

SPACE SECURITY INDEX 2017

Trust, Transparency, Accountability

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www.spacesecurityindex.org

A shared understanding of space security

Secure and sustainable access to and use of space, and freedom from space-based threats





Fact-based research to
promote ***transparency and
confidence*** in space activities

Theme 1: Condition of the space
environment

Theme 2: Access to and use of
space

Theme 3: Security of space
systems

Theme 4: Outer space policies and
governance

Research teams 2017



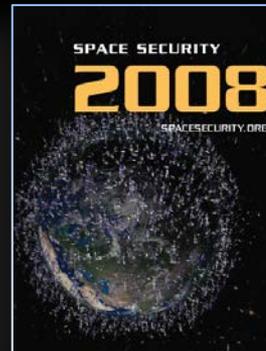
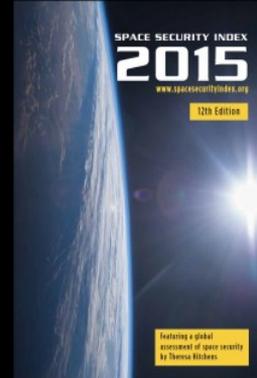
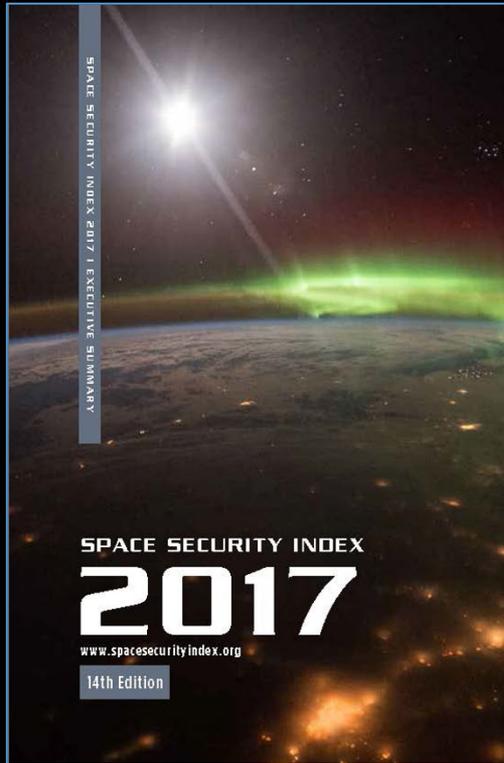
Space Security Working Group Meeting

McGill University, Montreal, Canada

2-3 May, 2017



Space Security Index 2017: 14th Edition



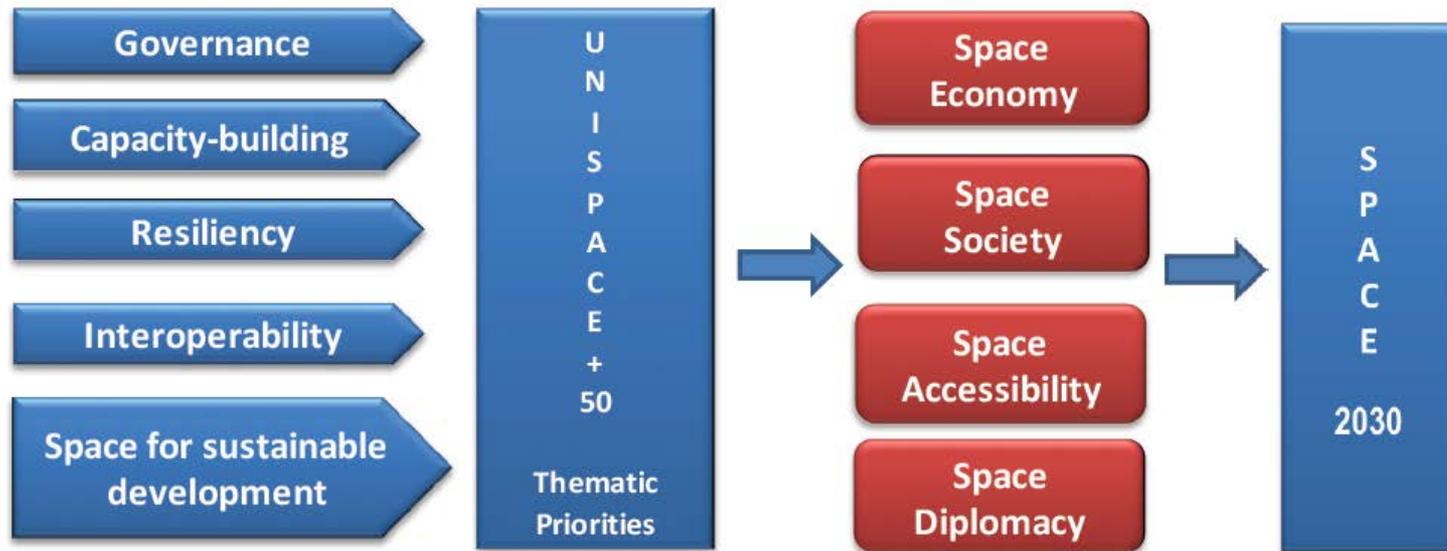
Space Security Index 2017:

The case for comprehensive security

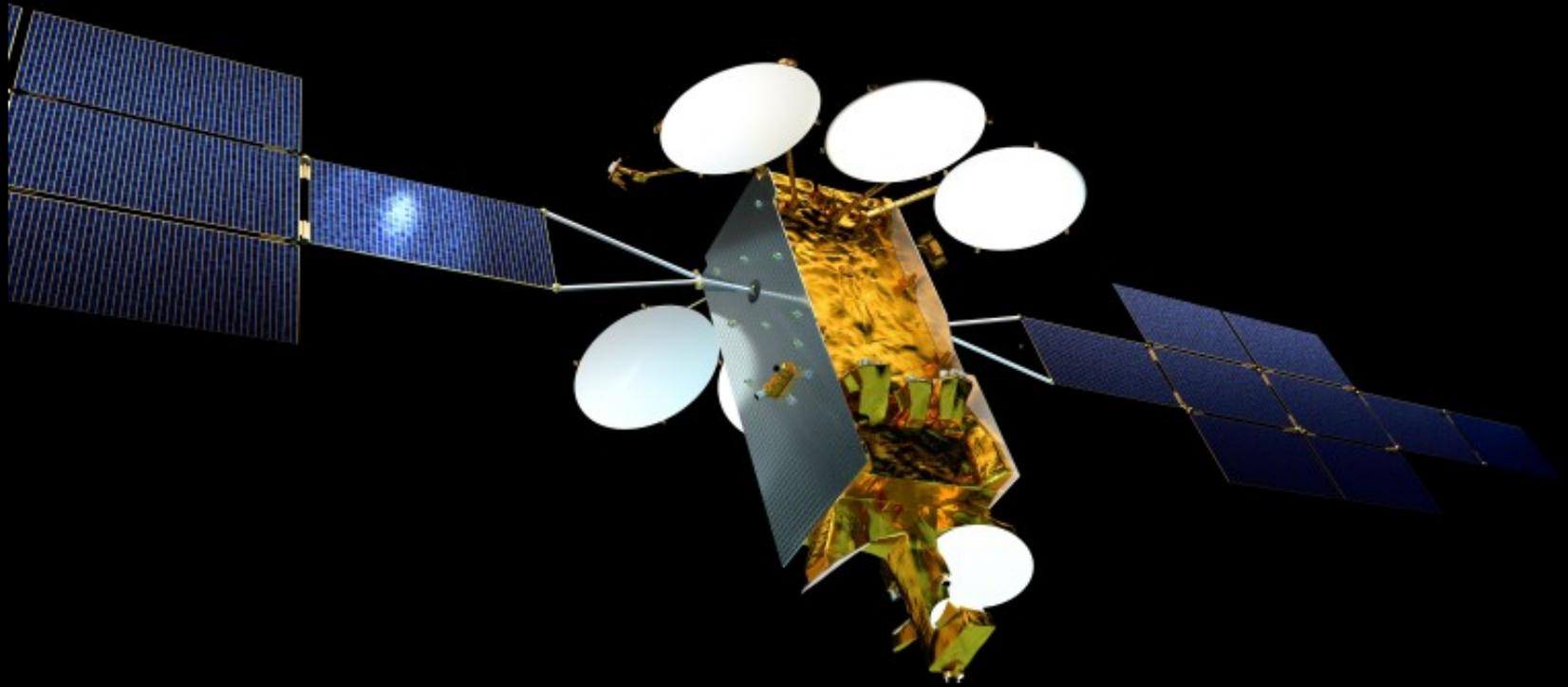
- Global participation in outer space
- Space as a driver of socio-economic development
- Growing link between human activities and the space environment
- Growing importance of space for national security purposes

Space and socio-economic development

UNISPACE+50 Process



Space and national security



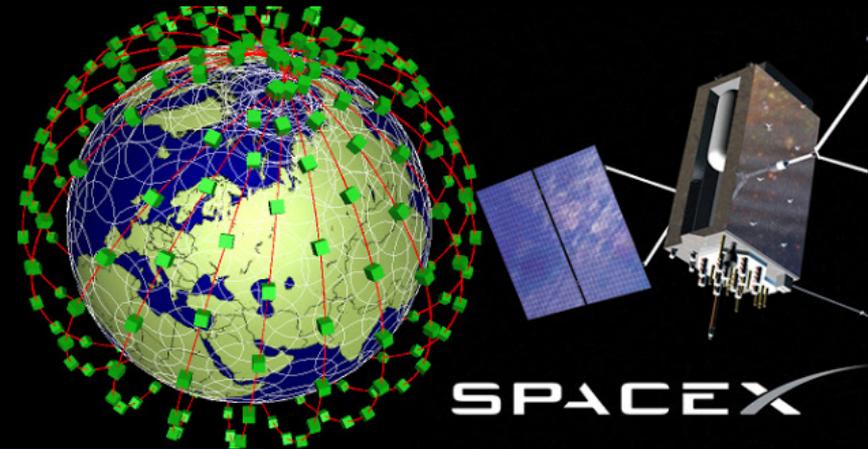
Approx. 358 dedicated military satellites 2016

Space Security Index 2017:

Key Challenges

- Sustainability challenges: large satellite constellations
- New actors and uses: growth of private industry
- Strategic concerns: space as a warfighting domain
- International governance lags

Large constellations of satellites



A REVOLUTION IN SATELLITE MANUFACTURING

No one has ever built a satellite in one day... we will build several every day!



TOTAL COVERAGE

Internet to everyone, everywhere on Earth

GLOBAL LOW EARTH ORBIT CONSTELLATION

Providing high-speed internet connectivity equivalent to terrestrial fiber-optic networks

Sustainability challenges

- Magnitudinal increase of *active* satellites in orbit
- Challenges governing equitable use of resources
- Insufficient compliance with debris mitigation
- Inadequate space traffic management

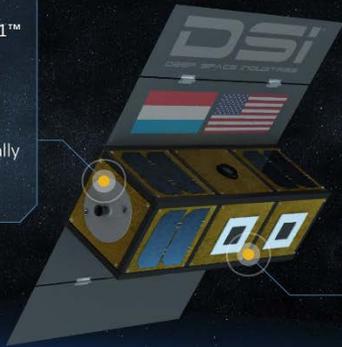
Private actors in space

INTRODUCING: PROSPECTOR-X™

The inaugural mission of the Luxembourg and Deep Space Industries partnership, Prospector-X™ is a 3U spacecraft that will operate in low Earth orbit, testing critical innovations engineered for future missions in deep space.

PROPULSION

The Deep Space Comet-1™ electrothermal thruster uses the most abundant resource in the solar system – water – as propellant. It is intrinsically inert, launch safe, and cost-effective.



DEEP SPACE AVIONICS

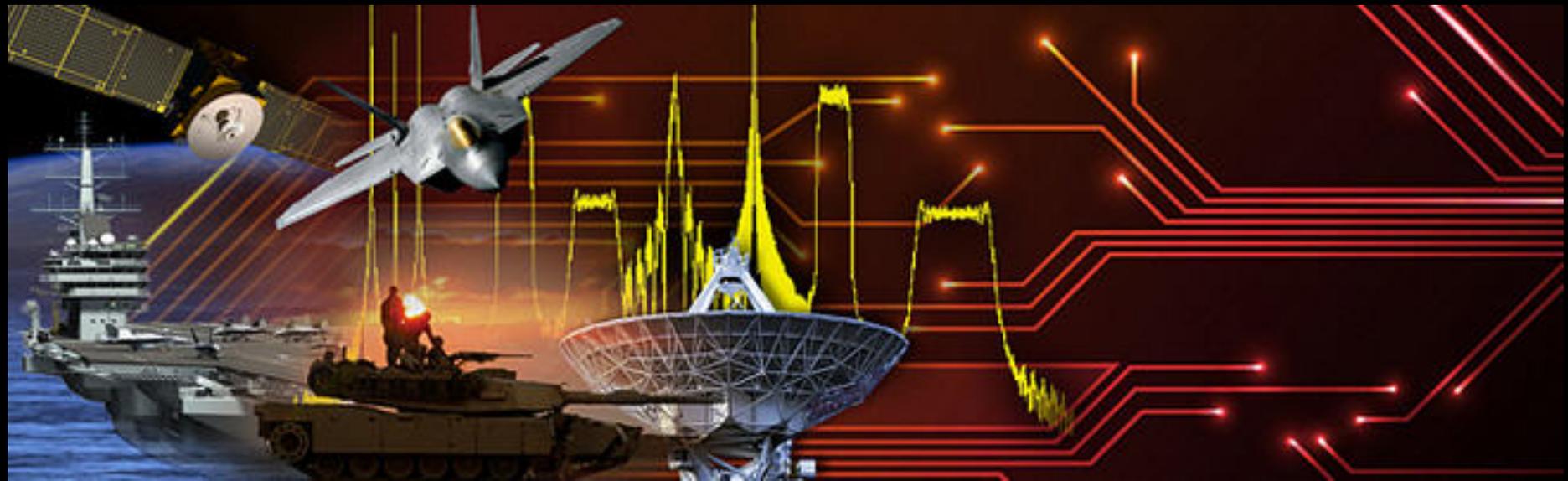
Modular, scalable, and intrinsically radiation-tolerant avionics combine the best of commercial technologies with rigorous screening and innovative design approaches to enable cost-effective, yet radiation-robust subsystems for deep space.



Governing new actors/activities

- Large Internet companies shift gaze to space
- Private actors in space:
 - Human space flight
 - Resource extraction
- New questions about space principles, laws, regulations, responsibilities

Space as a warfighting domain



Strategic challenges

- Advancing technologies for the use of force in space
- Shift in military space strategies and priorities
- Failure to consider limits on the use of force

Governance: a fragmenting regime



COPUOS

Thank-you

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For purchase fall 2017:
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