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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Rising Stakes for Europe
Published: August 2018

Perspectives on Transatlantic Relations
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Towards a European Space Traffic Management Policy
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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

<table>
<thead>
<tr>
<th>United States</th>
<th>Europe</th>
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<tr>
<td><strong>Policy drivers</strong></td>
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<tr>
<td>• National security (vulnerability, Space Pearl Harbor…)</td>
<td>• Protection of investment and of socio-economic return</td>
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<td>• Military superiority in space (Ultimate high-ground)</td>
<td>• Meeting security requirements of service-driven policy</td>
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<td>• Promotion of commercial market</td>
<td>• Achieve autonomy</td>
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<td><strong>Organisation</strong></td>
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<td>• Sharing of responsibilities between DoD and DoC (SSA/STM); Top down approach to military/civil domains</td>
<td>• Multiple actors loosely coordinated</td>
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<td>• Other national institutions on case-by-case (NASA, NOAA, FCC, FAA)</td>
<td>• European countries (dual approach, reluctance to transfer sovereignty, European cooperation challenged)</td>
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<td>• Intricate relations between the different actors</td>
<td>• EU and its agencies (crossroad of space and security policies, evolving role under consideration)</td>
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<td><strong>Major developments</strong></td>
<td>• ESA (capability-building)</td>
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<td>• New national space security strategy</td>
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<td>• National STM policy (SPD-3)</td>
<td>• New regulation (SSA component)</td>
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<td>• Establishment of a Space Force within the DoD</td>
<td>• Upcoming Space Defence Strategies (France, UK);</td>
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<td><strong>SSA capabilities</strong></td>
<td>• Rising awareness in policy debate (capabilities, coordination, cooperation with partners)</td>
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<td>• Self-sufficient (unmatched SSA capabilities, precision to be improved, coverage to be complemented)</td>
<td>• Strong reliance on U.S. SSA data sharing agreements;</td>
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<td>• Enhancement: Space Fence, SSA data “crowdsourcing”</td>
<td>• Improvement of SSA capabilities expected in coming years</td>
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<td><strong>Involvement of private actors</strong></td>
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<td>• Policy intends to foster commercial activities (SSA data, contribution to STM…);</td>
<td>• Mostly contractors (R&amp;D projects, development and manufacturing);</td>
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<td>• Developing commercial activity in SSA data and related services</td>
<td>• Repeated calls for more industry-led initiatives but no policy decision</td>
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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)
• **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
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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