The IAA Cosmic Study on Space Traffic Management

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“Space Traffic Management – towards a roadmap for implementation”

- IAA Study 5.15 (2015-2017)
- International team: 10 authors, 20 advisors (all in personal capacity)
- Follow-up of Cosmic Study on STM 2006
- Approved in March 2017, publication imminent

Foreword by judge P. Tomka, ICJ

- 50 years since OST: careful action necessary to secure sustainable development of future space activities
- STM as a possible comprehensive approach
- International cooperation as ‘conditio sine qua non’ for management of space
- *“Realizing the potential of this timely and ambitious study could be a significant step forward.”*

Study scope

- revisits STM to provide an inter-disciplinary context and support decision making
- adjusts the concept of STM to the current advancements in space activities
- discusses the potential of STM to contribute to the evolution of the legal and regulatory framework for space activities.

The space environment until 2030

- Overall context: global trends in the coming decades and the role of space
- Diversification and growth of actors, utilisation potential and novel technologies
- essential to provide, through appropriate means, for the safe conduct of space activities or, in other words, for *managing the traffic to, in and from outer space*

The study's "STM" definition

- The study uses the definition of STM developed in the 2006, which has proven to be useful and practical
- **"Space Traffic Management (STM) means the set of technical and regulatory provisions for promoting safe access into outer space, operations in outer space and return from outer space to Earth free from physical or radio-frequency interference."**

Status of regulation

- Examination of international space law: STM not conceptualised, but **elements** thereof do exist
- National space legislation and soft law contain **scattered, sometimes novel elements** of STM (e.g. notion of “protected orbital regions”)
- Extensive review of **TM elements in other regulatory regimes** (sea, air, environment, ITU system, etc.)

Towards STM (1)

- The study shows elements and ways towards both a technical STM system and a regulatory STM regime
- the latter would go beyond the purely technical co-existence of system elements.
- Setting up a comprehensive regime for STM may well work, it being understood that *an exercise of this complexity and importance depends foremost on the political will.*

Towards STM (2)

- A regulatory regime may be established through:
  - a gradual bottom-up approach or
  - a comprehensive top-down approach.
- While elements of the first are already in place today, the second presents an opportunity to achieve a coherent end-to-end framework.

Top-down approach

- A top-down approach for a comprehensive STM regime could borrow from the ITU system:
- **layered regulation and standards**
- **an institutional frame**
  - "Treaty layer" (Outer Space Treaty -> OS Convention)
  - "Outer Space Traffic Rules"
  - "Outer Space Traffic Technical Standards"

Roadmap for implementation

- An international regulatory STM framework requires political will, technical prerequisites (e.g. SSA), cooperation and the acceptance of the very idea.
- The study discusses the necessary preconditions.
- From the political acceptance of a comprehensive STM regime to its elaboration and, eventually, implementation, it could take an estimated 15 years.

The Study's conclusion

- It is an essential and fundamental task to ensure the safe and sustainable conduct of space activities, to meet societal demands today and in the future.
- STM could provide for a systematic and coordinated approach and be a powerful tool safeguarding the continued use of outer space free form harmful or unwanted interference, for the **benefit of everyone**.