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FRAMEWORK TO ENABLE NON-GOVERNMENT ENTITIES TO PARTICIPATE IN THE SPACE
SECTOR: INDIAN CASE STUDY

Abstract

The global space economy is expected to reach \$1 trillion by 2030, and the key to its growth is increased participation from private industry. Engaging Non-Government Entities (NGEs) in the space sector is challenging considering the investment and regulatory requirements. It is essential to understand that the level of technological competence developed by government funded space agencies is through constant inflow of funds, infrastructure construction and capacity building over decades. Merely allowing NGEs to participate in the space sector does not guarantee success of their endeavors. Effective partnerships, technology transfers, knowledge sharing and infrastructure sharing between government and the industry are imperative to enable new entrants to cross the risky and failure-prone initial phase and enter an operational phase within limited time to compete in the global market ensuring international legal regimes.

To bridge the gap between NGEs and expertise developed through government investment over decades, a regulatory mechanism must be established. This mechanism should provide a seamless and scalable system, capable of accommodating the growing demands of NGEs and emergence of new players in space sector. It is also crucial to identify different types of NGEs like NewSpace startups, large industries, academic institutions, interdisciplinary RD labs, and enterprises interested only in adoption of spin-off technologies. These five categories must be differentially addressed by the regulatory mechanism.

Commercializing the enabling nature of space technology offers significant long-term economic benefits, driving advancements in food-security, energy-security, transportation, sustainability, and defense. Involvement of NGEs in these domains fosters social, intellectual, and economic growth. At the same time cross-linking with academic institutions and RD labs is crucial for enhancing the focus required for future space activities.

This paper proposes a multiple stakeholder model to implement a regulatory framework that facilitates NGE participation in the space sector. The model ensures segregation of powers between NGE interfacing wing, technical support execution wing, and authorization wing within the government. Application of this framework is explored through a case study of Indian space sector, highlighting the establishment of NewSpace India Limited (NSIL) and the Indian National Space Promotion and Authorization Centre (IN-SPACe) under the Indian Department of Space, and its engagement with the Indian Space Research Organisation (ISRO). This cross-functional and transferable framework enables governments to increase commercial participation in various sectors, ensuring a stable and predictable regulatory mechanism.

Additionally, the paper offers insights on how nations aspiring to advance their space sectors can adopt a similar model.