

An aerial photograph of a coastal region. The top half shows a large body of turquoise water with white foam from waves crashing against a rocky coastline. A city with dense buildings is visible on a peninsula in the middle. The bottom half shows a brown, hilly landscape with some green patches and a small bay with white foam.

OPEN INNOVATION

AN OLD NEW TOOL FOR YOUR TOOLBOX

SHOBHANA GUPTA, MD PHD

“

the use of purposive inflows
and outflows of knowledge to
accelerate internal innovation
and expand the markets for
external use of innovation

”

Henry Chesbrough, PhD
UC Berkley Haas School of Business



L'Enfant-Ellicott map of Washington, 1792.
 Library of Congress

WASHINGTON, in the Territory of COLUMBIA.

A PREMIUM

OF FIVE HUNDRED DOLLARS, or a MEDAL of that value, at the option of the party, will be given by the Commissioners of the Federal Buildings, to the person who, before the fifteenth day of July next, shall produce to them the most approved PLAN, if adopted by them, for a PRESIDENT'S HOUSE, to be erected in this City. The site of the building, if the artist will attend to it, will of course influence the aspect and outline of his plan; and its destination will point out to him the number, size, and distribution of the apartments. It will be a recommendation of any plan, if the central part of it may be detached and erected for the present, with the appearance of a complete whole, and be capable of admitting the additional parts, in future, if they shall be wanting. Drawings will be expected of the ground plans, elevations of each front, and sections through the building, in such directions as may be necessary to explain the internal structure; and an estimate of the cubic feet of brick-work composing the whole mass of the walls.

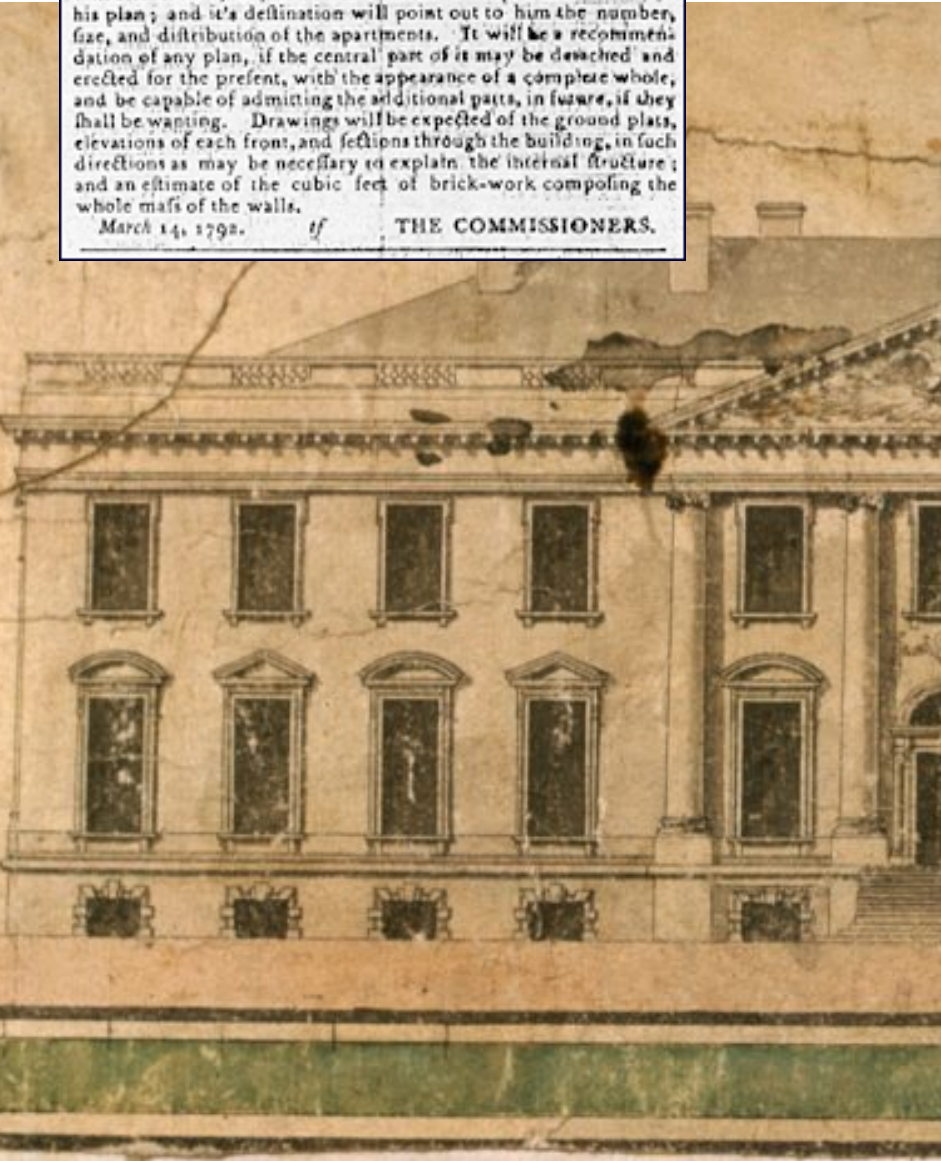
March 14, 1792.

of

THE COMMISSIONERS.

Advertisement for the best design of the "President's House"
The White House Historical Association

James Hoban's White House design.
The Maryland Historical Society



White House Washington
Cezary Piwowarski

Highlights the pursuit of excellence.

Increases the number and diversity of individuals, organizations addressing a particular problem.

Stimulates private sector investment.

Minimizes risk - pay only for results.

Capture the public imagination and change their perception of what is possible.



Adapted from the Memorandum for the Heads of Executive Departments and Agencies, Jeffrey D. Zients, Deputy Director of Management, Office of Management and Budget, 2010

Poster for the Pennsylvania Railroad Company, Newell Convers Wyeth, 1932.
White House Historical Association

- **Crowdsourcing**

Solicits products, services, ideas, or content contributions from many people for distributed problem solving

- **Challenges**

Use focused problem statement to competitively obtain solutions and/or stimulate innovation from broad public

- **Prizes**

Competitively award prizes to stimulate innovation with potential to advance NASA's mission

- **Citizen Science**

Public participating voluntarily in scientific process

Community Applications and Open Innovation Manager

**Applied Sciences Program
Earth Science Division**

Support the missions of programs in Applied Sciences and solve problems at local through global scales using:

Prizes

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Challenges

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Community-based projects

Why should you use Prizes and Challenges?

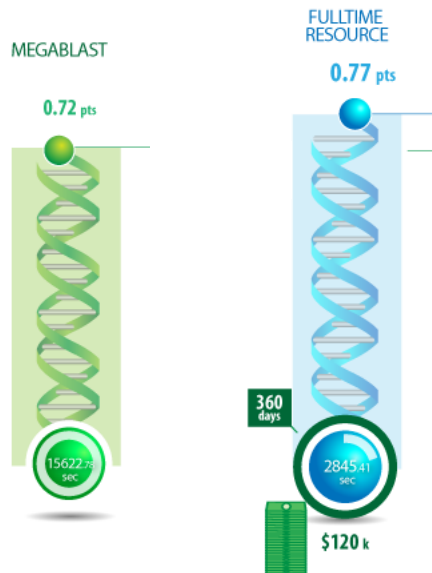
- Address current issues that don't fit grant mechanism
- Partner with organizations with similar goals
- Drive innovation and procure products and services
- Build network of diverse and talented solvers

“ No matter who you are, most of the smartest people work for someone else ”

Joy's Law, Bill Joy
Computer Scientist, Co-founder Sun Microsystems

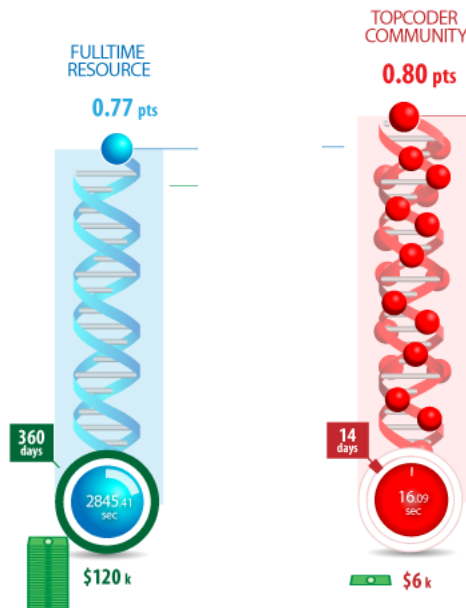
GOAL: Create better algorithm for sequence annotation than established methods such as BLAST

COMPETITION: Ran 2 week prize competition on Topcoder with pot of \$6000



4.3 hours

\$2M+
Multi-year
Development

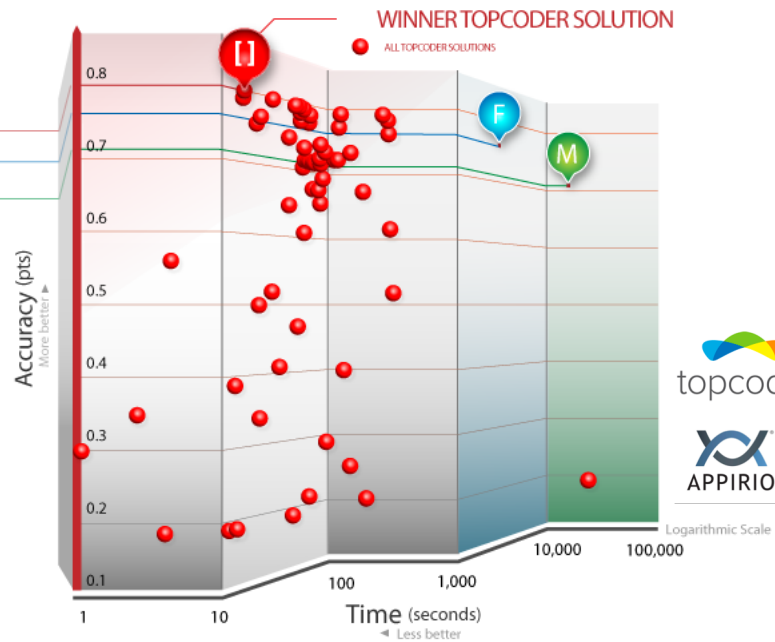


47 min.

\$120K
1 year
Development

16 sec.

\$6K Prize
14 Day
Challenge



**HARVARD
BUSINESS SCHOOL**



What would you solve?

- Data analytics and visualization
- Communications
- Software
- Technology demonstration and hardware
- Ideation
- Scientific



NASA Earth & Space Air Prize:

Support from the Robert Wood Johnson Foundation

Identify solutions that can catalyze the development of **easy to maintain, small, and affordable aerosol sensor technology** that has the potential to be useful in spaceflight as well as on Earth anywhere outdoors in a community where pedestrians may be exposed to **airborne particle matter**.

earthspaceairprize.org

THANK YOU

Applied Sciences Program

Lawrence Friedl

Health and Air Quality Program

John Haynes

Sue Estes

Ali Omar

Helena Chapman

NASA Prizes and Challenges

Amy Kaminski

Karen James

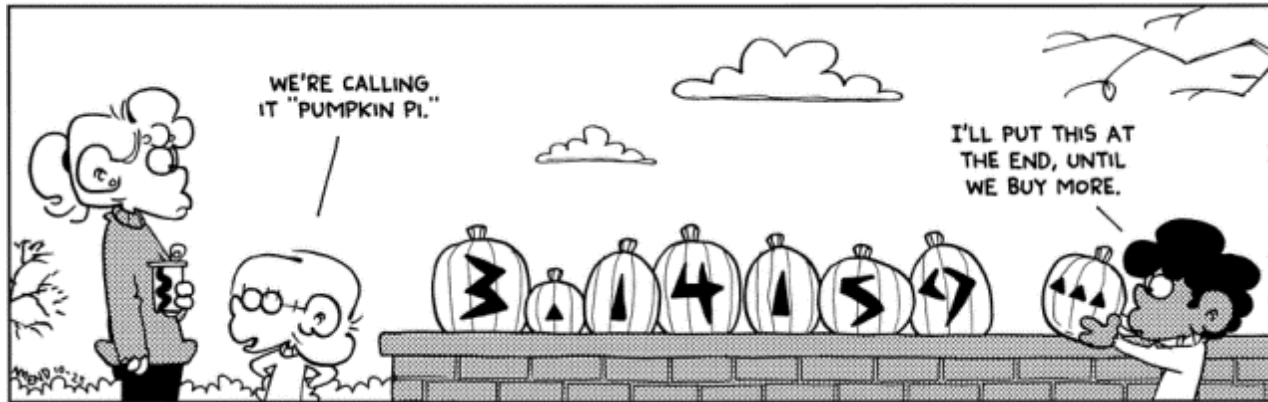
Center of Excellence for
Collaborative Innovation

Lynn Buquo

Steve Rader



QUESTIONS?



Keys to Success: Good Problem Statement Design

- What problem are you trying to solve?
 - If new project, why is solution being created?
 - If refresh, what is wrong with current version?
- What will success look like?
- What do your target stakeholders want?
 - Background research and incorporate goals of end-users
- How will the solution be delivered to the end user?
- **What single improvement would give you the biggest bang for the buck?**