



Revolution Through Competition



ESD.172>

Introduction

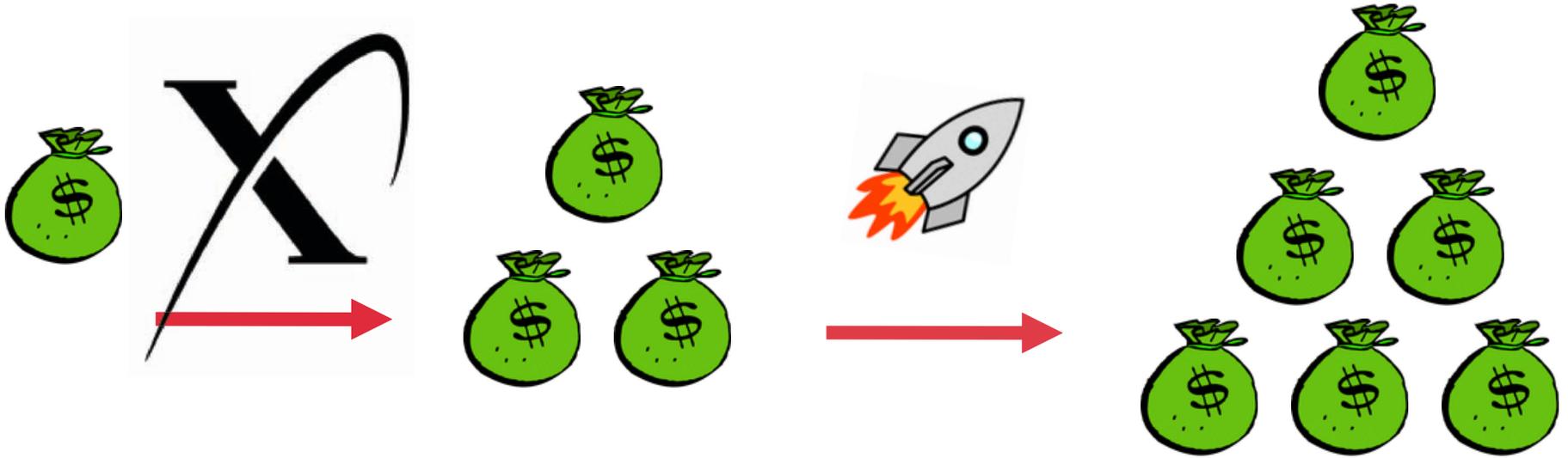
Erika Wagner

9 Sept 2009

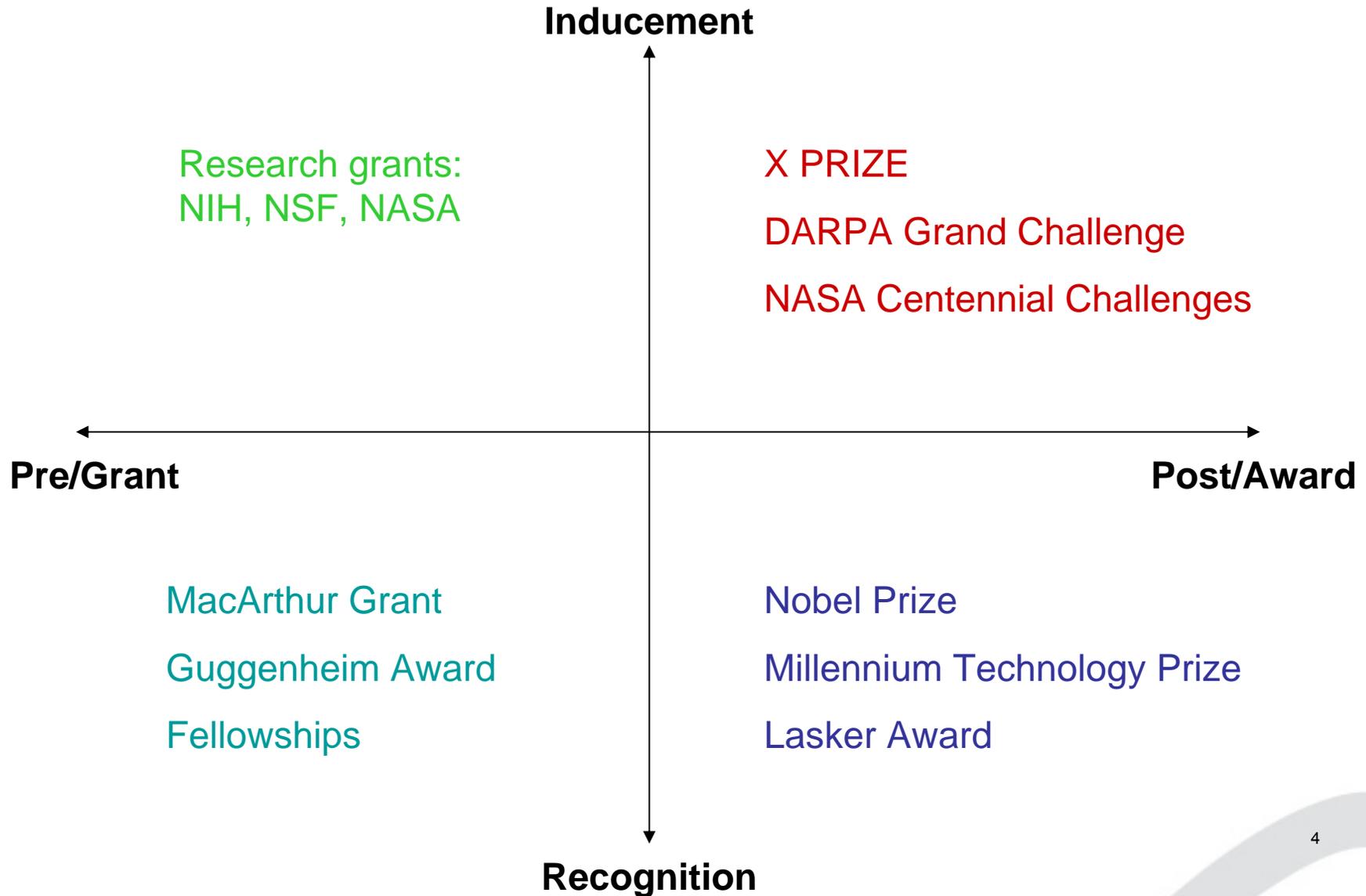
You go first 😊

- Name
- MIT program & year
- Area of energy-related expertise or interest
- “I believe I’m the only person in the room who...” (3 tries!)

The Tool



Award Taxonomy



Term Project

- Design an X PRIZE to incentivize revolutionary innovation in energy storage, targeted at a specific technology or application.

15 minutes of production...

“Because Energizer batteries are now made with no added mercury, we do not believe that a disposable battery recycling program is necessary.”

-Energizer Consumer Relations,
October 2007



Other applications needing storage breakthroughs

- **Range limited transportation**
 - Hybrid & electric vehicles
 - Deep sea submersibles
 - Bionics
- **Mass limited systems**
 - Satellites
 - Backpacking
- **Resource limited settings**
 - Point-of-care health diagnostics
 - Off-grid lighting

Creating the X PRIZE, not winning it

- Improved understanding of what triggers and supports innovation and innovation diffusion
- Survey of opportunities in energy storage, including science and technology, policy, and economic aspects
- Deep dive into one area of technology interest

“From the universe of important opportunities, pick the most salient and achievable ones.”

- MW 2:30-4:00
- Highly participatory and project-oriented
- 9 units, graded
 - 15% participation
 - 15% homework
 - 40% project milestones
 - 30% final project
- “TEAM TIME” classes

Key Personnel

- Course Director: Erika Wagner

Affiliate Faculty:

- Fiona Murray
- Jeff Shames
- Luis Perez-Breva
- Dava Newman
- Ken Zolot
- Charlie Cooney

- Weeks 1-2: *Incentive Prizes*
- Weeks 3-5: *Opportunities in Energy Storage*
- Weeks 5-8: *Innovation Incentives & Strategic Resource Allocation*
- Weeks 9-13: *X PRIZE Development*

Key Project Milestones

30 Sept: Elevator Pitches: Problem Statements

28 Oct: Mid-term Team Presentations

9-14 Dec: Final Presentations to X PRIZE Board members

Special events

- **16 September: X PRIZE Energy Forum**
 - 5:00-6:30pm, 54-100
- **4 November: IDEO Brainstorm**
 - After 3pm, IDEO office in Central Square
- **Final Presentations (~3 hours)**
 - 9 December
 - Week of 14 December



X PRIZE Energy Forum

Dr. Ray Kurzweil

Ray Kurzweil has been described as “the restless genius” by the Wall Street Journal, and “the ultimate thinking machine” by Forbes. Inc. magazine ranked him #8 among entrepreneurs in the United States, calling him the “rightful heir to Thomas Edison,” and PBS included Ray as one of 16 “revolutionaries who made America,” along with other inventors of the past two centuries. Along with Larry Page, Ray devised the solar-based energy plan for the recent "Grand Challenges in Engineering" blue ribbon panel of the National Academy of Engineering.

Dr. George Church

George Church is Professor of Genetics at Harvard Medical School and Director of the Center for Computational Genetics. With degrees from Duke University in Chemistry and Zoology, he co-authored research on 3D-software & RNA structure with Sung-Hou Kim. His PhD from Harvard in Biochemistry & Molecular Biology with Wally Gilbert included the first direct genomic sequencing method in 1984. George is a co-founder of LS9, Inc., an industrial biotechnology company developing biofuels made with the power of synthetic biology.

Dr. Saul Griffith

Saul Griffith has multiple degrees in materials science and mechanical engineering and completed his PhD in Programmable Assembly and Self Replicating machines at MIT. He is the co-founder of numerous companies including: Low Cost Eyeglasses, Squid Labs, Potenco, Instructables.com, HowToons and Makani Power, which is seeking to harness clean energy from high-altitude wind. Saul has received several awards for invention, including the Collegiate Inventor's award, the Lemelson-MIT Student prize, and the National Inventors Hall of Fame.

Spanish Longitude Prize (1567) Philip II of Spain offered a prize for the discovery of a method of finding longitude at sea. In 1598, King Philip III of Spain increased the prize. By one account, the prize was 6000 gold ducats plus a pension of 2000 ducats a year for life.

The Dutch Longitude Prize (1627) Promised by the States General of the United Provinces of the Netherlands to anyone who could find a correct method of determining longitude. Reports vary on the amounts offered by the prize.

British Longitude Prize (1714)

Meslay Prize (1714) French parliamentarian Rouillé de Meslay bequeathed a fund of 125,000 livres for two prizes to be administered by the French Academie des Sciences. One of the prizes was to determine longitude at sea and discoveries useful to navigation and long-distance voyages. According to one account, “the Académie made the first navigation award—a substantial 2,000 livres—in 1720, and it continued to pose research questions and award the Meslay prize into the 1780s.”¹⁴⁴ 2,000 livres was roughly equivalent to four years of wages for a skilled worker.

Homework

- **Tonight:** email instructor with 3 qualities you think define a good X PRIZE challenge, and 3 types of challenges you think are a poor fit for the model
- **Readings for Monday:**
 - Kalil, T. (2006) *Prizes for Technological Innovation*. Brookings Institute Discussion Paper.
 - McKinsey & Co. (2009) *“And the Winner Is...”: Capturing the Promise of Philanthropic Prizes*.

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Fall 2009

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