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50 years after Apollo 11: The future of space exploration and innovation (2)

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HOW PUBLIC-PRIVATE COLLABORATION IS ENABLING NASA TO SHAPE THE FUTURE OF
SPACE EXPLORATION AND INNOVATION THROUGH CHALLENGES AND PRIZE
COMPETITIONS

Abstract

For several decades, NASA has entered into partnerships and agreements with academic institutions, private companies, and other space agencies to achieve ambitious goals in space ranging from deploying spacecraft throughout the solar system to maintaining a human presence in Earth orbit. Peer-reviewed grants, contracts, cooperative agreements, and memoranda of understanding have been used to formalize these relationships which remain vital to addressing space exploration needs. In the past 15 years, NASA has expanded its repertoire of collaboration formats to include challenges and prize competitions aimed at eliciting non-traditional solutions to technical and other agency needs. NASA has hosted more than 400 competitions which have invited the global public – as individuals, teams, and organizations alike – to apply wide-ranging expertise and problem-solving strategies to provide innovative solutions to problems faced in space exploration. The competition results have advanced the state of space technology, met operational needs of NASA programs, and spawned new companies and communities of solvers, among other benefits.

As managers of NASA's challenge and prize competition initiatives, we have found these collaborative innovation techniques particularly fruitful when teaming with other entities. Indeed, through collaborations with a range of external organizations including universities, private companies, foundations, and local groups of space and technology enthusiasts, we have built a robust and enduring suite of challenges and prize competitions. Such relationships have contributed to our success by, for example, enlarging resource pools for administering and awarding competitions, increasing technical expertise available to design competitions, expanding the capacity to reach prospective participants, and aiding participants beyond their involvement in competitions. These efforts also have allowed NASA to strengthen strategic connections with organizations worldwide while creating opportunity and visibility for collaborating entities.

This paper examines the ways in which NASA has leveraged the power and appeal of public challenges and prize competitions in conjunction with other collaboration mechanisms to make space innovation a truly open and networked enterprise. We will discuss the various types of relationships we have forged in creating and implementing challenges and prize competitions and how such collaborations have contributed to successful outcomes for NASA space innovation, participants, and partners alike. Space policy makers and program managers will learn how they, too, can tap into these public-private collaboration approaches to create promising futures in space exploration.