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THE BENEFITS OF SPACE PROJECTS FOR SUSTAINABLE DEVELOPMENT: A "PROJECTS AS INTERVENTIONS INTO NATURE" CONCEPTUALISATION

Abstract

Sustainability has become a central focus for scholars and practitioners, who highlight the pivotal role of space projects in addressing urgent environmental and social issues. Planning and developing space projects for sustainable development is, therefore, a priority for private actors and space agencies. Yet, despite space organisations having decades of Project Management experience and deep knowledge of how to evaluate the success of a project in the short term, the long-term transformative socio-economic value of space projects is underestimated or neglected.

Recently, the concept of "projects as interventions into nature" emerged in management literature, calling for a shift in mindset for decision-makers to perceive projects not only as tools with immediate impacts but also as long-term future-making agents. In the space economy domain, leveraging this emerging conceptualisation may provide scholars and practitioners with the necessary conceptual foundation to plan and develop space projects for sustainable development. This paper aims at conceptualising commercial space projects as "projects as interventions into nature" and offering empirical evidence on how this conceptualisation favours planning and developing commercial space projects for long-term socio-economic benefits, discussing the challenges and drivers of space projects as interventions for sustainable development.

The research starts by clarifying the conceptual and theoretical foundations of commercial space "projects as intervention" based on a literature review. Then, in the empirical context of the European Space Economy, we analyse 34 commercial space projects generating long-term socio-economic benefits in the Energy Utilities, Agriculture, Forestry Fishing, Environment Wildlife, and Transport Logistics sectors. Data collection was based on 32 semi-structured interviews with managers involved in these projects, triangulated with public and confidential secondary data. We performed a thematic analysis of the data collected. We adopt Value Theory to sensemake our data.

We develop a conceptual framework of space projects as interventions, delineating the characteristics and the scope of these projects. We show that commercial space projects of intervention have positive impacts on sustainable agriculture, renewable energy production, pollution and gas emission monitoring, and forestry management. Moreover, we identify technical, financial, stakeholder, market, and institutional challenges that managers face in planning and developing these projects. We clarify institutional, operational, market, and sustainability drivers that lead managers in planning and developing commercial space projects as interventions into nature.

Our research contributes to project value and space economy bodies of knowledge, and provides the foundational conceptual background to plan and develop space projects for sustainable development.