32nd IAA SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (E3)
International cooperation in using space for sustainable development: Towards a "Space2030" agenda (1)

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INVENTORY OF COUNTRY SPACE CAPABILITIES: MAPPING HOW EACH NATION CAN CONTRIBUTE (IN ITS OWN WAY) TO A SPACE 2030 SUSTAINABLE DEVELOPMENT AGENDA

Abstract

Space activity has vastly enlarged human economic activity on earth – while unlocking revolutionary new prospects of prosperity, exploration, and settlement beyond our planet. In both the terrestrial and extra-planetary realms, space participation has altered the present reality and future trajectory of our species. Yet in recent years – as both the number of space actors and speed of innovation have grown exponentially – government and industry leaders have been slower to connect the benefits of space to those most in need on the ground. This disconnect persists especially for the 1 billion people classified by the UN as living in extreme poverty below 2 US dollars per day.

How can our rapidly growing array of space capabilities be better leveraged to support 2030 sustainable development goals (SDGs): poverty reduction, human capacity building, and opportunity growth? While government and industry have made a start, a unified strategy that takes full account of respective national space capabilities and deploys them toward SDG fulfillment is lacking.

This paper – authored by multi-continent space professionals across space business, academia, institutions, and government – offers an initial framework to begin filling that gap. Our approach is two-fold:

1. **Introduce National Space Capability Scoreboard Framework:** An inventory-style model to benchmark national space achievement across 10+ core technology areas; and

2. **Add Capacity-Building Meta-Analysis:** Propose how national space capabilities mapped through this model can be more effectively used to build capacity and opportunity – especially in emergent less-developed space-faring countries.

A systematic comparison of varying national space capabilities is prerequisite for planning their most effective mobilization toward UN 2030 SDGs. For this reason, the National Space Scoreboard Framework is the main focus of this paper. Based on 10+ core technology areas, the Scoreboard is a quantitative and qualitative analysis tool. It provides a system to evaluate space capabilities across not only established space leaders (the US, Russia, Europe, or China), but also emerging space-participant nations (for instance, Argentina, Azerbaijan, Nigeria, or Vietnam).

A second-step meta-analysis will then link the resulting Inventory of National Space Capabilities with UN 2030 SDGs. **By mapping select country space capabilities against national or regional development levels, pathways to extend core space technology achievements toward development-focused space applications will become much clearer**. The paper will highlight these linkages for select countries – then conclude with concrete steps to leverage these space capabilities toward broadly shared socio-economic and societal progress.