acts

- ITU 2020 Radio Regulations

- ITU 2021 GSR-21 Best Practice Guidelines

- ITU 2023 World Radiocommunication Conference, Radio Regulations review

WTO

- WTO 1994 General Agreement on Trade in Services (GATS)

- WTO 1994 GATS Annex on Telecommunications

- WTO 1994 Fourth Protocol to the General Agreement on Trade and Services

ESA

- ESA 1980 Convention of the European Space Agency and Rules of Procedure of the ESA Council

- ESA 2014 Space Debris Mitigation Policy for Agency Projects

- ESA 2014 Space Debris Mitigation and Re-entry Safety Regulatory Framework

- ISO 2019 ISO 24113: Space debris mitigation requirements

To access full database of relevant international law documents, treaties, regulations as well as soft law sources, private law contracts and other policy documents, visit the project website at: www.cyber.uni.lodz.pl/LEOs

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