

Towards a reinforced transatlantic cooperation: from SST to STM

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

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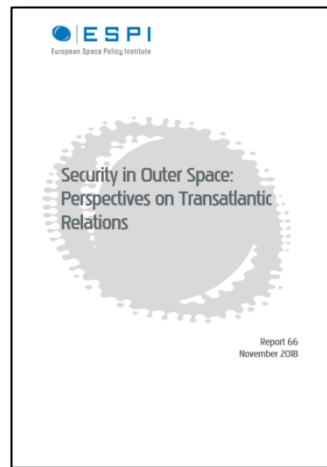
ESPI studies on “Security in Outer Space”

Rising Stakes for Europe



Published: August 2018

Perspectives on Transatlantic Relations



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

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)

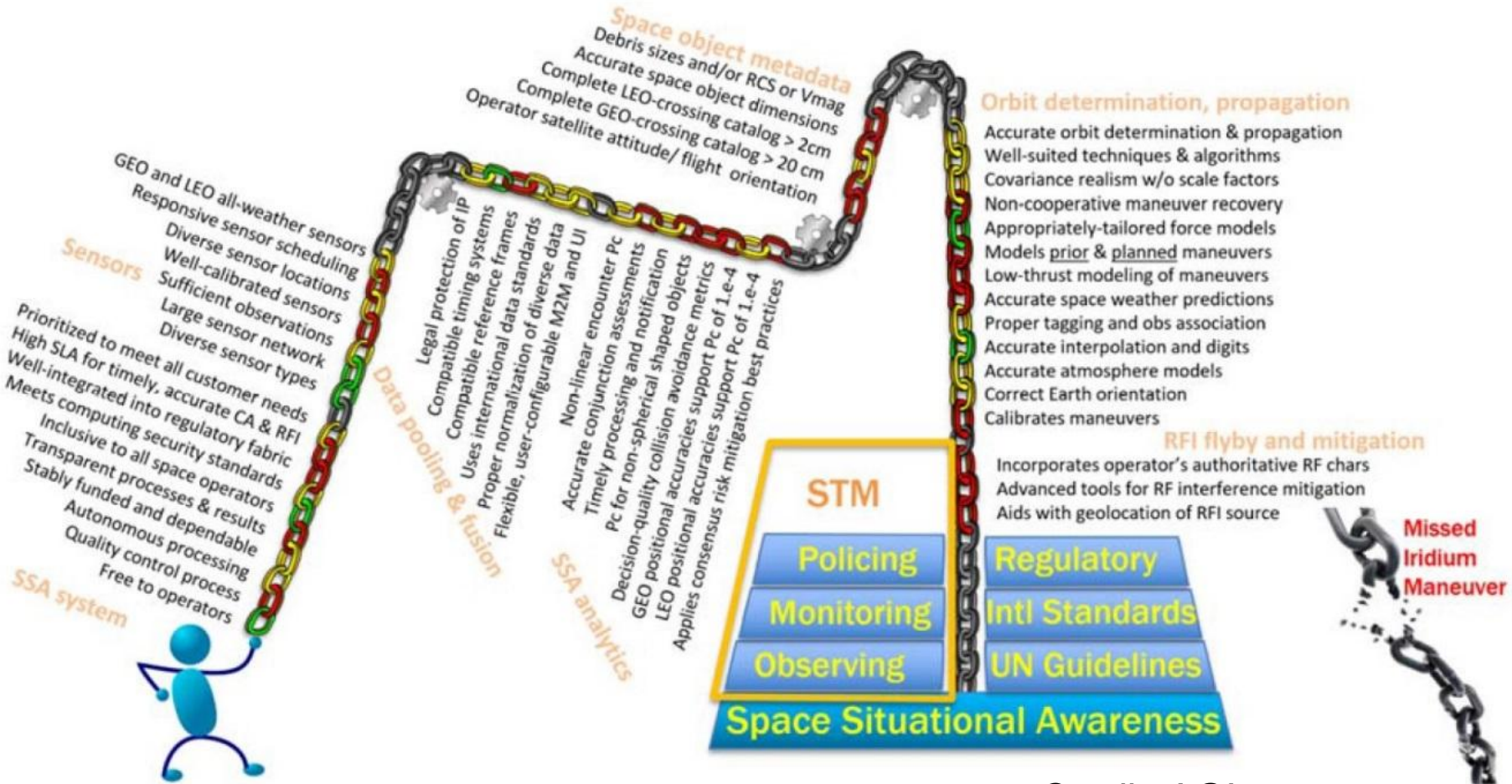
SPD-3: National Space Traffic Management Policy

- **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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