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Economic analysis of both actual and potential future benefits from space activities and applications to nations and peoples. (3)

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# ASSESSING THE VALUE OF THE NEXT GENERATION SPACE PROJECTS: STATE-OF-THE-ART AND NEW PERSPECTIVES

**Abstract**

In the New Space Economy, the value exchanged for the development of new infrastructure (e.g., satellite constellation) cannot be easily assessed in a traditional way. New stakeholders bringing in technologies and knowledge from other industries are involved since the early stages of the infrastructure development, and the space infrastructure has to be valuable for new, often unknown, end-customers in the long run, exceeding the mere economic return and including other tangible and intangible values, including the impact on society and the environment. Therefore, the project's sponsors are in urgency to assess the value exchange among the project stakeholders to guarantee a positive return on the investment and to prevent possible future value losses.

While projects have traditionally been viewed as means to deliver specific outputs against a predefined scope, they are now increasingly conceptualized as agents of change for value creation. Notably, shifting the attention from product to value creation implies taking multiple dimensional perspectives of value beyond the traditional short-term iron triangle, i.e. cost, time and quality. Value is perceived differently among project stakeholders and evolves throughout the entire project (and product) lifecycle.

Academics and practitioners developed a plethora of tools and techniques to assess and manage value. "Value Management" is a blanket term that covers a broad range of techniques spanning from value planning to value engineering and value analysis. It encompasses a set of systematic and logical procedures to enhance project value through the life of the infrastructure. "Value Management" can equip stakeholders to maximize project value across the concept, definition, implementation, and operation phases of a space project. Nevertheless, its adoption in the emerging New Space Economy context is still under-investigated and under-exploited.

Our research aims to study the adoption of emerging models and methods to identify and assess the value of space projects in the New Space Economy. We firstly perform a systematic literature review to identify which methods and approaches are proposed (e.g., Value Network Analysis, Value-Driven Design, Stakeholder Value Network management), and qualitatively assess the benefits, challenges, and comparative advantages stemming from their adoption. Secondly, we perform a series of workshops with elite informants belonging to the New Space Economy to refine and enrich our analysis with the practitioner's perspective. Results are intended to set the background for new foundational research but may also support practitioners in implementing value-driven approaches for the development of next-generation space projects.