

# Towards a reinforced transatlantic cooperation: from SST to STM

Space Security in the 2020's: Transatlantic Perspectives  
Brussels, 27th November 2018

## Independent public think-tank in space policy

The European Space Policy Institute (ESPI) provides decision-makers with an informed view on mid- to long-term issues relevant to Europe's space activities. In this context, ESPI acts as an independent platform for developing positions and strategies.

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Published: November 2018

## Towards a European Space Traffic Management Policy



Planned: July 2019

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# Rising challenges to space infrastructure security

- Challenges to space infrastructure security:
  - **Unintentional hazards:** space debris, accidental interferences...
  - **Intentional threats:** ASAT, malicious interferences, cyberattacks...
  - **Space weather hazards:** geomagnetic storms, solar storms...
- Space is an increasingly congested and contested resource:
  - **Multiple and diverse:** different mitigation and protection measures;
  - **Interrelated and interdependent:** holistic approach, interdependence between actors;
  - **Ubiquitous and inclusive:** all systems affected, different degrees of exposition/vulnerability;
  - **Intensifying:** various trends (e.g. increasing space activity, new concepts, connected space, strategic target, 'space control' capabilities);
- Growing dependence on space: risks for society and economy at large.

# Parallel routes towards common objectives

	United States	Europe
Policy drivers	<ul style="list-style-type: none"> <li>National security (vulnerability, Space Pearl Harbor...)</li> <li>Military superiority in space (Ultimate high-ground)</li> <li>Promotion of commercial market</li> </ul>	<ul style="list-style-type: none"> <li>Protection of investment and of socio-economic return</li> <li>Meeting security requirements of service-driven policy</li> <li>Achieve autonomy</li> </ul>
Organisation	<ul style="list-style-type: none"> <li>Sharing of responsibilities between DoD and DoC (SSA/STM); Top down approach to military/civil domains</li> <li>Other national institutions on case-by-case (NASA, NOAA, FCC, FAA)</li> <li>Intricate relations between the different actors</li> </ul>	<ul style="list-style-type: none"> <li>Multiple actors loosely coordinated</li> <li>European countries (dual approach, reluctance to transfer sovereignty, European cooperation challenged)</li> <li>EU and its agencies (crossroad of space and security policies, evolving role under consideration)</li> <li>ESA (capability-building)</li> </ul>
Major developments	<ul style="list-style-type: none"> <li>New national space security strategy</li> <li>National STM policy (SPD-3)</li> <li>Establishment of a Space Force within the DoD</li> </ul>	<ul style="list-style-type: none"> <li>New regulation (SSA component)</li> <li>Upcoming Space Defence Strategies (France, UK);</li> <li>Rising awareness in policy debate (capabilities, coordination, cooperation with partners)</li> </ul>
SSA capabilities	<ul style="list-style-type: none"> <li>Self-sufficient (unmatched SSA capabilities, precision to be improved, coverage to be complemented)</li> <li>Enhancement: Space Fence, SSA data "crowdsourcing"</li> </ul>	<ul style="list-style-type: none"> <li>Strong reliance on U.S. SSA data sharing agreements;</li> <li>Improvement of SSA capabilities expected in coming years</li> </ul>
Involvement of private actors	<ul style="list-style-type: none"> <li>Policy intends to foster commercial activities (SSA data, contribution to STM...);</li> <li>Developing commercial activity in SSA data and related services</li> </ul>	<ul style="list-style-type: none"> <li>Mostly contractors (R&amp;D projects, development and manufacturing);</li> <li>Repeated calls for more industry-led initiatives but no policy decision</li> </ul>

# Transatlantic relations in space security

- **Transatlantic relations encompass a complex mix of frameworks and channels:**
  - **Bilateral government-to-government channels:** SSA data sharing agreements / Operational liaison and exercises (military field)
  - **Europe-wide to U.S. channels:** Regular EU – U.S. Space Dialogues; Case-by-case cooperation between U.S. / European organisations
  - **Multilateral channels:** NATO, UN COPUOS, Conference on Disarmament, IADC, ITU... (different stakeholders represented)
  - **Government-to-Industry, Industry-to-Industry cooperation:** Satellite operators relying on governmental and commercial data and services; Space Data Association cooperation:
- **No formal and inclusive framework at political level established yet** (cooperation on a case-by-case-basis)
- **Recent deterioration of relations, implications in space unclear** (usually unaffected by ups and downs)

# SPD-3: National Space Traffic Management Policy

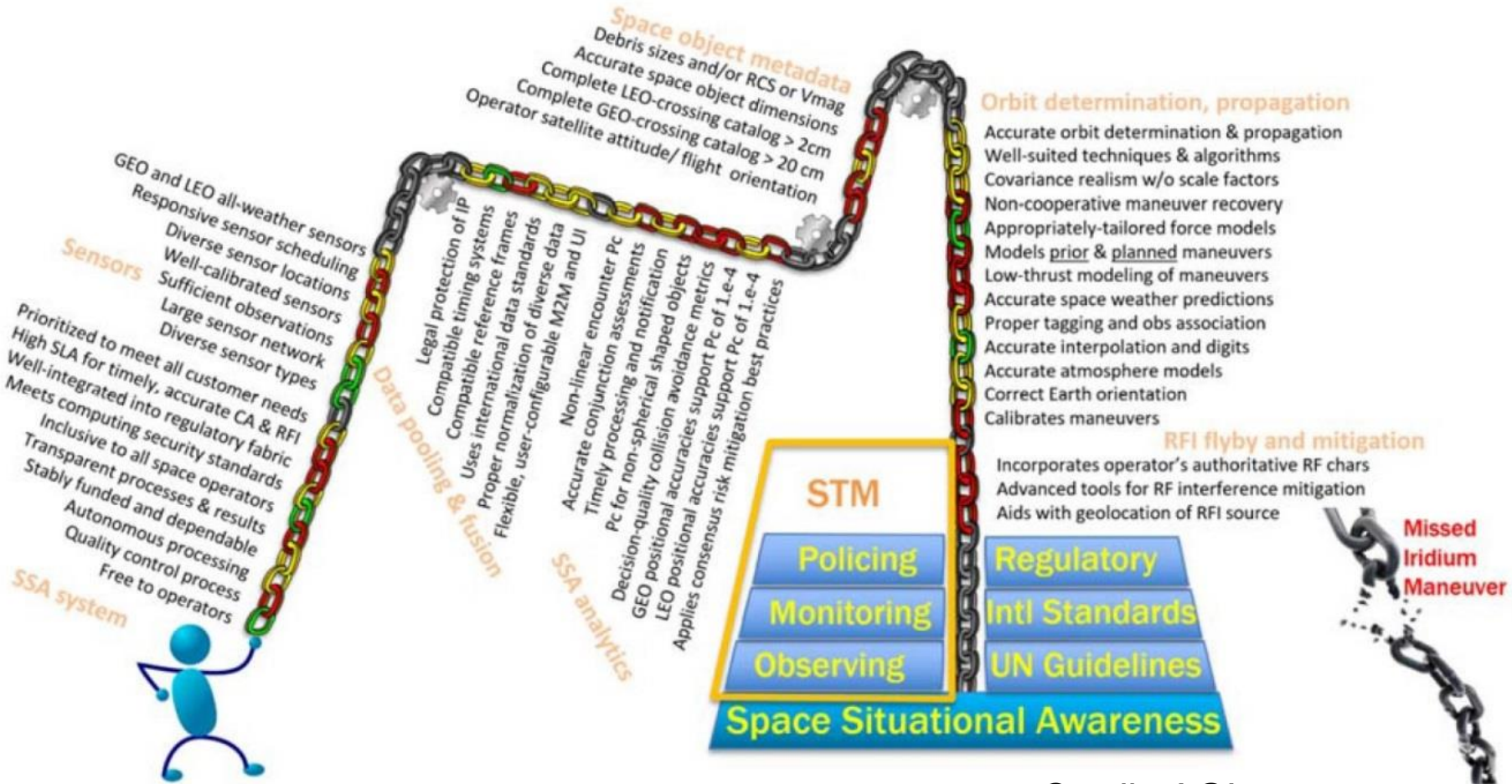
- **Step forward** in recognising the severity of issues at stake and the urgency of setting up a framework to prevent and mitigate space security threats:
  - “The future space operating environment will be shaped by a significant increase in the volume and diversity of commercial activity in space”
  - “As the number of space objects increases, [the current] limited traffic management activity and architecture will become inadequate.”
- **Objective** to “develop a new approach to space traffic management that addresses current and future operational risks.”
- **Clear political willingness to accelerate** activities through national-led engagements:
  - Reaction to limited progress at international level (recurring difficulty of making actors converge on necessarily constraining international measures)
  - The policy does not necessarily challenge the relevance of multilateral efforts in space security

# SPD-3: National Space Traffic Management Policy

- **Space Policy Directive 3 calls for:**
  - **Reorganization of responsibilities across military and civil branches:** top-down approach to SSA data sharing
  - **SSA data enhancement** to reach the appropriate accuracy required to safely plan, coordinate, and synchronize in-orbit activities and mitigate collision risks;
  - **SSA data policy** to set up appropriate information management structures (collection, fusion, distribution) safeguarding data integrity, reliance and confidentiality;
  - **Specification of STM best practices and norms** to enhance the safety, stability, and sustainability of operations in the space environment across different stakeholders (military, civil, commercial);



# STM: an ambitious objective



Credit: AGI

# Challenges ahead

- **SSA data enhancement and data policy:**
  - **Enhancing SSA data coverage and precision implies relying on multiple data sources (crowdsourcing):** 1) new U.S. sensors, 2) SSA data sharing, 3) purchase of SSA data and services.
  - **New challenges to ensure data availability, reliability, integrity and confidentiality.**
  - **Revisit of data sharing agreements** with international and private partners and integration of commercial data and services
- **Specification of STM best practices and norms:**
  - **From informative to normative STM:** specification of norms of behavior encompassing preventive, operative, and curative measures across the lifecycle of space systems (best practices, standards, regulations)
  - **Coordination at international level** of multiple, possibly divergent, regional/national approaches to STM.

## Implications for Europe

- **Window of opportunity to reinforce cooperation in SSA:**
  - **SSA data sharing agreements backbone of transatlantic relations**
  - **Improve Europe's bargaining power:** close capability gap in SST/SSA (balanced cooperation), balance between autonomy and cooperation (complementarity, resilience, interoperability)
  - **Consolidate European approach** around a clear leadership (intergovernmental and supranational) and SSA data policy (military/civil)
  - **Foster the emergence of European commercial actors** able to compete/cooperate in an open transatlantic SSA market;
- **Preparing a European approach to Space Traffic Management:** Setting up a dedicated forum to coordinate the views, needs and possible contributions of European stakeholders

# Thank you

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