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A Space Policy Perspective on Spectrum Management

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UK SPF Future Spectrum Policy Summit 2024, techUK, London, 15 February 2024

AGENDA

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ESPI Overview: Mission & Activities

Introduction to ESPI Space Spectrum Policy Report

Outcome of the WRC-23

General Q&A

ESPI Mission & Agenda

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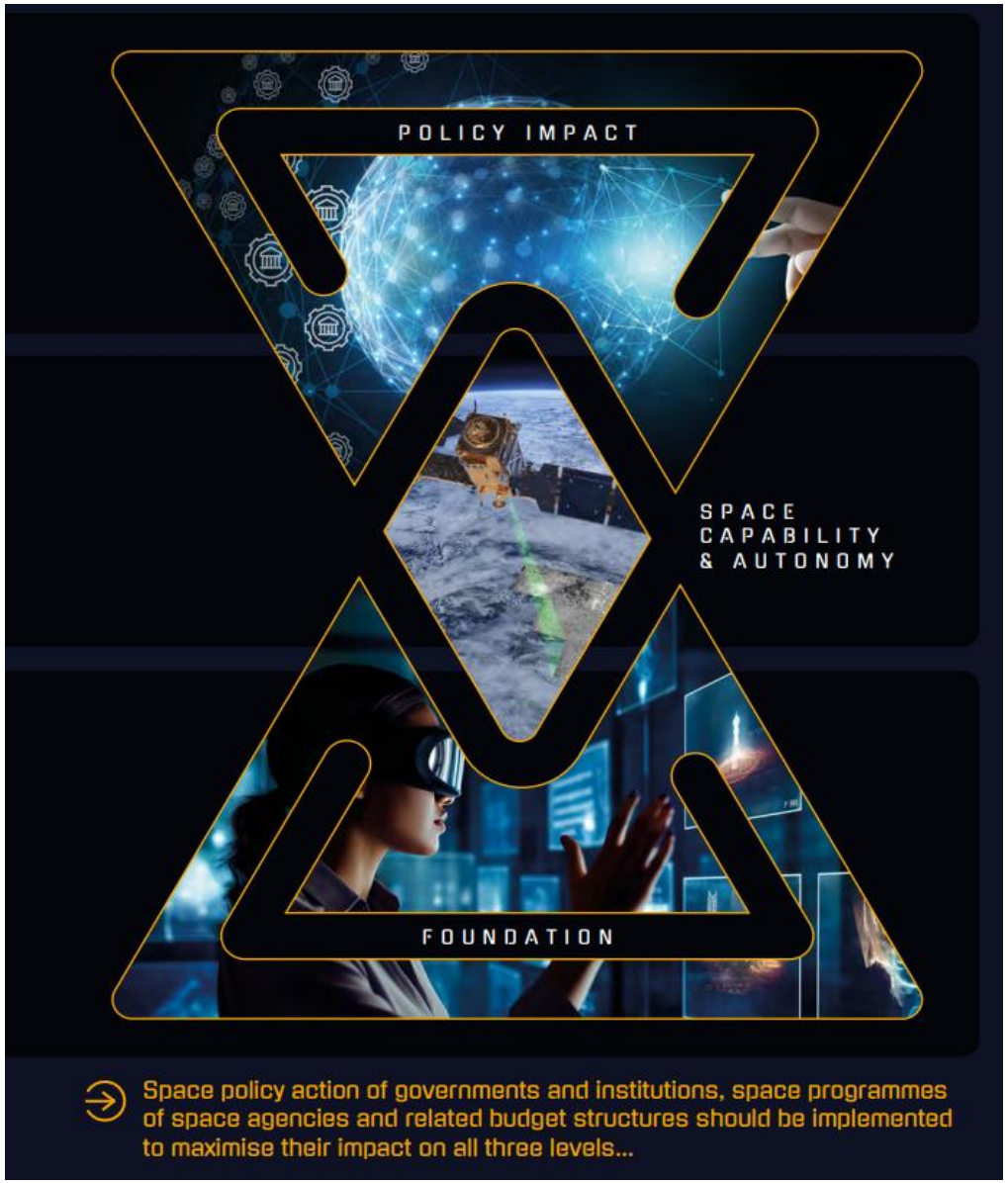

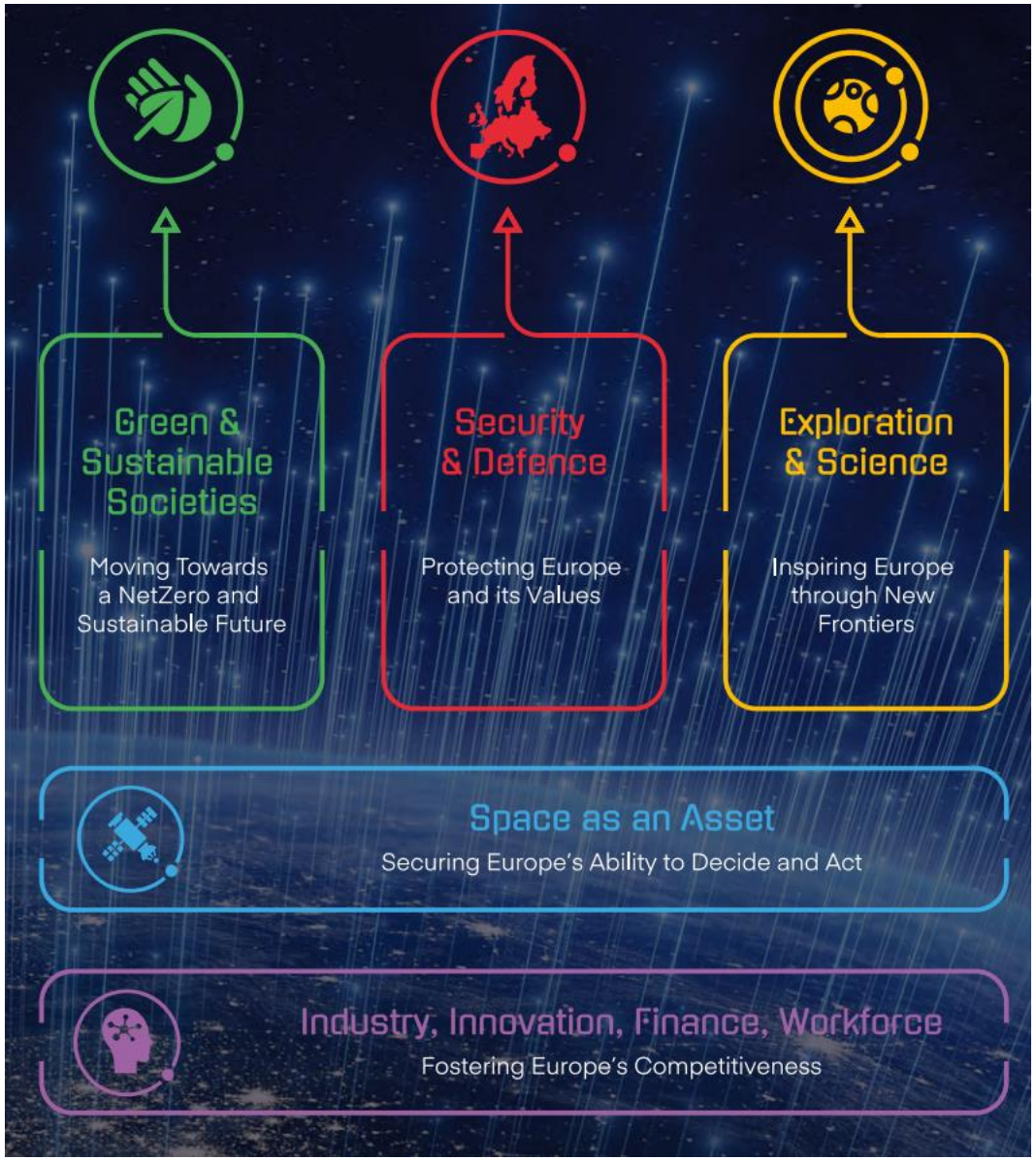

Why does ESPI address spectrum management?

Spectrum policy is overlooked in public space policy

Provide a thoughtful overview of the spectrum management regime, incl. the policy, regulatory and commercial implications

Facilitate bridging the gap between spectrum and national authorities (translating concepts into a fit-for-policy format)

Foster an active forum for the analysis and discussion of European needs, capabilities and long-term prospects in (space) activities

Setting the Scene

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The Long-Term Viability of the Satellite Industry

The **global satellite communications sector is undergoing significant transformation:**

- Major shift from Direct Broadcast Services (DBS) and Direct-to-home (DTH) services to non-linear television, notably driven by Video on Demand (VoD).
- Progressive need to shift from GSO to non-GSO connectivity, with large constellation sector developing as a source of growth and disruption.
- Hybridisation (or consolidation) of networks allows satcom operators to provide solutions across various verticals.

The Value of Spectrum and its Exploitation

- Orbits and spectrum as **limited natural resources.**
- The increasing use of space has led to a higher congestion of Earth orbits and a **growing demand for access to radiofrequency spectrum bands for satellite applications.**
- Attention on the value of spectrum **as a core parament driving spectrum management activities (relation between value and use**).

Space Spectrum Policy Report

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This Report aims at:

Explaining the topic and gathering attention on the crucial policy dimension of spectrum management in outer space, and

Investigating how spectrum management systems could be enhanced to more effectively and efficiently deal with the currently congested space and spectrum environment and the demand for a more connected world.

A self-funded study produced by ESPI

Extensive consultation campaign with stakeholders

Final Report released in October 2023

Policy-related challenges to be tackled at the WRC

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- Dealing with overfiling and Bring into Use rules
- Maximizing the use of spectrum across applications
- Harmonising spectrum management
- Improving Spectrum Monitoring
- Balancing efficiency with equitable access to spectrum
- Driving space sustainability concerns

Driving space sustainability concerns

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- **ITU Plenipotentiary Conference (PP-22) released Resolution 219** on the "sustainability of the radio-frequency spectrum and associated satellite orbit resources used by space services."
- The commitment of ITU to space sustainability is strengthened by **Resolution 218 on the "ITU's role in the implementation of the 'Space2030' Agenda."**
- The **UN Secretary-General Policy Brief NO7** comments on the overlap between intergovernmental entities' missions relating to space security, safety, and sustainability.
- **Resolution 74** on "Activities related to the sustainable use of radio-frequency spectrum and associated satellite-orbit resources used by space services" (RA-23).

Doreen Bogdan-Martin, secretary-general of the ITU, said space sustainability is a priority for her agency as space traffic grows.
Credit: SpaceNews/Brian Berger

A new governance framework for various areas of space sustainability should be explored in a cooperative format between bodies of the UN system, considering the UN space treaties and any other means of international cooperation, whilst also including a platform to broaden operational stakeholder inclusion.

European Perspective on Spectrum Policy

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Developing a European approach to spectrum sharing

A reflection on how stakeholders can work together to develop a European approach to spectrum sharing should be strengthen (inc, spectrum sharing roadmap that both maximises the efficiency of key spectrum bands and is built around the needs of European stakeholders).

Synergising knowledge and expertise

Facilitate an environment within Europe that guides space actors (especially, smaller actors) towards best practices and helps expand expertise and resources, particularly to support ITU filings and market access considerations.

Harmonising spectrum management systems at the European level

Address the fragmented national regulatory landscape, namely through a regional harmonisation of the spectrum management system. In addition, a pan-European licensing process (e.g., European Space Law/Mission Authorisation Mechanism) should be considered.

Strengthening ties between the spectrum and space authorities

Establish a closer exchange between entities in charge of spectrum management and the ones dealing with space, in order to reach a whole-of-government approach to space spectrum management.

Radiocommunication Assembly 2023 (RA-23)

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Radiocommunication Assembly 2023 (RA-23)

Resolution 73 on "the use of IMT technologies for fixed wireless broadband in the frequency bands allocated to the fixed service on a primary basis".

Resolution 74 on "Activities related to the sustainable use of radio-frequency spectrum and associated satellite-orbit resources used by space services".

Conclusion of recommendation ITU-R M.2164-0 on the protection of the radionavigation-satellite (RNSS, space-to-Earth) by the use of some frequency by stations operating in the amateur and amateur-satellite services

Resolution 72, "Promoting gender equality and equity and bridging the contribution and participation gap between women and men in ITU-R activities".

WRC-23 outcome for the space domain

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Protection of satellite services from terrestrial interference (A1 1.2, 1.3 and 9.1c)

Allocation of spectrum for satellite services (AI 1.7, AI 1.12)

Upgrading satellite links (1.17 / 1.19)

Regulation of earth stations in motion (ESIM) bands to enhance mobility (AI 1.15 and 1.16)

Enhancement of satellite procedures (NGSO Tolerance & Protection of GSO from NGSO - EPFD) (AI 7)

Recognition of space weather sensors as part of the meteorological aid service to observe (AI 9.1)

Some of the agenda items to be studied for WRC-27 are:

1.1 Expanding Q/V Band for Earth stations in motion (ESIMs) (GSO/NGSO
1.2 Small Antennas in 13.75 – 14 GHz
1.3 Q/V Band NGSO Gateways
1.4 Ka-Band BSS/FSS Allocation in R3
1.5 Unauthorised Operation of NGSO (Article No. 4.4)
1.6 Equitable Access in Q/V Bands
1.7 IMT Spectrum Identification
1.12 MSS low data rate in S band
1.13 MSS IMT Allocation
1.14 MSS Allocation in S-band

Possible new or modified space research service (space-to-space) allocations for future development of communications on the lunar surface, and between lunar orbit and the lunar surface.

Thank you

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