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EVALUATING RESEARCH FOR DISRUPTIVE INNOVATION IN SPACE

Abstract

Many governmental space activities need to be planned with a time horizon that extends beyond the comfort zone of reliable technology development assessments and predictions. In an environment of accelerating technological change, a methodological approach to non-core technology trends and potentially disruptive, game-changing developments not yet linked to the space sector is increasingly important in addition to core and key technology development roadmaps.

Different models and organisational setups have been tried to address this question. These include with varying links to space e.g. the NASA Institute for Advanced Concepts (NIAC1, operational form 1998 to 2007), the central research and development organisation DARPA in the US DoD, the MIT Medialab, the early versions of Starlab, the Lockheed Skunk Works and some of its imitators and ESA's Advanced Concepts Team. Based on a recommendation by the National Research Council, a new form of NIAC has recently been re-established within the Office of the NASA Chief Technologist.

The present paper compares and analyses these different approaches to perform research on advanced space concepts and proposes some measures for the evaluation of research for disruptive, potentially game changing innovation for space.