

21st Century Ways of Doing Business at NASA: Prizes, Challenges and Crowdsourcing

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To effectively harness the expertise, ingenuity, and creativity of individual members of the public in achieving NASA's strategic goals...

...by routinely using open innovation approaches such as prizes, challenges, and crowdsourcing.

“From the Centennial Challenges Program, to the NASA Open Innovation Pavilion, to the NASA Tournament Lab, NASA leads the public sector in the breadth and depth of experience and experimentation with prizes and challenges.”

**--White House Office of Science and Technology
Policy Report to Congress on Government Prize Use,
2012**

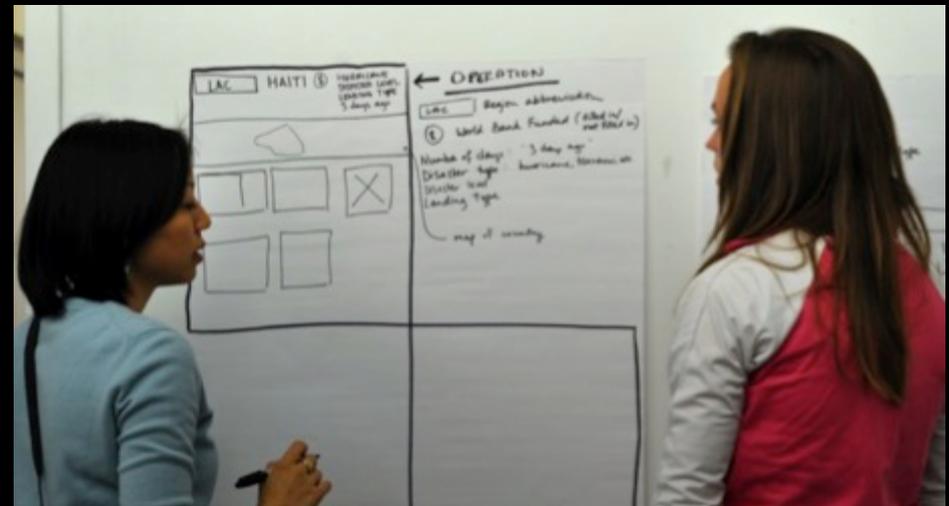
Engaging the Public in Solving Tough Problems



Building Hardware....



Developing Software and Algorithms...



Sharing Ideas and Methods...

Prizes Have a Long Track Record of Spurring Innovation



In navigation...⁵



Spirit
of
St. Louis

NEW YORK-PARIS FLIGHT
CAP. CHARLES LINDBERGH. RYAN MONOPLANE
RED CROWN AVIATION GASOLINE GARGOYLE
MOBIL OIL 'B'

In aviation...



In aerospace...

Benefits of Challenges to NASA

- Shine a spotlight on a problem or opportunity
- Pay only for results
- Explore a wide breadth and depth of potential solutions
- Target an ambitious goal without predicting which team or approach is most likely to succeed
- Reach beyond usual suspects to tap top talent
- Stimulate private sector investment many times greater than the prize purse
- Bring out-of-discipline perspectives to bear
- Inspire risk-taking by offering a level playing field

Prizes, Challenges and Crowdsourcing are not right for solving EVERY problem, but could be *transformative* for the right problem. They are another tool in NASA's toolkit for solving problems.

Reach Beyond the Usual Suspects.





Explore a wide
breadth and depth
of potential
solutions.

Pay only for results.



**Level the
Playing Field.**



Encourage the Emerging Space Industry

- LaserMotive
- Flagsuit LLC
- Final Frontier
- Masten Space Systems
- Armadillo Aerospace
- Synergy Aircraft
- Pipistrel USA



**Encourage
new entrants
into the
aerospace
industry.**



Stimulate new commercial products—and cross sector collaborations.



<http://marblar.com/nasa>

Stimulate new research through citizen science—and create a role for many.

The interface features a central image of a blue star with a red circle and crosshairs. At the top left are icons for a monitor, keyboard, and book. At the top right are icons for a star and a speech bubble. Below the image is a slider labeled 'Shorter', 'DSS2 Blue (0.665 μm)', and 'Longer'. To the right of the image is a list of six options for describing the object, each in a white box with a black border. At the bottom right is a blue 'Finish' button.

What best describes the object you see?
(May select more than one)

- Multiple objects in the Red Circle
- Object Moves Off the Crosshairs
- Extended beyond circle in WISE images
- Empty circle in WISE images
- Not round in DSS2 or 2MASS images
- None of the Above/Good candidate

Finish

This is a new way of working.

Problem Decomposition + Roles for Experts and the Crowd = ... 21st Century Green Jacket?

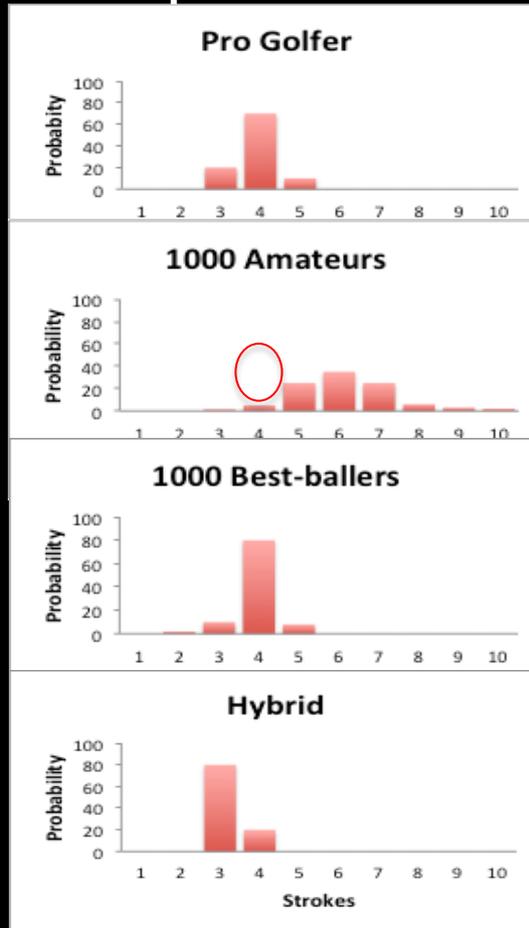
Scenario:

1. Bubba Watson, by himself
1. 1000 Amateurs play hole, pick best
1. 1000 Amateurs play best ball
1. Bubba handles driving, 1000 amateurs put

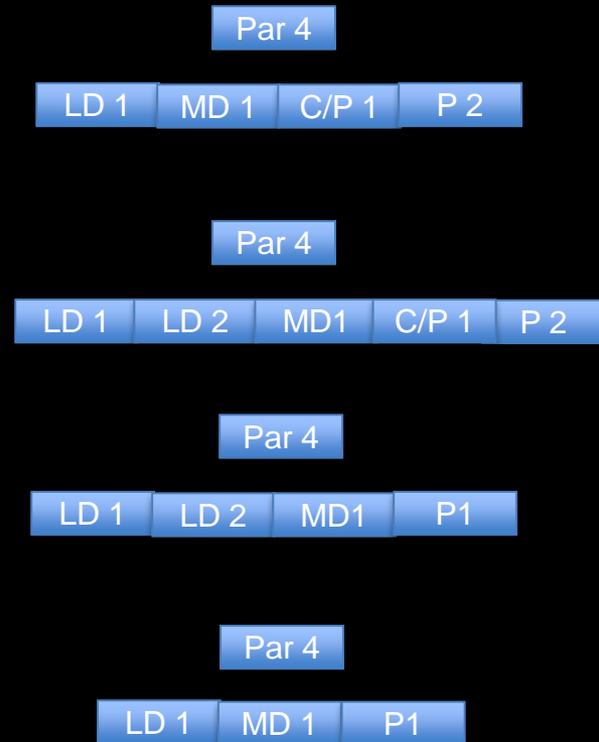


Par 4 Hole

Expected outcome



“Architecture”



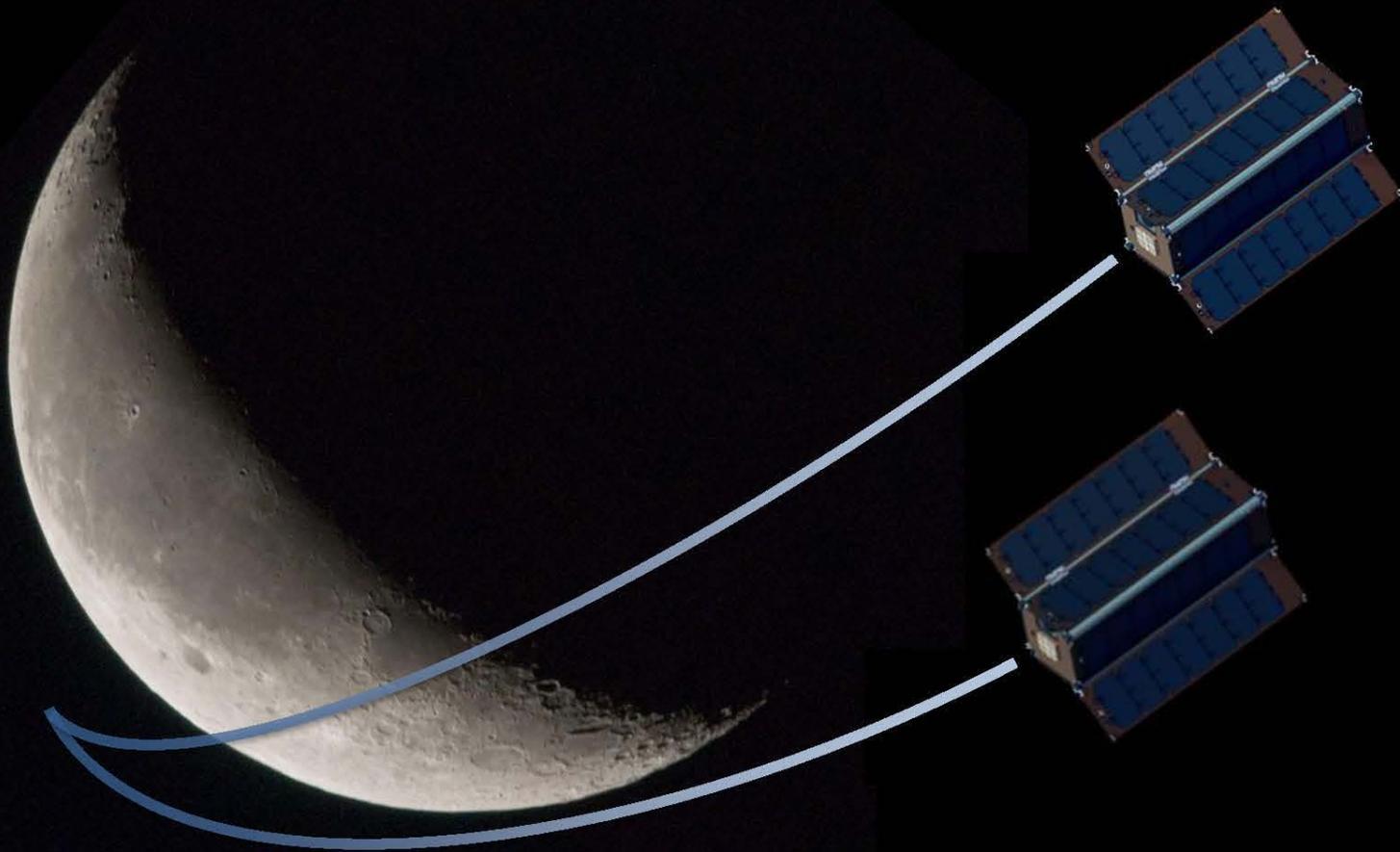
The Future: Being Smarter than the Dinosaurs

See video:

<https://www.youtube.com/watch?v=7wUrXAvWDOE>



The Future: Democratization of Space



<http://www.nasa.gov/content/prizes-and-open-innovation/>