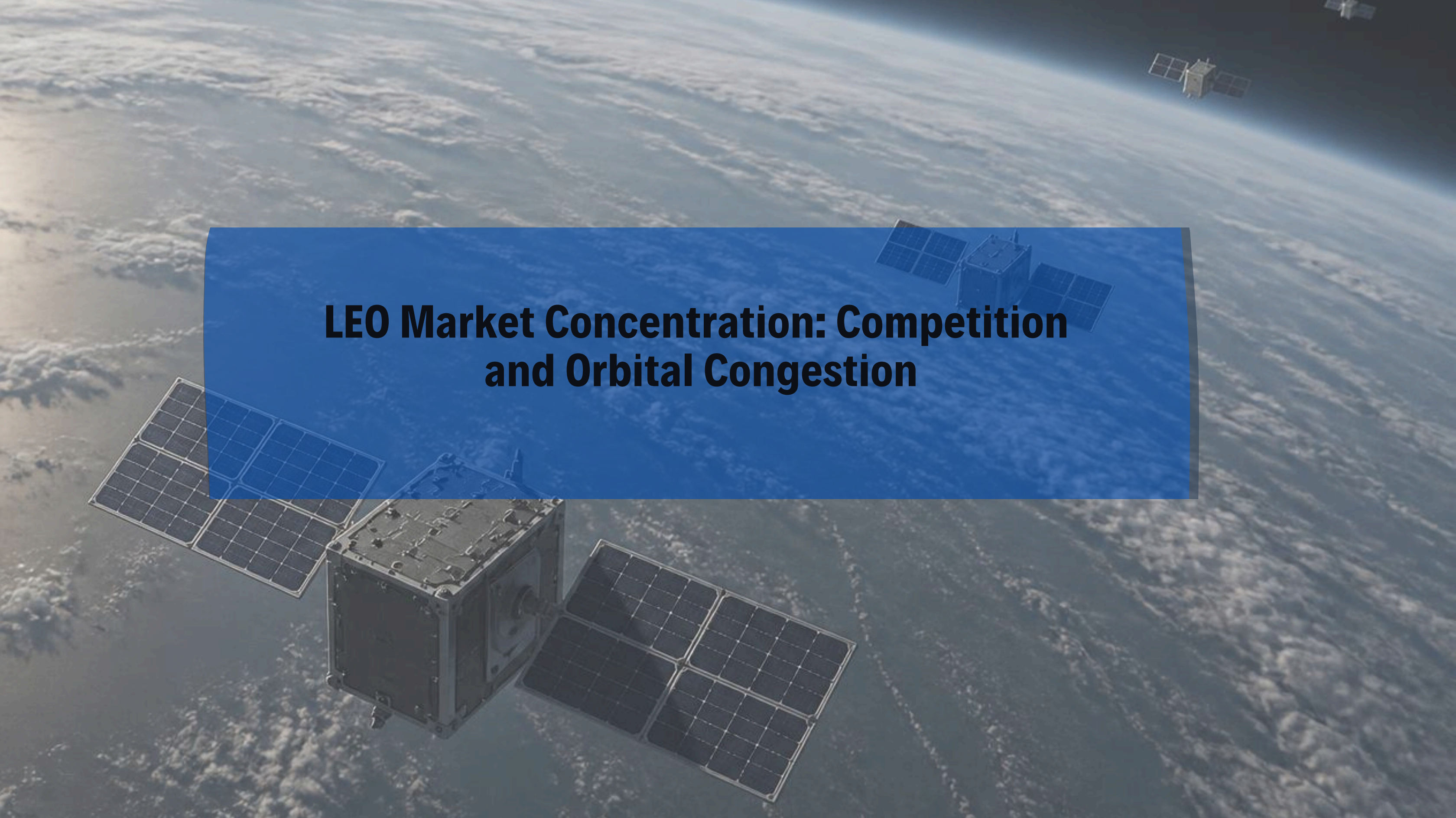


The background of the slide is a high-resolution image of Earth from space, showing a dense layer of white clouds over a blue ocean. Several satellites are visible in orbit. In the foreground, a large satellite with a central black rectangular body and two large, rectangular solar panel arrays is shown. The solar panels are composed of many smaller, dark rectangular cells. Another similar satellite is visible further back in the orbit, and a third, smaller-looking satellite is in the upper right corner. A semi-transparent blue rectangular box is overlaid on the center of the image, containing the title text.

LEO Market Concentration: Competition and Orbital Congestion

Market Concentration in LEO

The LEO market is highly concentrated.

- Oligopolistic operators control most of the capacity and planned deployments.
- High entry barriers (capital, technology, spectrum, regulatory approval)
- As a result: limited access, oligopolistic competition, strategic behavior

Oligopolistic structure

- Risk of Monopolization

More Deployment

- Constellations
- Higher Density

Orbital Congestion

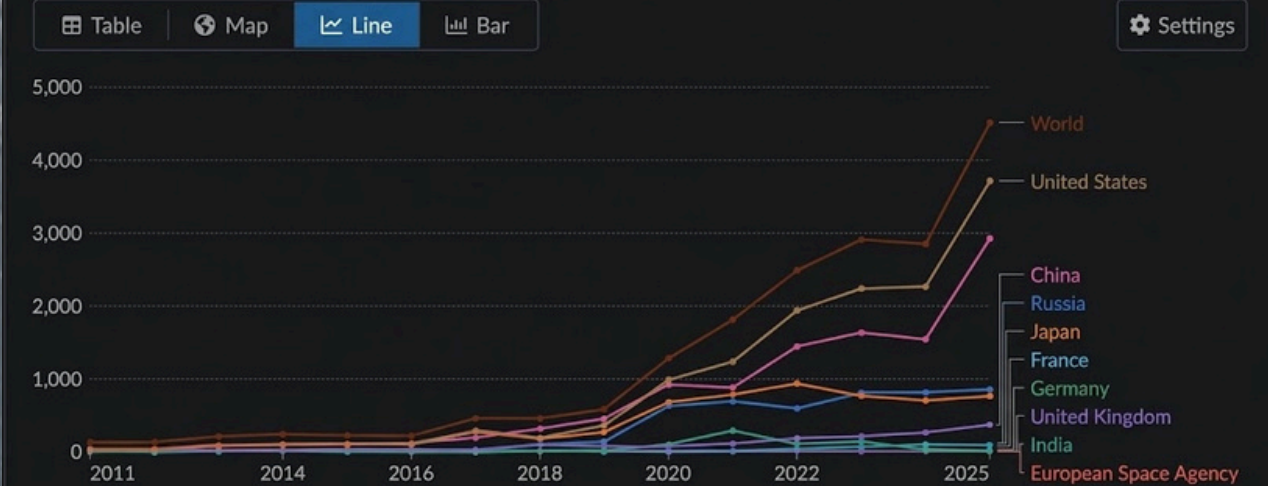
- Cascade Collision Risk
- Interference

Externalized Orbital Costs

- Debris
- Asymmetric Risk Allocation

Annual number of objects launched into space

This includes satellites, probes, landers, crewed spacecrafts, and space station flight elements launched into Earth orbit or beyond.



LEO is not only a sustainability problem but also an economic and competitive issue.

The Regulatory Dilemma

Competition Policy

- Promote innovation and fair competition
- Ensure market access for startups and SMEs
- Prevent abuse of dominance

Sustainability Regulation

- Mitigate space debris
- Protect long-term access to orbit
- Minimize orbital congestion & risk



Antitrust Remedies



Use-it-or-lose-it Policy



Collision Avoidance Mandates



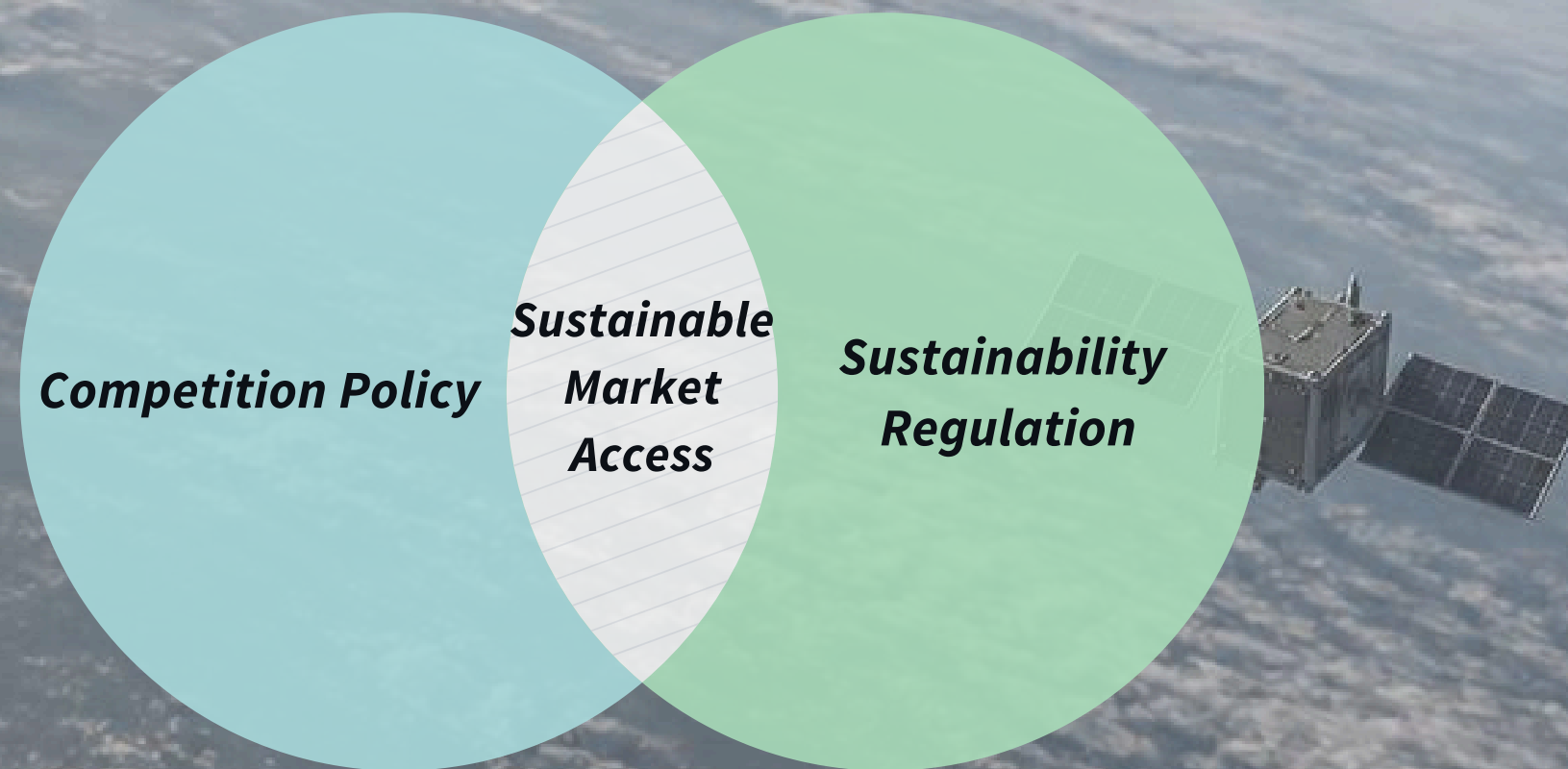
Deorbiting Obligations



Pigouvian Charges

Debris mitigation and anti-monopoly rules must be co-designed.

An Integrated Regulatory Approach



Equitable Access

- Reform 'first-come, first-served' allocation
- Curb structural oligopolistic dominance

Dynamic Spectrum Sharing

- Eliminate speculative spectrum hoarding
- Mandate collective spectrum pooling

Open Technical Standards

- Standardize royalty-free safety protocols
- Lower regulatory barriers for startups

Enforceable Regulatory Sanctions

- Revoke spectrum licenses for non-compliance
- Deter incumbent anti-competitive practices

Thank You for Your Attention



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