

## SPACE EXPLORATION SYMPOSIUM (A3)

## Space Exploration Overview (1)

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## AN OPEN ARCHITECTURE FRAMEWORK FOR A LOW COST MOON VILLAGE

**Abstract**

The Moon Village is envisioned as a paradigm shift that requires a fundamental change in our thinking about the way we design and govern international space exploration projects. Recently a workshop hosted by Silicon Valley VC Steve Jurvetson explored whether a lunar settlement could be possible for a few billion dollars (rather than the tens of billions, or more, regularly cited). The workshop concluded that it would cost \$3-5 Billion USD to create a self-sustainable human settlement for two humans. However, outdated approaches are holding back progress. To explore together we also need to design new ways of working together.

The Moon Village will unfold in the context of a truly unique governance scheme by integrating from the very beginning the perspectives and interests of all different stakeholders. At a moment in history that's likely to be remembered for its alarming divisiveness, the space community has the unique opportunity to coordinate efforts to create a powerful symbol of unity, a partnership wider and stronger than the ISS, promoting cultural inclusivity.

But how do we establish this international Moon Village Alliance? Complex system innovations like the Moon Village initiative often encounter stiff resistance from intended beneficiaries and stakeholders, because they disrupt existing behaviors, organizational structures, and business models. The Moon Village vision is ambitious, but we believe it is achievable in the coming decade if all the key actors in the Moon Village ecosystem collaborate effectively. Our challenge: how can we collectively prepare for novel, low-cost and agile programs for space settlement and allow for space agencies, donors, citizens and commercial space to create an integrated, mutually reinforcing strategy?

Historically, settlement architectures have been presented as static documents that represent a snapshot of thinking and capabilities at the time of its release. These architectures cannot evolve over time to incorporate new developments, preventing them from being a functional resource. What if we could create an open, modular, and dynamic online repository of key components required for Lunar settlement, such that different solution sets can be explored, opportunities and gaps identified? This new open source architecture framework could leverage transparency to create a public discourse and global tribal identity around the idea of a Lunar settlement, increasing public support, and creating a feedback loop to build a sense of urgency and accountability for world leaders.