Designing a Moon Village for all Humanity



Angeliki Kapoglou, ILEWG



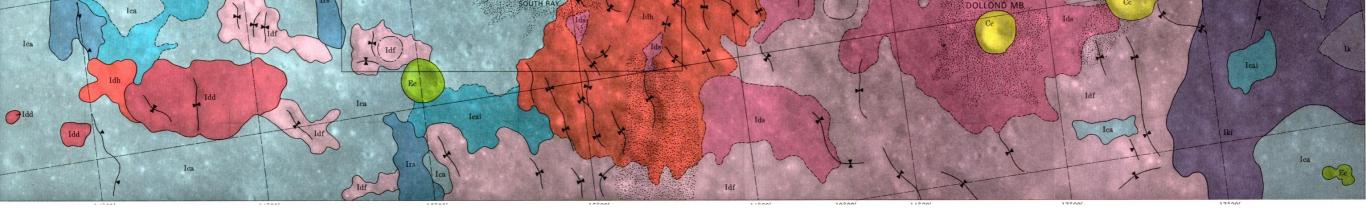
- The 1st thematic priority of UNISPACE+50 is Global Partnership in Space Exploration and Innovation.
- However, at this moment there is no large-scale global cooperative Human Spaceflight program planned after the ISS End-of-Life.



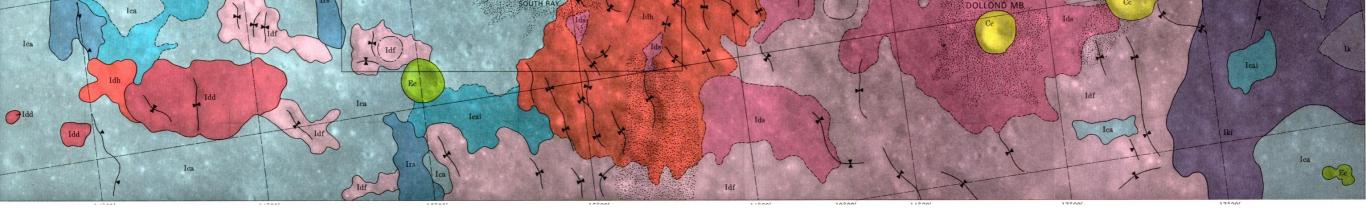
What the Moon Village is **NOT:** A traditional space program.

What the Moon Village is:

- · A paradigm shift in the way we design and govern international space exploration projects.
- An open, inclusive and sustainable architecture to serve humankind.
- A powerful symbol of unity promoting cultural inclusivity.
- An innovation platform and research network for the 21st century.
- · A partnership wider and stronger than the ISS.
- · A platform for multiple uses and open to multiple users: Both robotic and human exploration.
- A Turning point, representing us all united as human species.
- · A tabula rasa for our civilization.
- · A creation of a new Lunar Economy.



"We have to radically rethink our strategy or give up our dreams of reaching the stars" - Stephen Hawking (April, 2016)



There are **two** big assumptions that we need to overcome:

- 1. The first of these assumptions is that funding is the largest hurdle to overcome for returning humans to the Moon.
- 2. The second assumption is that a governmental mandate to "build a Lunar Settlement" would be the only way to solve the funding problem.



A One Day Workshop to Backup the Biosphere

Saturday August 23rd 2014 | 9am to 5.30pm At Draper Fisher Jurvetson, 2882 Sand Hill Rd #150, Menlo Park, CA 94025



Stephen Hawking, Mark Zuckerberg, Yuri Milner Launch \$100M Space Project Called Breakthrough Starshot

By Jessica F Apr 14, 2016 05:24 AM EDT

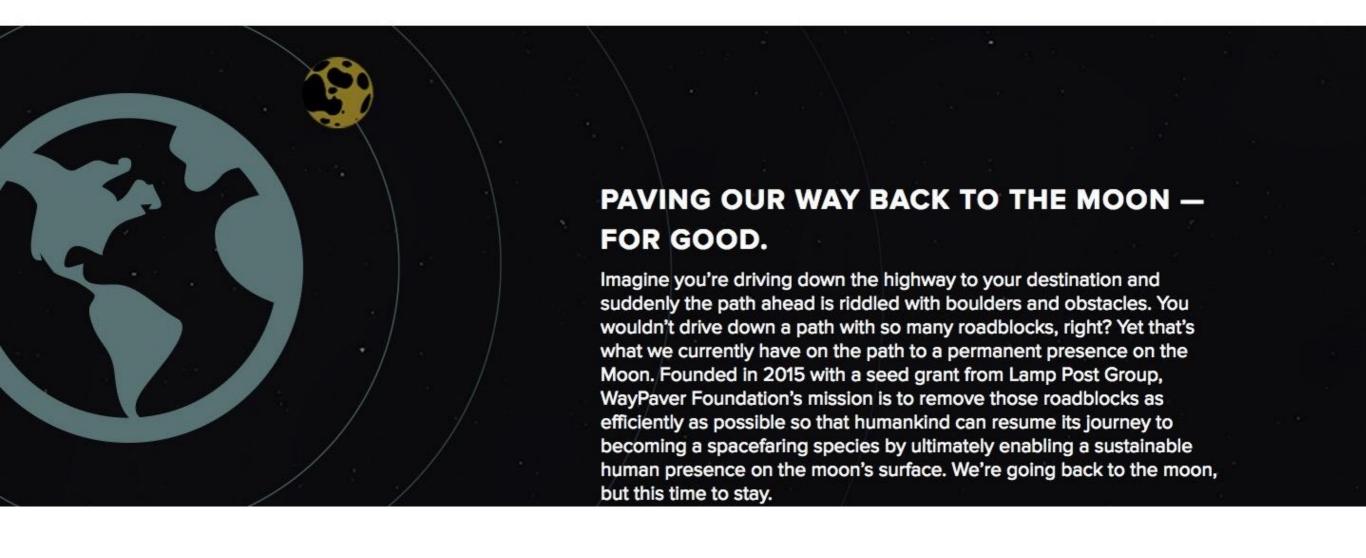


NEW YORK, NEW YORK - APRIL 12: (L-R) Professor Stephen Hawking, Theoretical physicist and Mathematician Freeman Dyson, Ann Druyan, Theoretical Physicist Avi Loeb, Dr. Mae Jemison and Dr. Pete Worden attend the New Space Exploration Initiative 'Breakthrough Starshot' Announcement at One World Observatory on April 12, 2016 in New York City.

(Photo : Jemal Countess/Getty Images)

OUR MISSION

WAYPAVER FOUNDATION IS A NON-PROFIT DEDICATED TO ADDRESSING HUMANITY'S GREATEST CHALLENGES BY ENABLING SUSTAINABLE LUNAR SETTLEMENT.

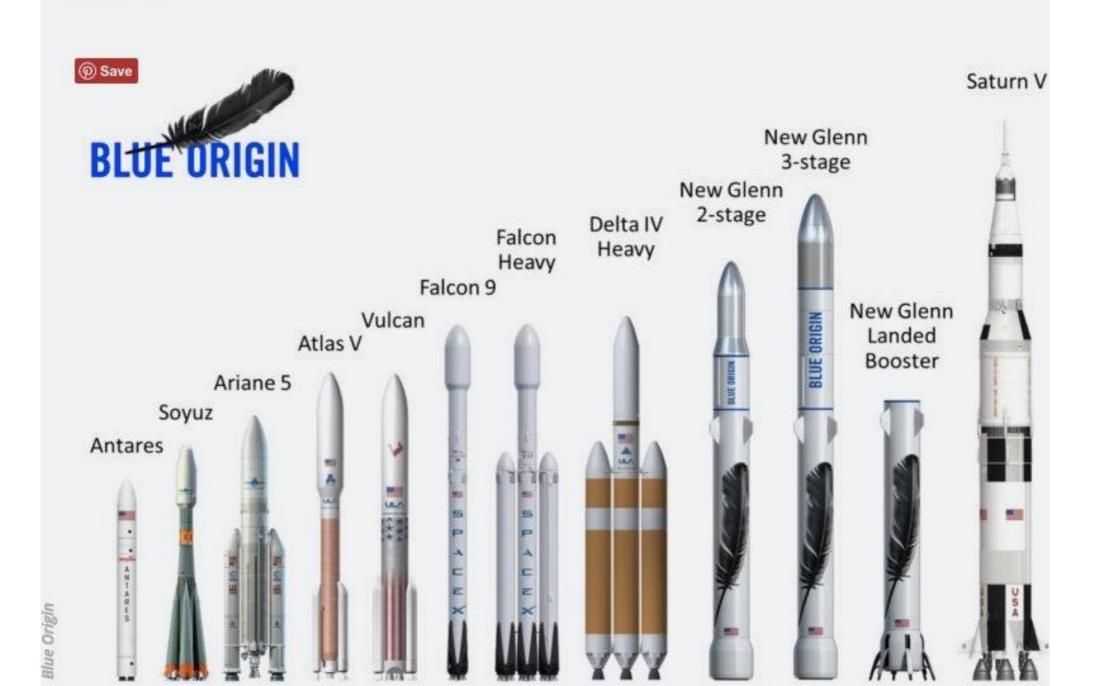


BIGLY ROCKETS -

Jeff Bezos is not screwing around with his plans to colonize space

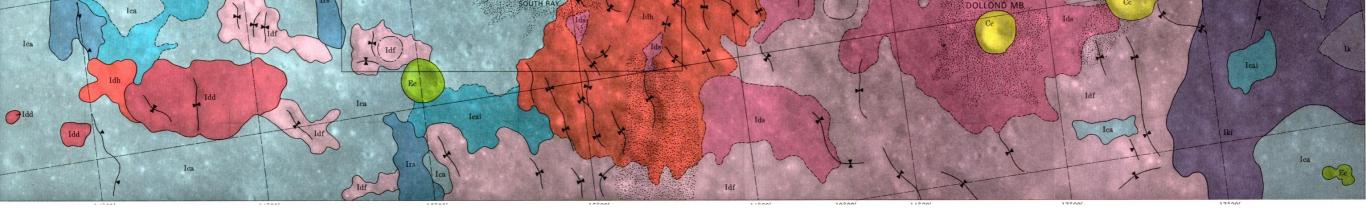
Jeff Bezos also teased an even bigger rocket in the future—New Armstrong.

ERIC BERGER - 9/12/2016, 5:59 PM

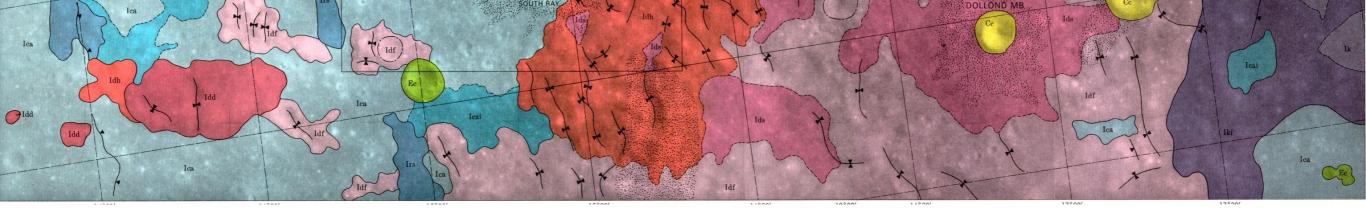


Jeff Bezos has a plan to build an enormous new rocket and head for the moon





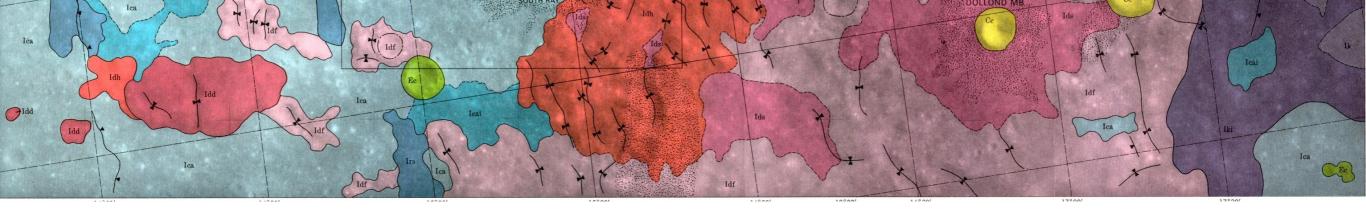
If space is global commons how can we collectively prepare for novel, low-cost and agile programs for space settlement and allow for space agencies, commercial space, developing countries and philanthropists to create an integrated, mutually reinforcing strategy?



To "Explore Together" we also need to design new and more open ways of "working together"

A two step approach toward a Global Lunar Settlement with initiatives that we could start today and for a very low cost:

- A New Collaboration Framework (Open-sourced Blueprints for a Space Civilization)
- 2. A worldwide small, low-cost mission program supporting exploration.

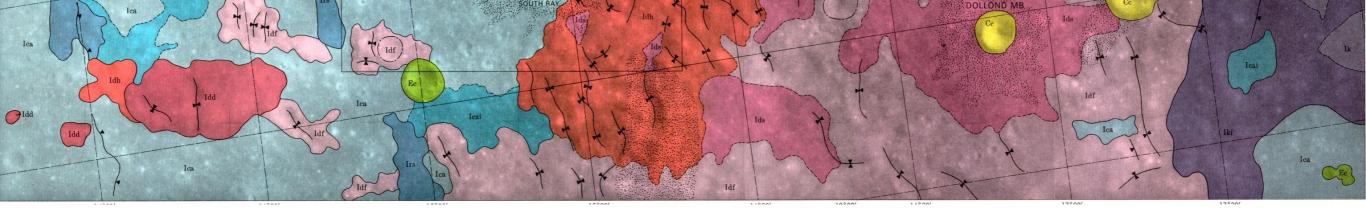


A New Collaboration Framework - Open-sourced Blueprints for a Space Civilization

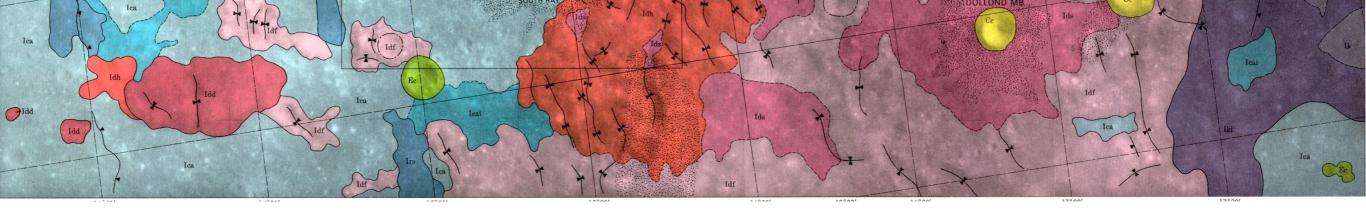
A framework for participation to the Moon Village needs to be designed but designing for participation is different than designing for use. Historically, space settlement architectures have been presented as static documents that represent a snapshot of thinking and capabilities at the time of its release. These architectures cannot evolve over time to incorporate new developments, preventing them from being a functional resource.

What if UNISPACE+50 could create an open, modular, and dynamic online repository of key components required for Space Settlement, from technology to society? Structured in a wiki-like format such that different solution sets can be explored, opportunities and gaps identified, and to support public understanding and dialog?

This open source framework could create the conditions and act as a catalyst for the community of Nations to start discussing, outlining and co-developing, along with other stakeholders, the actual implementation of any space settlement, independent of destination.



"A village starts with the first house" - Jan Woerner, ESA's D.G (2016)

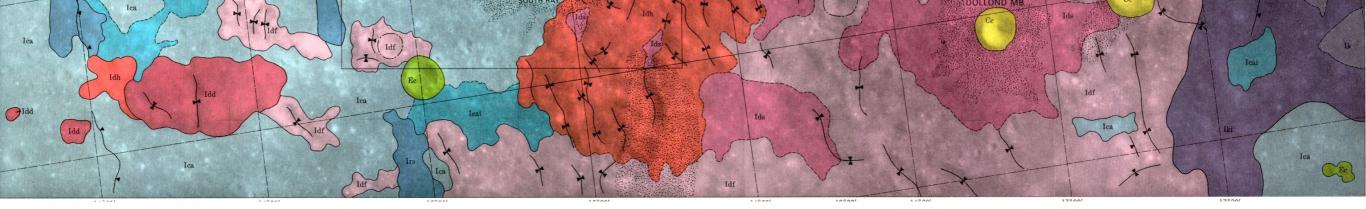


A worldwide UNISPACE+50 small, Low-Cost mission program supporting exploration.

The expensive, traditional space approach with large, expensive, monolithic infrastructures has not worked in the past and is even less likely to work now. We need **smaller initiatives on shorter timelines** that have **relevance to current day needs on Earth.** If the Moon Village efforts were broken up into small chunks of capabilities which could be easily funded and completed even by students there would be a good chance for success.

Cooperation involving small, low-cost missions could be a major step toward exciting and meaningful participation from emerging space nations and developing countries. For example: the UN has formally recognized the value of small satellites to emerging space nations and developing countries. The current CubeSat activities in developing countries are focused on providing human benefits through Earth observations, disaster management and communication. However, the development of valuable **science payloads supporting space exploration goals** for small satellites provides an excellent opportunity for developing countries to embark in science and technology support for exploration.

A UNISPACE+50 worldwide CubeSat or Low Cost mission program that supports exploration and integrates emerging space nations and developing countries in a meaningful way will prepare for broader participation in a future global space exploration program. Moreover it could serve as a **promoter of standardization and coordination** and engage participants beyond national space agencies and allow for different entities to follow their own rationales for engaging in such missions—all important characteristics for creating a sustainable international space settlement.



Conclusions

- We are in very critical tipping point for space exploration.
- Wrong steps now can affect negatively exploration for decades.
- The Moon Village is a pivotal setting for demonstrating human, technology, institutional and financial cooperation for doing differently things not only on the Moon, but as a precedent for other destinations on Earth and in space.
- The Moon Village could be a connector platform between the four pillars of UNISPACE+50, prototyping in a tangible way UNOOSA's values for the Future of Space.

