
Drawing from the “Cutting-Edge Artifact” frame of the global knowledge structure, we draw an analogy contrasting “asymmetric positioning of states in the global knowledge structure” to the “Access-to-Space-For-All” campaign of the 2019 United Nations Office of Outer Space Affairs, applying a Framework for Space Policy. We illustrate a socio-technological transformative architecture to be used as a mechanism to implement and advance international space innovation objectives, cognizant of Long-Term Sustainable (LTS) guidelines for space among nations and organizations, public and private.

In the context of an International Space Architecture Framework, we enumerate how the means for space-related guidelines implementation span components of this socio-technological architecture metamodel such that there is traceability and cohesion among technical specifications, behavioral norms, ethics, and standards of practice ultimately in support of space policy criteria and ex-post evaluation and verification for measuring intended impactful outcomes.

Specifically, we focus on space flight safety technology mechanisms, using Distributed Ledger Technology or Blockchain, and on comprehensive interconnected security principles; e.g., sound satellite cybersecurity mechanisms must be interdependent with and across technology, information, physical, personnel, managerial, trusted supply chain, certification and accreditation processes and procedures.

Such an architectural construct can serve to catalyze constructive international approaches to the advancement of public-private space industry and incentivize good behavioral norms in sustainably meaningful, effective, and “sticky” ways that ensure continued and unfettered access to space for all.

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A socio-technological transformative architecture could advance international space innovation objectives.