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Author: Prof. Haym Benaroya
Rutgers University, United States, benaroya@rci.rutgers.edu

DUAL-USE TECHNOLOGIES OR "REVERSE SPIN-OFFS" AS A FRAMEWORK FOR SPACE DEVELOPMENT

Abstract

We revisit the idea of dual-use technology as a viable paradigm for the financing of a lunar enterprise. The defining question is: How do we finance projects and technological developments that are so expensive, and generally require such long time scales, that investors will not support them? This question applies to many large-scale expensive endeavors, including lunar development. However, other than Space, such projects are viewed to be in the public interest, and, therefore, justifiably funded by government. Examples include airports, highways, environmental cleanup facilities, the military, and the Space exploration of the 1960s. Compared to these generally closed-ended projects, with generally understood economic and social benefits, lunar development is open-ended. This fact makes it difficult to detail its benefits because of the vastness of the enterprise. (How would one begin to justify the multi-generational benefits of colonizing a planet over a period of one to two hundred years?) It is also very expensive when viewed as an individual project. Attempts by proponents at justification by using cost comparisons to other national expenditures deemed less worthy, such as movie going, do not enhance public desire for funding lunar development. Therefore, it is necessary to identify segments of the larger endeavor that can be justified independently as financial feasible and societally worthy activities. The essential framework proposed here for supporting and managing long-term and expensive projects is to substructure the larger project into smaller independent and profitable units. The path to the Moon will be supported by scores of existing and newly created independent businesses. These businesses will be linked so that the whole is larger than the sum of its parts. The whole will get us to the Moon, and investors can support any or all of the parts that get us there. Essential elements discussed in the paper are: avoidance of weak technological links, a parallelism of technological capabilities, and the need for an organizational framework that can coordinate the design and manufacture efforts of the various units that are supporting lunar development. In this way the larger goal is kept in mind.