

Google Lunar XPRIZE: NewSpace Entrepreneurs Go Back to the Moon – For Good.

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Abstract

The Google Lunar XPRIZE is igniting a new era of lunar exploration by offering the largest international incentive prize of all time. A total of \$30 million in prizes are available to the first privately funded teams to safely land a robot on the surface of the Moon. Currently 23 teams are competing for the Google Lunar XPRIZE, with team headquarters spread across the world, including Germany, Hungary, Spain, Croatia, Denmark, Romania, Russia, India, Israel, Malaysia, Japan, Chile and Brazil as well as the USA. The Google Lunar XPRIZE expires whenever all prizes are claimed, or on December 31, 2015.

1. About the Google Lunar XPRIZE

Commercial space companies are now opening up the sub-orbital and orbital frontier - doing things that once were the realm of governments and their contractors and achieving it in ways that are often more cost effective and efficient. This “NewSpace” economy was stimulated in a significant way by the \$10 million Ansari XPRIZE, awarded in 2004, for the achievement of regular sub orbital flight.

Following on from the Ansari XPRIZE, the \$1 million Northrop Grumman Lunar Lander XCHALLENGE spurred innovation in technologies to soft land on the Moon. Building upon that to innovate inexpensive regular access to the Moon is the next critical stepping stone for further scientific investigations and exploration of our solar system and universe.

The rules of the Google Lunar XPRIZE are set up to lead to new space systems and architectures that enable cost-effective and repeatable access to the lunar surface. The lunar landers created in the prize promise to be able to carry payloads for any

customers, including either government or private entities. Future missions building on the prize could take advantage of the Moon’s has untapped resources that could allow us to improve the quality of life here on Earth as well as expand our permanent presence beyond Earth orbit.

The \$30 million prize purse Google Lunar XPRIZE will be awarded to two or more teams that successfully land on the lunar surface, explore the Moon by moving at least 500 meters, and return high definition video and imagery. The competition's grand prize is worth \$20 million. Additionally, a second place prize of \$5 million will be available for the second team to complete the competition objectives. \$4 million in bonus prizes are available for achieving other specific mission objectives, including operation at night; traveling more than 5km over the lunar surface; detection of water; and precision landing near an Apollo site or other lunar sites of interest (such as landing/crash sites of man-made space hardware). Lastly, a \$1 million award will go to the team that demonstrates the greatest attempts to promote diversity in the field of space exploration.

Teams must be at least 90% privately funded, though commercially reasonable sales to government customers are allowed without limit.

The Google Lunar XPRIZE has three primary goals: 1) Kickstart a new commercial lunar industry, 2) Drive new scientific and technological breakthroughs, and 3) Inspire the next generation of explorers, scientists, and engineers. The competition aims to drastically reduce the cost of exploration by providing new capabilities to access the Moon and its unique resources.

The competition is administered by the XPRIZE Foundation, The X PRIZE Foundation is an educational 501(c)3 nonprofit organization whose mission is to bring about radical breakthroughs for

the benefit of humanity. The XPRIZE Foundation has a dedicated small team working on this prize as well as specialist consultants.

3. Current Status

Teams are in varying states of progress. Some teams have built and tested third or fourth generation prototypes of their lunar rover and some are working on system design and technology developments for their lunar landers and braking stage. In addition, a number of teams are actively negotiating partnerships with other teams and the interesting scenario of two or more teams sharing a launch to the Moon is developing as a possible outcome.

Several teams are negotiating launch contracts and some are progressing the preparations to build their own rocket.

With some teams projecting launch dates in 2014 and 2015, there are still opportunities for scientists to partner with teams to carry small science payloads.

4. Conclusions

The Google Lunar XPRIZE aims to create a new era of lunar exploration that will be more sustainable and more accessible to all than humanity's first moon race. The Google Lunar XPRIZE and the stories of the global community of innovators and entrepreneurs competing for the it, will play a role in motivating the high tech workforce of tomorrow and show people of all ages how they can personally contribute to a worthy and exciting endeavour like space exploration.