

VISIONS FOR HUMAN SPACEFLIGHT



NASA has been criticized in recent years for lacking a vision for human spaceflight. The NSBE Space Special Interest Group (SIG) considers this to be a less than accurate assessment. There is no lack of vision for human spaceflight. Instead, there are multiple, conflicting visions for human spaceflight. These competing visions emerge from various stakeholders inside and outside of the federal government and have contributed to a state of conflict for the human spaceflight community in the present decade.

The charter of the NSBE Visions for Human Spaceflight Working Group is as follows: To provide a high-level technical assessment of a human spaceflight strategy that reconciles competing interests and priorities facing the National Aeronautics and Space Administration.

STATUS OF HUMAN SPACEFLIGHT

The establishment of this Working Group was motivated by the status of human spaceflight in the U.S. Because of the retirement of the space shuttle in 2011 and the cancellation of the Constellation program in 2010, the International Space Station is NASA's only operational human space flight program. Both the Orion crew capsule and Space Launch System (SLS) rocket booster programs are under development, however, they are not yet operational. Moreover, despite the existence of several possible proposed missions, both programs lack clearly defined missions. Further, multiple independent reviews of NASA have noted a decline in civil servant experience and capability that these missions alone may not be sufficient to correct.

COMPETING VISIONS

The Working Group recognizes that the human space flight community is populated by advocates of often conflicting agendas and that the visions of these stakeholders have produced a state of conflict that has made it difficult for any human spaceflight

program to attract broad support. The Working Group has categorized this as a conflict among six primary visions and one silent vision. The six primary visions are: (1) human mission to an asteroid by 2025, (2) human lunar exploration in the mid- to late 2020s, (3) human Mars exploration in the mid- to late 2030s, (4) increase in human spaceflight operations conducted by commercial operators, (5) limitation of NASA's budget to current levels and reprioritizing of focus as needed, and (6) provision of sufficient justification for NASA expenditures. The silent seventh vision is that the rank and file NASA workforce intends to be directly involved in the

design, development and operation of human spaceflight vehicles and missions.

*The NSBE Working Group
recommends a space agenda for
2025–2045 that includes asteroid,
lunar and Martian missions, with these
missions' occurring in parallel during
most of this time.*

RECOMMENDATIONS

The Working Group believes that it is an insufficient approach to select one or any subset of these competing visions at the exclusion of the others. Given the valid perspectives each stakeholder community brings to the table, the proper approach — and, indeed, the only approach fully consistent with national expectations for a

U.S. space program — is to incorporate all of these perspectives. Consequently, the NSBE Working Group recommends a space agenda for 2025–2045 that includes asteroid, lunar and Martian missions, with these missions' occurring in parallel during most of this time. This multi-destination program requires the development of true multi-mission spacecraft designed for the wide range of operating environments that will be encountered, rather than the development of separate spacecraft programs for each destination. To achieve affordability, the recommended program is an in-house development with a fixed development timeline involving international and commercial participation.

To read the full report, "Unlimited Horizons: Recommendations of the NSBE Visions for Human Spaceflight Working Group," or for more information, contact Robert L. Howard Jr., Ph.D., director of the NSBE Space SIG, at spacedirector@nsbe.org. ■