

ASCEND Infrastructure Workshop

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Rob Mueller, Bob Moses, Clive R. Neal

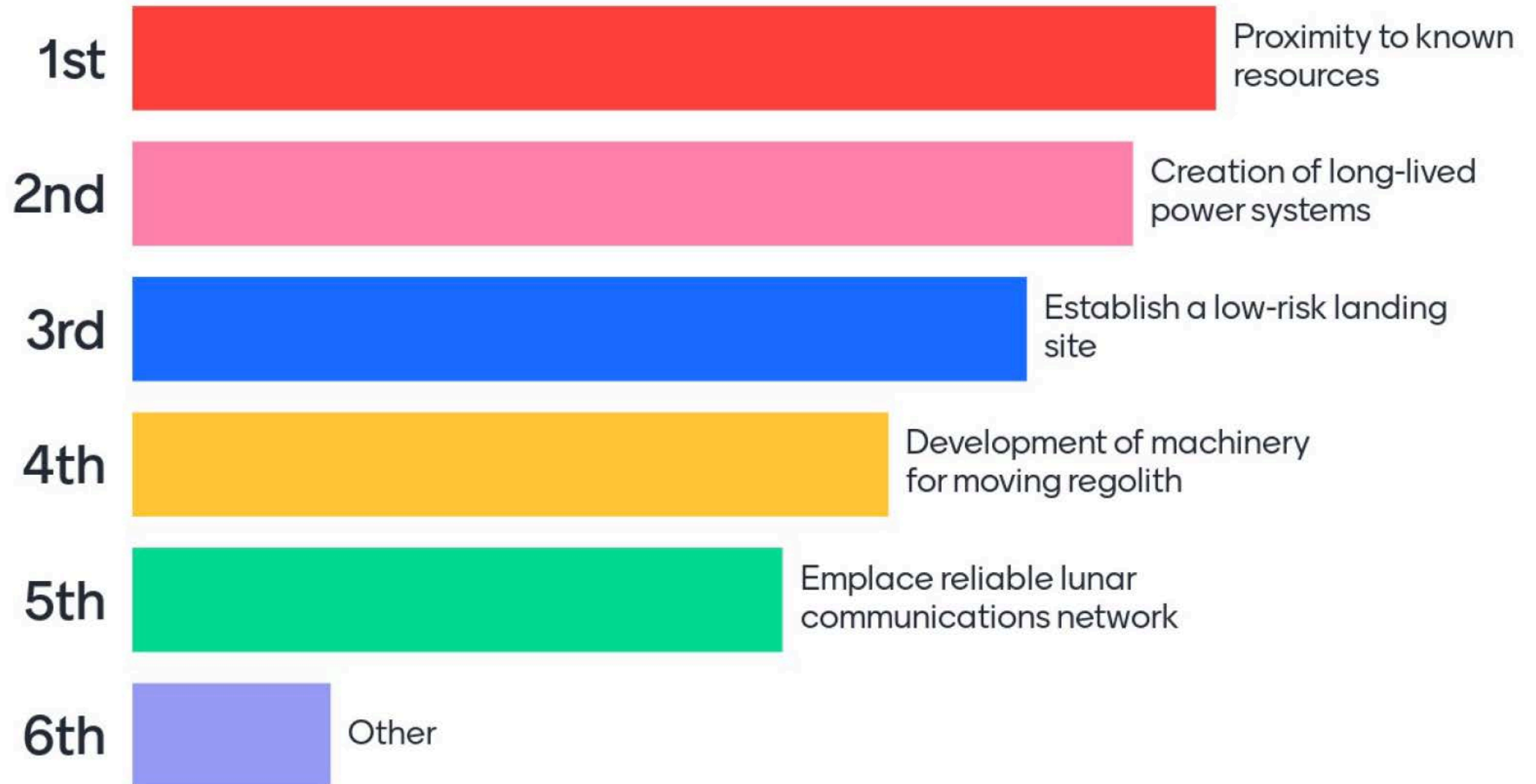
Goals of the Workshop

- Definition of Sustainable Lunar Presence?
 - Living off the Land
 - Using existing budgets to expand sustainability (ROI)
 - Leverage commercial participation (e.g. PPP)
 - Long term commercial viability
- Evolution of needs
- Define community needs
- Breakout – Define Objectives

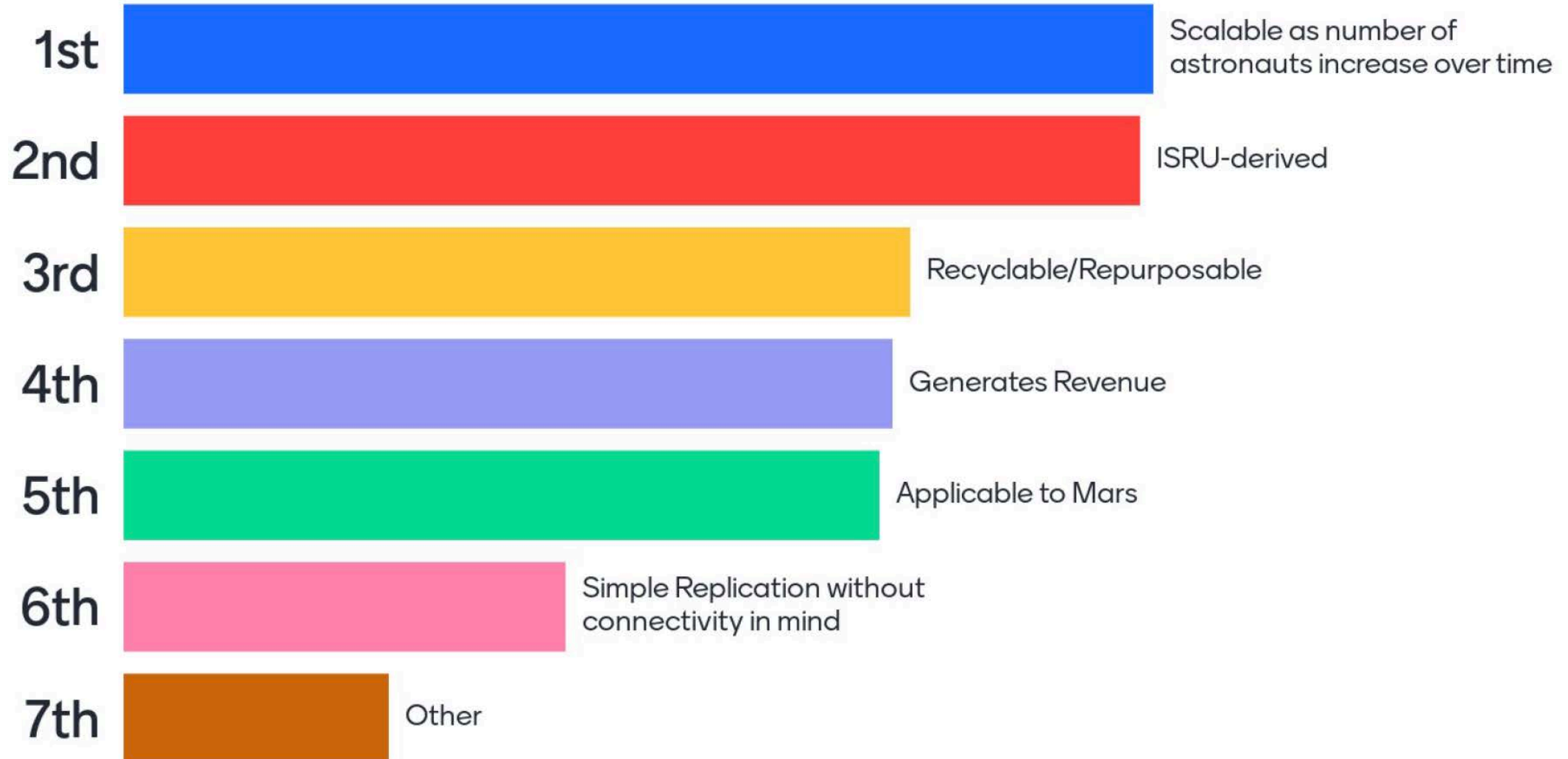
Goals of the Workshop

- Used *Mentimeter* to engage the audience (www.mentimeter.com)
- 70-80 people attended the workshop but only 40-55 people participated, which was disappointing!

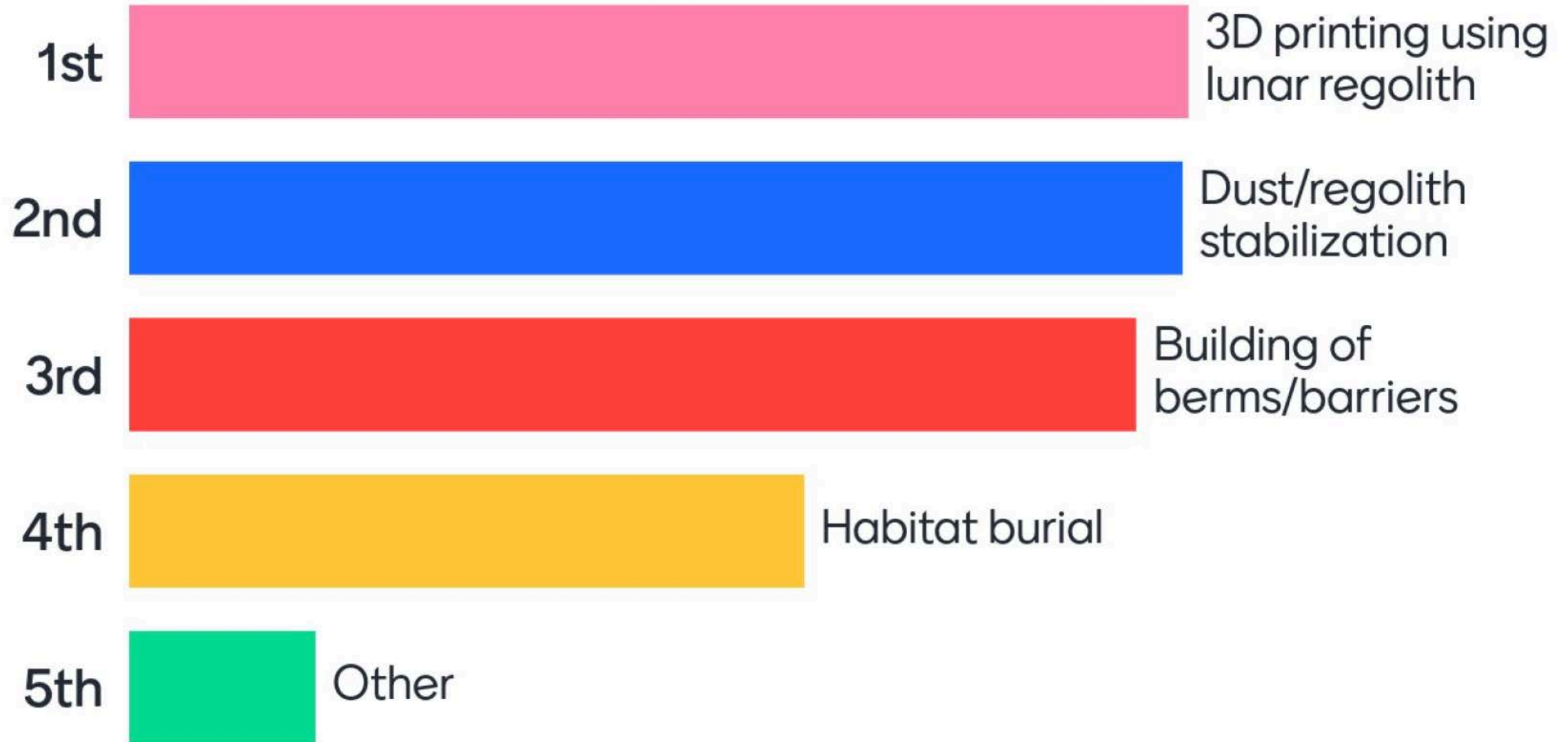
What are the next critical steps that are needed in order to ensure that infrastructure can be constructed on the Moon? [Rank in order of importance]



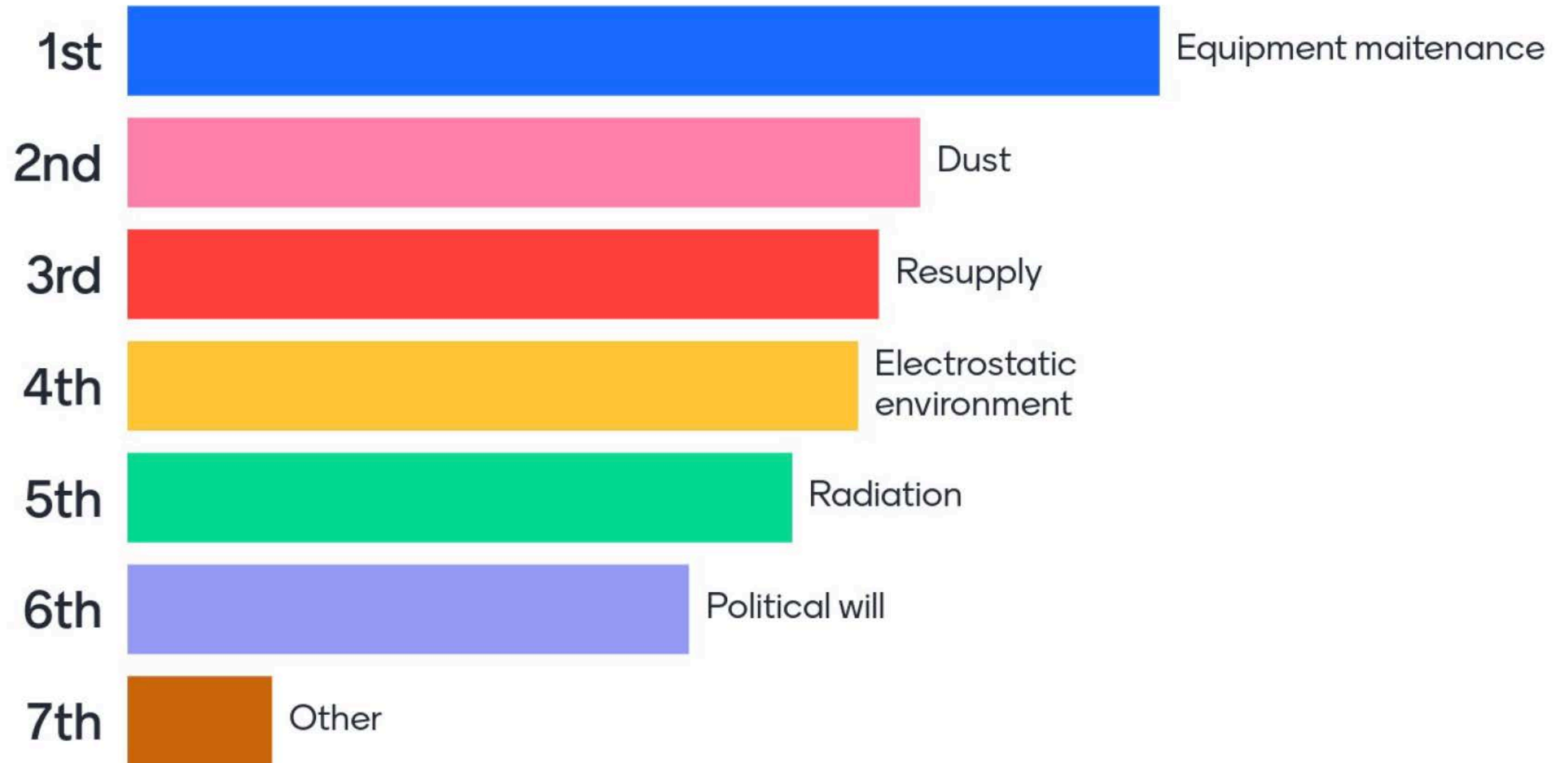
What should be the priority objective related to lunar infrastructure for Artemis?



If there is a lunar mission for a Lunar Surface Scaled Construction demo in 2026, what should the demo be?



Rank in order of decreasing importance the most understudied problems we will encounter when constructing infrastructure on the lunar surface.



Breakout Groups

- Lunar Surface Construction Demo for 2026
- Understudied Problems
- Commercial Development

Define Objectives for initiating and sustaining lunar surface infrastructure

Lunar Surface Construction Demo for 2026

Findings:

- Small-scale test: Using CLPS, 500kg payload max
- Use lunar surface test to evaluate regolith simulant results
- One tech demo that can test: Dust stabilization, sintering, landing pad construction, power needs, prove technology for future large-scale operation
- Demo that can also get the general public excited: print olympic rings to celebrate the 2026 games; print a few bricks to show that construction material can be produced from lunar material

Understudied Problems

Findings:

- Quantifying motivation and function for in-situ construction
 - Architecture-level analysis, e.g., Astronaut Protection
 - Multi-functional Design of Structures and Equipment
- Political Will
 - Immunization against regime change
 - Effects of Adherence to the Artemis Accords
- Seleno-technical Properties
 - Moonquakes, seismic activity, structural analysis
 - Water and other volatile content quantity and dispersion
- Understanding collaboration with Space Force
- Information Provenance - Quality of information to support dispute resolution and autonomous coordination and collection of scientific data
- Standardization and interoperability
- Workforce Development/ Lunar Staffing Needs

Commercial Development

Findings:

- Human permanence on the Moon is a great way to bring a long term commitment to the Moon and infrastructure that's needed to spur commercial involvement
- No sustainability if there's no infrastructure established on the Moon
- Commercial involvement requires more than 10 tons to the lunar surface per year
- Infrastructure needed - power electrical, roads, radiation, water, air, medical, logistics, telecommunications. Government furnished to stimulate commerce?
- How can we stimulate further commercial involvement?
 - STPI has a report out for sustainable commercial operations on the Moon – lunar tourism = low hanging fruit.
- More communication between universities and industry to ensure the right training for students