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9th SYMPOSIUM ON STEPPING STONES TO THE FUTURE: STRATEGIES, ARCHITECTURES, CONCEPTS AND TECHNOLOGIES (D3)
Strategies and Architectures to Establish a "Stepping Stone" Approach to our Future in Space (1)

Author: Mr. Egbert Jan van der Veen
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

INNOVATION DYNAMICS OF THE SPACE SECTOR

Abstract

The proposed paper deals with the technological innovation dynamics of the space sector. Many investigations about the diffusion of innovations have been performed over the last century. Recently researchers have begun to state that the before mentioned literature is not entirely applicable to the space sector because of its difference in the innovation dynamics. This difference is caused by the monopolistic-oligopolistic market structure of the space sector and causes the diffusion of innovations to follow alternative paths. The market structure entails that a monopsonistic buyer, which in the space sector is a governmental institution, faces a small amount of possible sellers, which in the space sector are prime contractors.

In addition space technology development encompasses both push and a pull factors. The push factor is focusing on transformational technology development aimed at transforming the space market in the future by doing basic science and researching breakthrough concepts. The pull factor on the other hand is mission focused, which entails the technologies that are developed for planned missions.

The lack of research on the diffusion of innovations within this specific market structure decreases the effectiveness of modern innovation management literature. This is mostly the case in areas such as investment decision making, research and development, technology forecasting, strategic planning and technology roadmapping. The paper analyzes in detail which factors are causing this difference in innovation dynamics, what kind of effects this has on the diffusion of space technologies and what kind of influence this has on successfully managing a technological innovation within the space sector market structure.