2023 INTERNATIONAL SSA/STM POLICY EXCHANGE

April 17, 2023

Key Findings

International SSA/STM Policy Exchange
Identifying Approaches to Incentivizing More Voluntary Participation of SSA Data Providers &
Satellite Owner/Operators
April 17, 2023

EXECUTIVE SUMMARY
The 2023 Policy Exchange points forward toward a new line of emphasis for future policy exchanges and associated operator-level workshops at the annual AMOS conference. There was tacit recognition that regulation has a place in enabling useful Space Situational Awareness (SSA) data sharing that produces decision-quality data for owners/operators. Using voluntary approaches to gain stakeholder buy-in in efforts to overcome communication and data sharing issues is not sufficient in a world with several distinct, emerging SSA and Space Traffic Management (STM) systems that may or may not be cooperating with each other. These "Multiple Sources of Truth" inhibit timely, operational decision making by satellite owner/operators.

Building upon this finding, the participants recognized the growing need for states and multinational actors to align policy and regulation in order to standardize and enable compatibility among data sources and data products produced by various independent entities around the world.

BACKGROUND
The Aerospace Corporation and the Maui Economic Development Board (MEDB) led the annual International SSA/STM Policy Exchange on 17 April 2023. This invitation-only event was held in conjunction with the Space Symposium in Colorado Springs, Colorado, USA. The session was cohosted by the Centre National d'Etudes Spatiales (CNES), the Space Agency of the Deutsches Zentrum für Luft- und Raumfahrt (DLR) and the UK Ministry of Defense (UK MOD).

DESIRED OUTCOMES
The primary desired outcome for the 2023 exchange was to: 1) begin discussing approaches for incentivizing a significantly wider population of SSA data providers and satellite owners/operators' to: a) *voluntarily participate* in efforts to overcome technical and non-technical communication and data sharing issues that inhibit getting decision-quality data to owners/operators; and b) *voluntarily participate in current and future SSA/STM workgroups, consortiums, dialogues, sharing initiatives,* and so forth dedicated to developing international SSA/STM solutions. Additional goals of the workshop were to: 2) learn from non-government organizations how they have successfully incentivized broad stakeholder information and data sharing; 3) re-emphasize and report progress on existing SSA policy community priorities; and 4) gather participant updates on data sharing efforts in order to learn from successful examples, and identify policy gaps and roadblocks.

The enduring goal of the annual International SSA/STM Policy Exchange is to provide an opportunity to develop and advance relationships among a community of key international SSA/STM policymakers and industrial actors as well as to share and explore relevant

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opportunities and challenges among domestic agencies/ministries and transnational entities. The exchange built upon the key findings from the 2022 SSA Data Operator Exchange workshop held in September 2022 during the AMOS Conference.

KEY FINDINGS

A. There was tacit recognition among participants that regulation, licensing requirements, and legal mandates have a place in enabling useful SSA data sharing that produces decision-quality data for owners/operators. This finding is a result of the following insights:
    1) Adequate *positive* incentives do not yet exist for commercial owners/operators and SSA data providers to voluntarily participate in solving technical and non-technical SSA data sharing issues.
    2) Current legal, financial, and reputational risks to companies also do not create sufficient incentives for owner/operators and SSA data providers to participate in solving SSA data sharing issues.
    3) Data sharing can actually be a threat to commercial SSA business models. SSA data providers suffer few if any consequences for ignoring government recommended—but voluntary—best practices, guidelines, and standards.
    4) Government provided basic SSA data sharing services should not and cannot work without or against the commercial space contributions. However, there will be winners and losers among commercial SSA data providers.
    5) Regulation and licensing must balance legal requirements needed for new and less experienced owners/operators while avoiding over-burdening more mature owners/operators.

B. Without sufficient voluntary incentives, regulation, or licensing to enable standardization, there are growing numbers of non-harmonized SSA data sources and data products from various SSA data providers, owners/operators, governments, and other entities. (Participants referred to this as "Multiple Sources of Truth"). The stand-alone SSA data sources and products vary in quality and use various sensor calibrations and standards which creates ambiguity for owners/operators and thereby inhibits owner/operator decision-making quality and timeliness. This finding drives the need for:
    6) Intentional governmental efforts to align policy and regulations among states and multinational actors to:
        a) standardize and enable compatibility among data sources and data products produced by various independent entities around the world.
        b) avoid creating unintentional incentives that drive forum shopping/offshoring by commercial companies.

C. An interim solution to the lack of consistent data for collision avoidance (CA) could be to develop a decision-making rubric. Such a rubric would include information on type, quality, solution fidelity, and reliability.

D. A governmental or other "honest broker" could be used to assess quality and validity of commercial SSA data

E. New methods and tools should be developed such as multi-phenomenology, to measure satellite position.

F. Artificial Intelligence (AI) may be employed in the future and may help with some of the data fusion issues. However, recent experimentation produced ambiguous results.

WAY AHEAD

A. To forestall wide divergence of SSA/STM-related regulation, licensing requirements, and legal mandates that result in multiple, noncompatible SSA/STM standards and approaches around the world, key international SSA/STM policymakers, SSA data providers, satellite owners/operators, and other entities should:
   a. Communicate more regularly and meet more frequently to compare evolving SSA data sharing and STM plans, identify diverging international approaches, and work together to align approaches where possible.
   b. Continue efforts to educate senior policymakers about international SSA/STM data sharing issues.

B. Informed with the 2023 Key Findings above, continue working on the priorities from previous years' policy exchanges and operator workshops which were to develop the following:
   1. Operationally useful, consensus-based standards for timely, transparent, trustworthy, secure, SSA/STM data sharing (data base/data repository/data exchange) that is capable of automation.
   2. A reliable, 24/7/365 system of rapid communication among owners/operators that enables transparency and coordination for the operational community.
   3. National SSA/STM regulatory frameworks that can evolve into an international framework.
   4. Operationally useful standards for on-orbit operations.
   5. Methods for incentivizing positive behavior.

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Program on April 17, 2023

Welcome Remarks
   Leslie Wilkins, Maui Economic Development Board, President & CEO
   Jamie Morin, The Aerospace Corporation, Center for Space Policy & Strategy

Keynote with Q&A
   Richard Dalbello, US Department of Commerce, Office of Space Commerce

Lauri Newman, NASA, Science Mission Directorate on TraCSS.[*]

Update on European Union Space Surveillance & Tracking (EU SST) with Q&A
Pascal Faucher, Chair of the EU SST consortium

Panel : Incentivizing Commercial Participation to Find Solutions
Moderator: Jamie Morin, Aerospace
Panelists:
- Erin Miller, Space ISAC
- Thierry Balanche, EUROSPACE
- Andrew D'Uva, Global Commercial Space
- Dan Oltrogge, International Organization for Standardization

Roundtable: Updates and discussion:
- Space Safety Institute – Uma Bruegman, The Aerospace Corporation
- UK Ministry of Defence – Junayd Miah, UK Space Command, Science Advisor with Q&A
- US Federal Communications Commission – Julie Kearney, Chief of the Space Bureau with Q&A
- European Commission/European External Action Service – Rodolphe Muñoz, Regina Peldszus with Q&A
- US Space Force Space Systems Command – Barbara Golf, Strategic Advisor for Space Domain Awareness with Q&A
- US Department of State – Richard Buenneke, Senior Advisor Space Policy
- US National Space Council – Diane Howard, Director of Commercial Space Policy with Q&A

Open Discussion

Closing Remarks
Leslie Wilkins, MEDB
Jamie Morin, Aerospace

The exchange included international representatives from Australia, the European Union (EU), EU Space Surveillance & Tracking (EU SST), Germany, Japan, Poland, and the United Kingdom. U.S. government representatives attended from the National Space Council, Department of Commerce (NOAA), Department of Defense, Department of State, NASA, the Federal Aviation Administration, the Federal Communications Commission, and the U.S. Space Force. Non-governmental organizations and individuals attended providing perspectives from EUROSPACE, Space ISAC, Secure World Foundation, Space Data Association, and International Organization for Standards.

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[*] Traffic Coordination System for Space