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DEVELOPMENT (D3)Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and
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TOWARDS A LUNAR OPEN ARCHITECTURE: FACILITATING TRANSPARENCY AND
COLLABORATION IN THE NEW ERA OF LUNAR EXPLORATION**Abstract**

Diversity in the space industry is increasing, and more countries and private entities are proposing or participating in a variety of near and mid term lunar missions. Collaboration will be imperative to cultivate a sustainable and peaceful lunar future. Previously, lunar missions had only been feasible for large governments, and collaboration was facilitated through high-level, top-down agreements and large, static roadmaps developed by organizations or committees. These architectures cannot evolve over time to incorporate new developments, preventing them from being a functional resource for the emerging space economy.

In this new era of lunar exploration information sharing will need to reflect the rapidly evolving nature of the industry, and coordination will be emergent and organic. To that end, we are developing an open lunar architecture – a curated, dynamic, and interactive resource to unify existing lunar exploration roadmaps, and extend them into the 21st century. With this knowledge-sharing tool and associated participation network, we aim to motivate dozens or even hundreds of lunar actors to work together. Meanwhile, we will help ensure that lunar infrastructure projects will be developed in a way that optimizes shared value and benefits and minimizes shared risks and costs among all the lunar stakeholders.

In this paper, we discuss opportunities and potential roadblocks to the utility of such a tool, how networked technologies may facilitate new forms of participation, information sharing in the industry, strategies to increase transparency and promote coordination. We also discuss the need for increased information sharing among networks in the space industry, and salient issues of trust and cooperation as we move towards a shared future on the lunar surface.