

RECLAMATION

Managing Water in the West

Offering Prizes to Solve Tough Problems

Chuck Hennig
Deputy Director, Research and Development
chennig@usbr.gov
303.445.2134



U.S. Department of the Interior
Bureau of Reclamation

Offering Prizes to Solve Tough Problems

What's a Prize Competition?

What Have We Done?

Where are We Going?

Questions?

Offering Prizes to Solve Tough Problems

What's a Prize Competition?

Prize Competitions is a Tool That Enables Joy's Law

Joy's Law:

"No Matter who you are, most of the smartest people work for someone else"

"It is better to create an ecosystem that gets all the world's smartest people toiling in your garden for your goals"

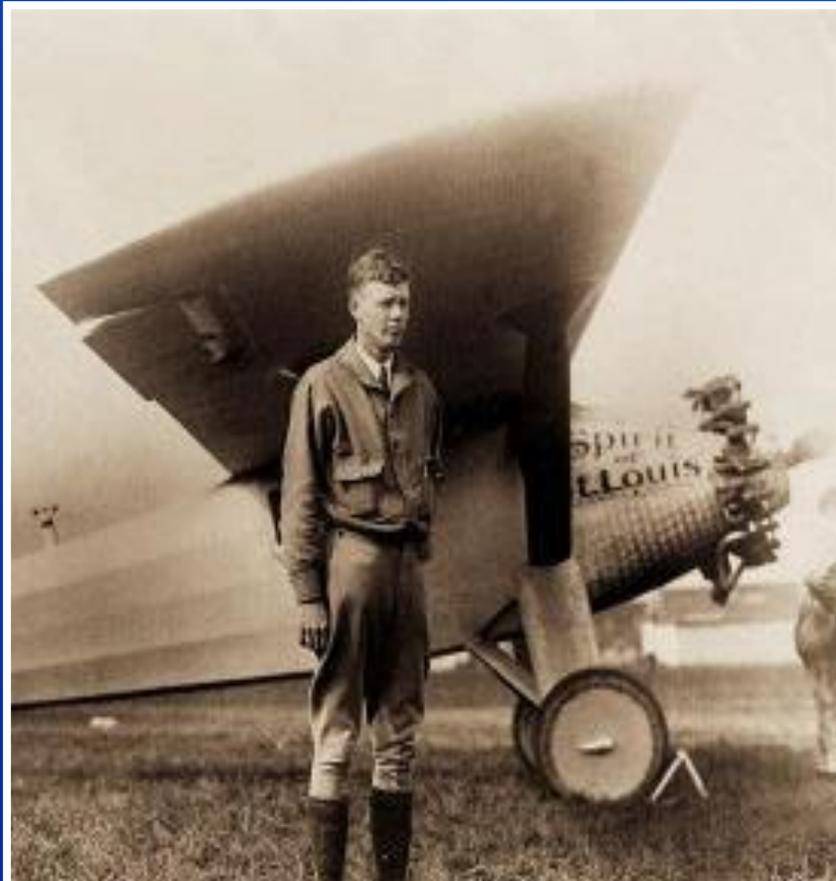
Bill Joy, Sun Microsystems co-founder

How does a prize competition (aka challenge) work?

Got a problem? Tell the world about it and challenge them to bring you the solution.

- Describe the problem and what you already know.
- Tell them the solutions you already know about and why those are not sufficient.
- Tell them the solution performance requirements that you seek.
- Do not tell them how to solve the problem or how to approach solving the problem. Do not bias their creativity.
- Add a monetary and/or non-monetary prize to incentivize the competition.
- Launch the competition, see what you get and make awards accordingly.

Prize Competitions Not New in the Private Sector



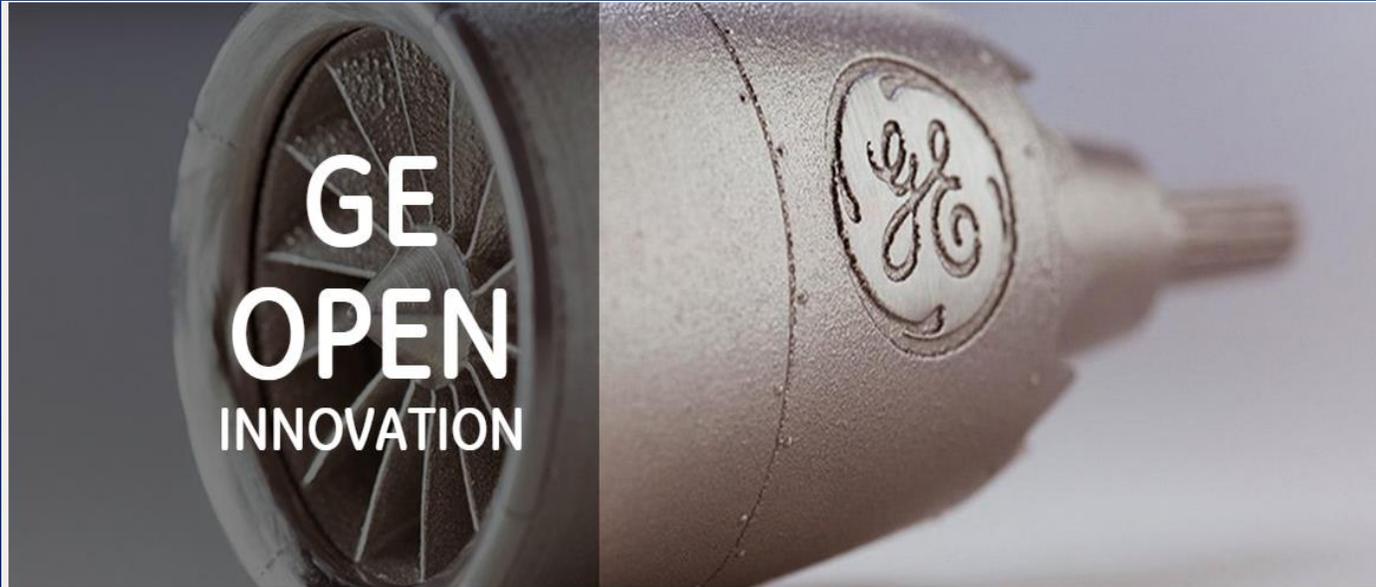
1919 Orteig Prize

Charles Lindbergh: Non-Stop Flight NY-Paris

“[T]otal funds from large prizes have more than tripled over the last decade to surpass \$375 million.”

- “And the winner is...”
McKinsey, 2009





GE Open Innovation

Like 1 Tweet 0 +1 54 Pin It

GE understands solving the world's toughest problems through advanced manufacturing techniques and processes requires collaboration. By crowdsourcing innovation—both internally and externally—GE is improving customer value and driving advancements across industries. By sourcing and supporting innovative ideas, wherever they might come from, and applying GE's scale and expertise, GE's approach to open innovation is helping to address customer needs more efficiently and effectively.

Open Innovation Manifesto

We believe openness leads to inventiveness and usefulness.

We also believe that it's impossible for any organization to have all the best ideas, and we strive to collaborate with experts and entrepreneurs everywhere who share our passion to solve some of the world's most pressing issues.

GRABCAD
POWERED BY ENGINEERS



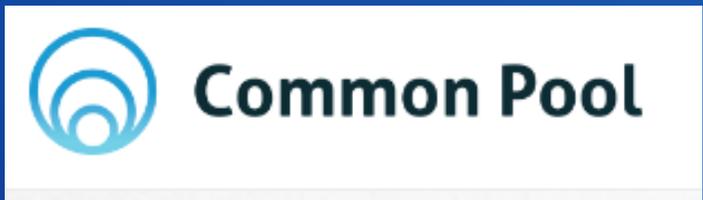
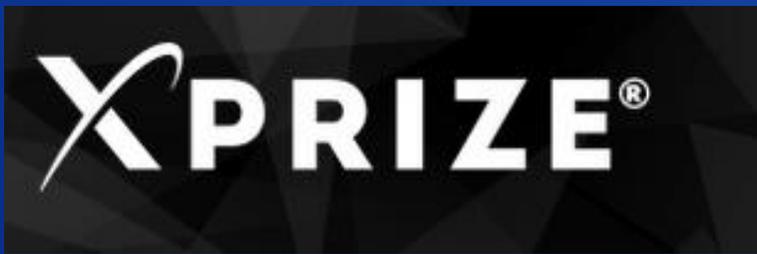
Visit GrabCAD

Visit GrabCAD to browse their open library of CAD

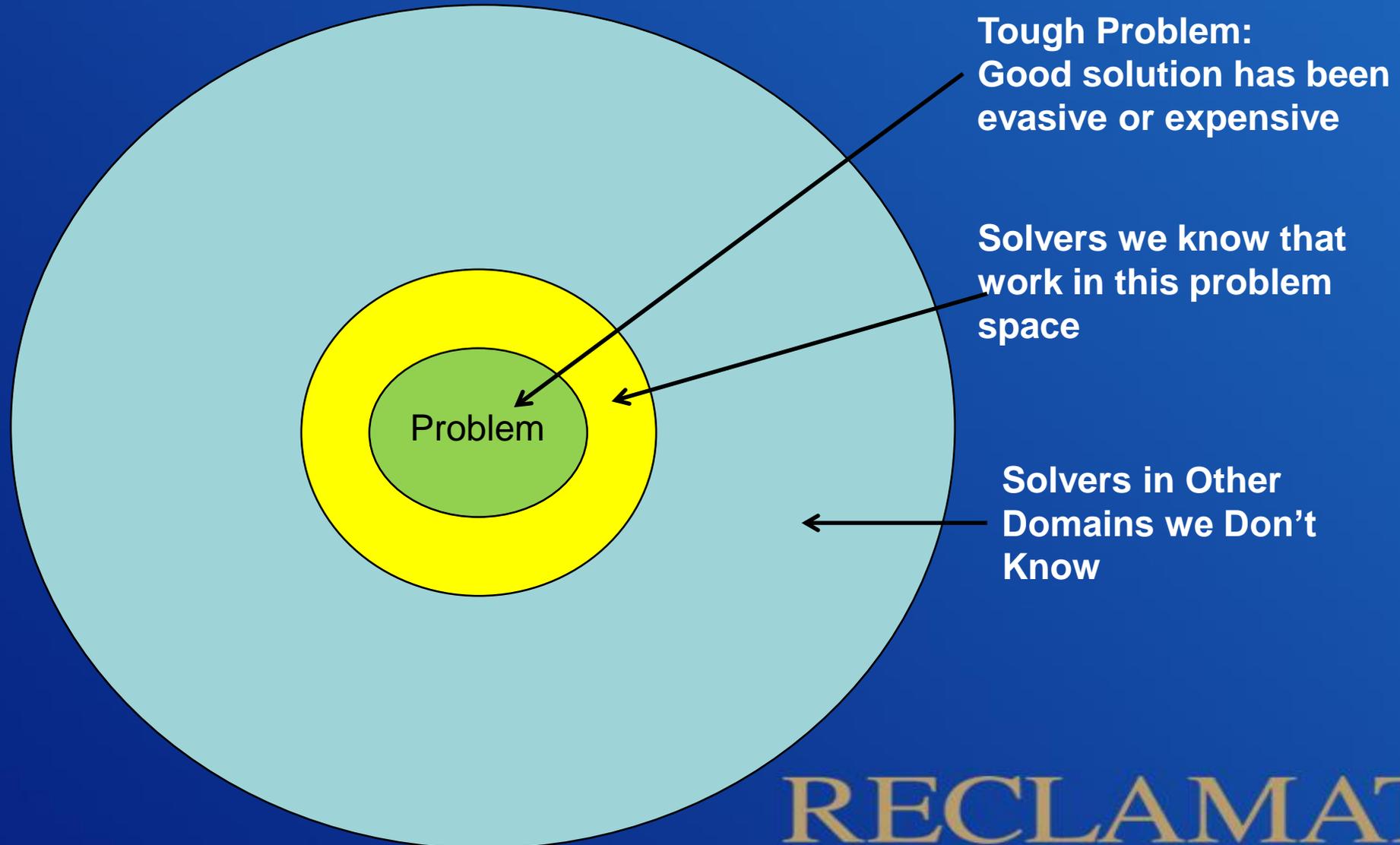
Private sector organizations are starting to host their own prize competition challenge platforms

A Sampling of Private Sector Prize Competition Platforms and Service Providers

Private Sector and Public Organizations also contract with Prize Competition Platforms and Service Providers



Prize Competition Objective and Target Audience



What do we get from Solver's ?

Category 1: Ideas and Theoretical Concepts

Category 2: Prototypes (*Methods, Processes, Devices, Software, Apps, Algorithms, etc.*)

Don't expect turnkey solutions that are operational ready.....
but it can happen.

Expect that the solutions you receive will need some degree of additional maturation and development before it is operational ready.

Offering Prizes to Solve Tough Problems

What Have We Done So Far?

Water Prize Competition Center

Share your expertise and ideas!

You can help solve some of the most critical water and water-related resource problems facing our Nation!

Water Availability



Ecosystem Restoration



Infrastructure Sustainability



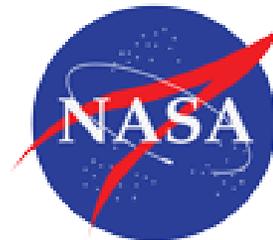
Learn more at www.usbr.gov/research/challenges

[See White House Blog about the Water Prize Competition Center](#)

Federal Partners

Federal collaboration enables agencies to leverage Federal capabilities, catalyze interagency working relationships, better define and solve joint problems, avoid duplication, and find solutions that have a broader impact across the mission of multiple Federal agencies, the stakeholders we collectively serve, and overall public good.

They are:



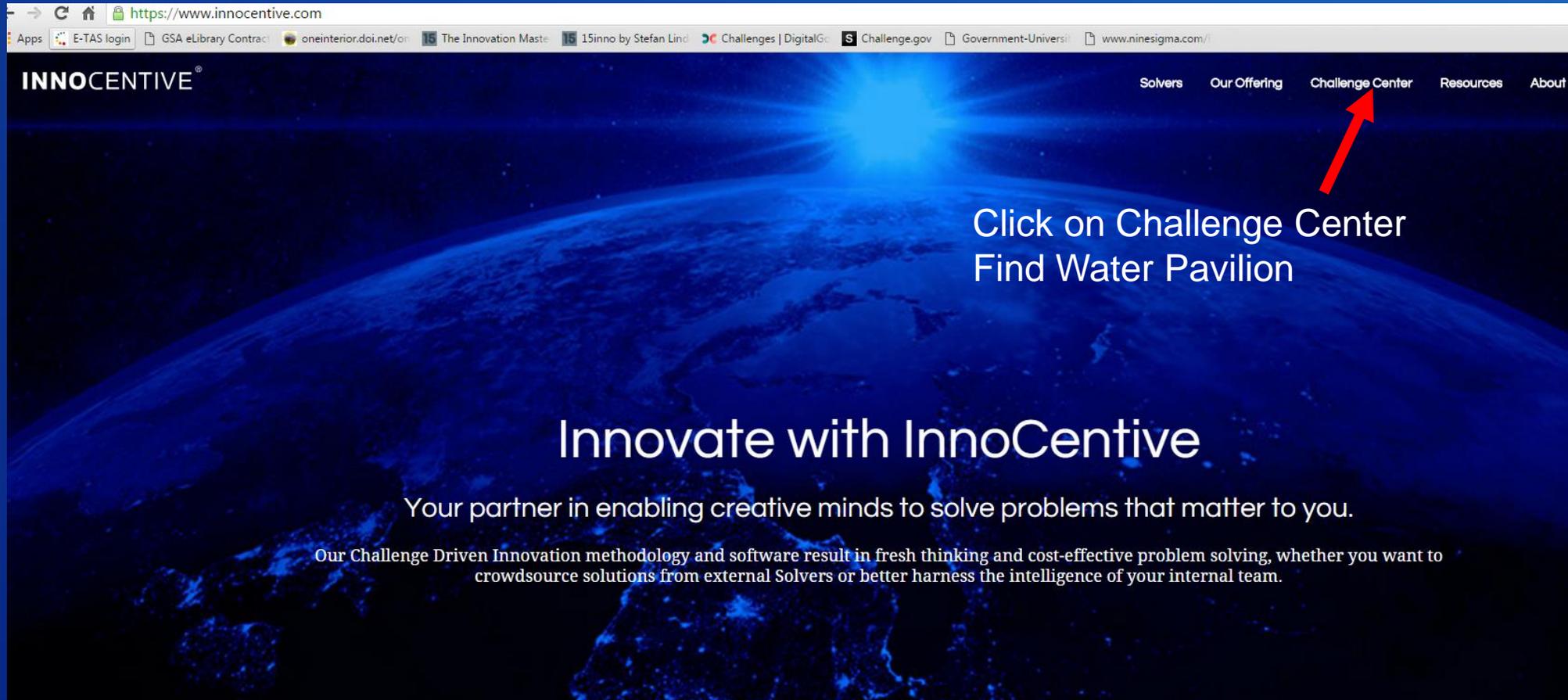
Federally sponsored prize competitions are also hosted on the Challenge.gov prize competition platform



736 Competitions Found

<p>Storytelling about Wellness in Tribal Communities</p>  <p>\$10,000 in prizes</p> <p>Storytelling about Health and Wellness in American Indian and Alaska Native Communities</p> <p>Open Until: Jan 31, 2017</p> <p>Posted by: National Institutes of Health</p>	<p>Grace Hopper Day Hackathon</p>  <p>\$15,000 in prizes</p> <p>Redesign the GSA Developer Portal!</p> <p>Open Until: Dec 09, 2016</p> <p>Posted by: General Services Administration</p>	<p>Partnership Agreement Maker (PAM) Graphical User Interface (GUI) Challenge</p>  <p>\$16,700 in prizes</p> <p>Seeks a mechanism to implement a new GUI in PAM</p> <p>Open Until: Jan 31, 2017</p> <p>Posted by: National Aeronautics and Space Administration</p>
<p>Regulations.gov Data Challenge</p>  <p>\$10,000 in prizes</p> <p>Find the rule you need, leave the comment you want!</p> <p>Closed On: Nov 21, 2016</p> <p>Posted by: Environmental Protection Agency</p>	<p>Counter-Unmanned Aerial System (C-UAS) Hard Kill Challenge</p>  <p>\$500,000 in prizes</p> <p>Physically defeat unmanned aerial systems (UAS)</p> <p>Closed On: Dec 02, 2016</p> <p>Posted by: Department of Defense</p>	<p>EdSim Challenge</p>  <p>\$680,000 in prizes</p> <p>Seeking next-gen educational simulations that strengthen career and technical skills</p> <p>Open Until: Jan 17, 2017</p> <p>Posted by: Department of Education</p>

Reclamation's Prize Competitions also launched on the InnoCentive.com Challenge Center



The screenshot shows the InnoCentive.com website interface. The browser's address bar displays the URL <https://www.innocentive.com>. The website header includes the InnoCentive logo on the left and a navigation menu on the right with links for "Solvers", "Our Offering", "Challenge Center", "Resources", and "About". A red arrow points to the "Challenge Center" link. Below the navigation menu, the main content area features a blue-tinted image of Earth from space. The text "Innovate with InnoCentive" is prominently displayed in the center, followed by the tagline "Your partner in enabling creative minds to solve problems that matter to you." and a paragraph describing their challenge-driven innovation methodology.

Click on Challenge Center
Find Water Pavilion

INNOCENTIVE

Solvers Our Offering **Challenge Center** Resources About

Innovate with InnoCentive

Your partner in enabling creative minds to solve problems that matter to you.

Our Challenge Driven Innovation methodology and software result in fresh thinking and cost-effective problem solving, whether you want to crowdsource solutions from external Solvers or better harness the intelligence of your internal team.

Training resources available through Digitalgov.gov



<https://www.digitalgov.gov/category/challenges/>



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

April 3, 2015

Memorandum

To: Assistant Secretaries
Bureau Directors
Office Directors

From: Kristen J. Sarri *KJS*
Principal Deputy Assistant Secretary - Policy Management and Budget

Subject: Guidance for Offering and Administering Prize Challenges for Innovation

Several bureaus have interest in offering prize competitions (or challenges) under the authority of the *America COMPETES Reauthorization Act of 2010* (15 USC 3719) in order to identify and develop innovative approaches and methods to help advance their mission responsibilities. This

<https://www.doi.gov/techtransfer/prize-competition-guidelines>

Prize Challenge

New Concepts for Remote Fish Detection



RECLAMATION
Managing Water in the West

The Bureau of Reclamation has selected six ideas out of 22 submitted for its "New Concepts for Remote Fish Detection" prize competition. Four out of the six submissions fully qualified under the prize competition guidelines and will receive a shared total of \$20,000.

\$20,000 split with
4 winners

Plus 2 non-citizens
solutions not
eligible to win



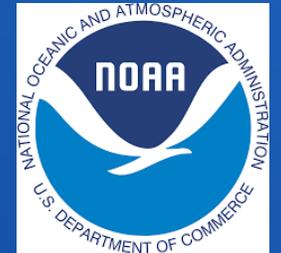
<http://www.usbr.gov/research/challenges/past/index.html>

RECLAMATION



\$30,000 split with 5 winning solutions. One solver submitted 2 winning solutions

<http://www.usbr.gov/research/challenges/past/index.html>



DETECTING THE MOVEMENT OF SOILS WITHIN EARTHEN DAMS, CANALS, LEVEES, AND THEIR FOUNDATIONS

Prize Challenge

Detecting Internal Erosion¹



RECLAMATION
Managing Water in the West

\$20,000 split
with 5 winning
solutions.



US Army Corps
of Engineers®



<http://www.usbr.gov/research/challenges/past/index.html>

DOWNSTREAM FISH PASSAGE AT TALL DAMS

Prize Competition

Downstream Juvenile Fish Passage



RECLAMATION
Managing Water in the West

Top Solutions

\$20,000 split
with 4 winning
solutions.



<http://www.usbr.gov/research/challenges/past/index.html>

RECLAMATION



Preventing Rodent Burrows in Earthen Embankments

TAGS: [Royal Society of Chemistry](#) [Water](#) [Life Sciences](#) [Physical Sciences](#) [Public Good](#) [Engineering/Design](#)

AWARD: \$20,000 USD

DEADLINE: 10/11/16

ACTIVE
SOLVERS: 201

POSTED: 8/29/16

The Bureau of Reclamation, in collaboration with the U.S. Army Corps of Engineers, State of Colorado Department of Natural Resources Dam Safety Branch, and various water irrigation districts that operate federal canals, is seeking new ideas for cost-effective ways to prevent rodents from burrowing into the earthen embankments of dams, canals, and levees. These burrows cause seepage paths in the embankment system which can lead to structural failures that endanger water supplies, cause property damage and endanger the lives of nearby populations. Many of the more traditional and "intuitive" methods have been tried with little success to date. We are hoping the Solver community can "dig deeper" than the rodents to find creative and effective solutions to this Challenge.

This Challenge requires only a written proposal.

Challenge Orientation Video

Subject matter experts from the Bureau of Reclamation and Boise Project Board of Control have provided this short video discussing the rodent burrows in earthen embankments problem: <https://youtu.be/CY8TeSIT16o>

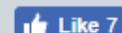
Privacy Advisory

This web site is hosted by a private entity and is not a service of the Bureau of Reclamation or the Department of the Interior (DOI). The solicitation and collection of your personal or individually identifiable information is subject to the host's privacy and security policies and will not be shared with Reclamation or DOI unless you win the Challenge. Challenge winners' personally identifiable information must be made available to Reclamation in order to collect an award. Please consult the Challenge Specific Agreement.

Login to View Details

Register for Free

Share This Challenge



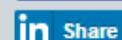
Like 7



Share



Tweet



Share



G+

Recommend this on Google

Challenge Data (What's This?)

Solvers



Submissions



Solver Map



US Army Corps
of Engineers®



Two
Irrigation
Districts

<https://www.innocentive.com/ar/challenge/browse?pavilionName=Water&pavilionId=1942&source=pavilion>

RECLAMATION

Offering Prizes to Solve Tough Problems

Where are We Going?

IDEATION CHALLENGE

Better, Faster, Cheaper: Measuring Reservoir Capacity

Launch date: Fall 2016

Accumulating sediments pose a significant problem for Reclamation in determining how to measure reservoir storage capacities.



**US Army Corps
of Engineers®**

NEW TECHNOLOGY CHALLENGE

Detecting Arsenic at the Source

**keep arsenic out
of drinking water.**

Launch date: Fall 2016

EPA and the U.S. Bureau of Reclamation (USBR) are joining forces to launch the Arsenic Sensor Prize Competition for the development of new technology to detect arsenic in water.



NIST
National Institute of
Standards and Technology
U.S. Department of Commerce



USGS
science for a changing world



<http://www.usbr.gov/research/challenges/upcoming/index.html>

REDUCTION TO PRACTICE CHALLENGE

Sub-Seasonal Forecast Rodeo - Beat NOAA

Launch date: December 2016



Water managers need more skillful information on weather and climate conditions with lead-times ranging from 15 days to 45 days and beyond.

NEW TECHNOLOGY CHALLENGE

Long-Term Corrosion Protection of Existing Hydraulic Steel Structures

Launch Date: Winter 2017



US Army Corps of Engineers®

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

How can we protect immersed steel structures from corrosion in a manner that provides fifty or more years of service life without significant maintenance or replacement of the protection method?

REDUCTION TO PRACTICE CHALLENGE

Mobile App to Support Electronic Field Data Capture for Water and Environmental Monitoring

Launch Date: Winter 2017



US Army Corps of Engineers®

Can a software application (app) be developed to support electronic field data capture across the diverse range of data collection situations to support water and environmental management?

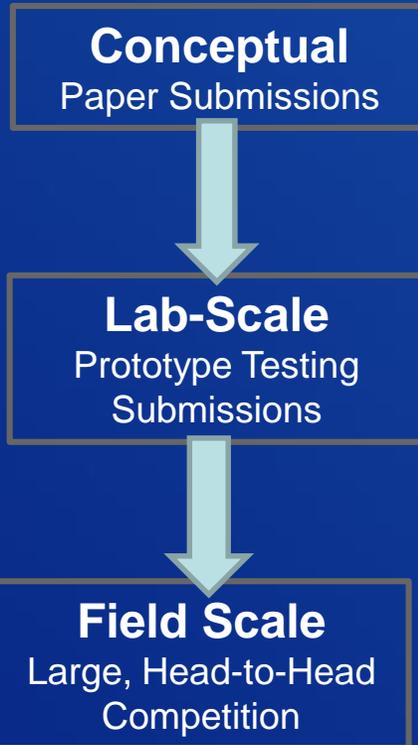
<http://www.usbr.gov/research/challenges/upcoming/index.html>

Advanced Water Treatment Grand Challenge Framework

Starting Late 2016 - Turning Desal Innovation into a Global Sporting Event

Blast through Cost and Energy Barriers With Prize Competitions

Stage Gates



Prize Purse



Sponsored by
Bureau of Reclamation



Sponsored by
Bureau of Reclamation



Sponsored by
Bureau of Reclamation

Winners



GRAND CHALLENGE

More Water - Less Concentrate: Stage 1



Hundreds of thousands in prize \$\$\$!



Follow us at Challenge.gov
(search Reclamation)



Launch date: Fall 2016

As the demand for fresh water increases, the need to develop new water supplies from non-traditional water sources, such as saline (brackish) groundwater and surface water using desalination technologies continues to grow.

Nation-wide, desalination can help meet the increasing demand for fresh water, diversify water supply portfolios, and improve water reliability, particularly in areas affected by climate change, population growth and drought.

This is a Grand Challenge envisioned to consist of 3 main stages. Stage 1 is a concept challenge requiring a white paper submittal with a total prize purse of \$150,000. Stage 2 is envisioned as a subsequent reduction-to-practice (RTP) Challenge to demonstrate proof-of-concept data at the bench scale with a total prize purse of at least \$450,000. Stage 3 is envisioned as a Reduction-to-Practice demonstration at full-scale in a field-test setting with a total prize purse of at least \$500,000.

Reclamation also plans to invite industry, non-profit organizations, and venture capital representatives to participate as partners and/or, official judges of this competition and seek potential business deals with competition participants.

Water Prize Competition Center

Share your expertise and ideas!

You can help solve some of the most critical water and water-related resource problems facing our Nation!

Water Availability



Ecosystem Restoration



Infrastructure Sustainability



Additional Competitions in Each Theme Area Later in 2017

NEWS

Reclamation is Seeking Non-Federal Partners to Help Launch Prize Competitions

★ FEDBIZOPPS.GOV

(July 7, 2016) The Bureau of Reclamation is seeking non-federal partners to join with Reclamation and other federal agencies on prize competitions to solve critical water and water-related issues.

Visit FedBizOpps.gov to download the Partner Opportunity Notice and submit the partner interest form. [Read More →](#)

<http://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=55427>

Partners can Contribute...

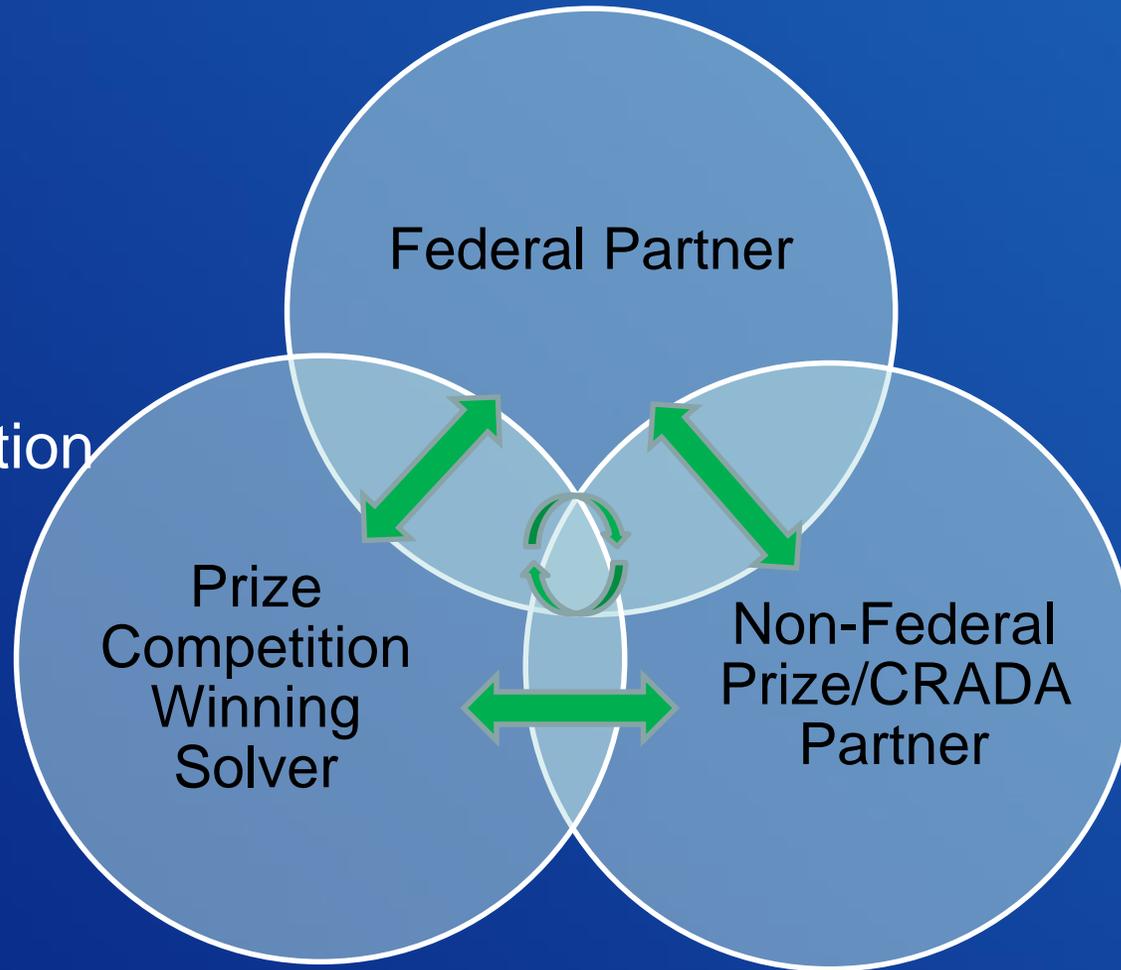
- Prize Purse Money
- Technical Experts
- Judges
- Testing Facilities
- Promoting the Competition to Public and Solver Communities
- Commercialize Winning Solutions
- Prize Competition Administration

[See Partnership Sources Sought Notice](#)

RECLAMATION

Approaches to Public-Private Partnerships for Hosting Prize Competitions

15 USC 3719
Prize Competition
Authority



15 USC 3710a
Public-Private
Research Partnership
Authority

Watch Challenge.gov
Panel Presentations
to Learn More



<https://www.youtube.com/watch?v=TSYodkGRJyo&list=PLd9b-GuOJ3nFeJeAHAn3Z5opohjxlw8OC&index=3>