



Revolution Through Competition

"Exploring Open Innovation"

27 Jan 2010



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PhD

Executive

Director,

X PRIZE Lab@MIT

- 
- **The X PRIZE Foundation**
 - **Current & Future X PRIZES**
 - **Designing an X PRIZE**

The X PRIZE Foundation



1927 Orteig Prize

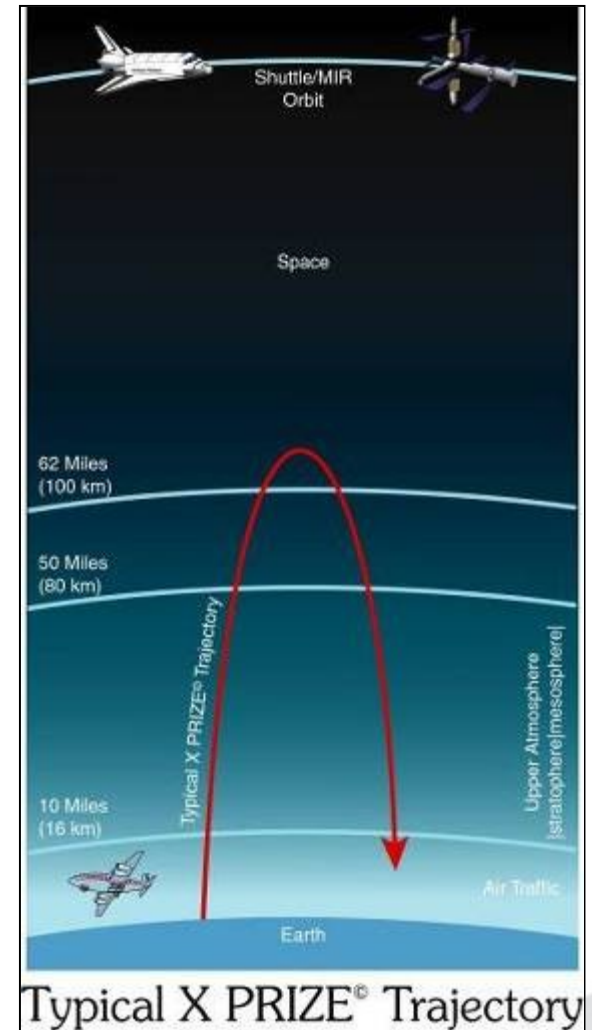
***“First team to fly non-stop
between NY and Paris...”***

- Orteig puts up \$25,000.
- 9 Teams spend \$400,000.
- Lindbergh, 25 year old underdog wins!
- Results:
 - Top media story of the century
 - Transformed public's view of Aviation
 - **6,000 → 180,000 passengers in 18 months**



What was the ANSARI X PRIZE?

- \$10 Million
- Privately funded teams
- 3 person reusable spaceship
- 100 Km Altitude
- Two flights within 2 weeks



ANSARI X PRIZE – The Teams



ARCA



Space Transport Corp.

**26 teams from 7 nations
spending over \$100 million to
win \$10 million purse**



DaVinci Project



Canadian Arrow



Rocketplane



Armadillo Aerospace



StarChaser



Pablo DeLeon



**Scaled Composites –
SpaceShipOne**



Trustees & Vision Circle Members



Eric Anderson - CEO, Space Adventures

Anousheh Ansari - CEO, Prodea

Michael Bousttridge - President, BT – N. Am

Sergey Brin - Co-Founder, President, Google

Arianna Huffington - CEO, Huffington Post

Dean Kamen - CEO, DEKA

Ray Kurzweil - CEO, Kurzweil AI

Erik Lindbergh - Vice-Chair, Lindbergh Fndtn

Elon Musk - CEO, SpaceX

Larry Page - Co-Founder, President, Google

Adeo Ressi - CEO, The Funded

Eric Schmidt - CEO, Google

Ratan Tata - Chairman/CEO, Tata Group

Craig Venter - Pres, J. Craig Venter Institute

Will Wright - Video Game God, Maxis

Today's Grand Challenges are Tomorrow's X PRIZES



Energy &
Environment



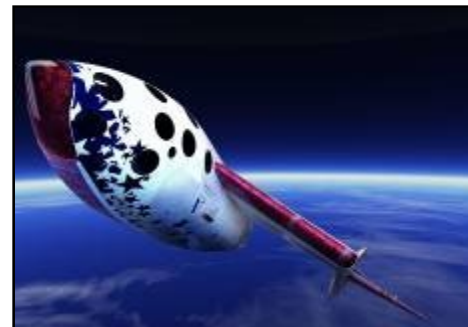
Life Sciences



Global Development



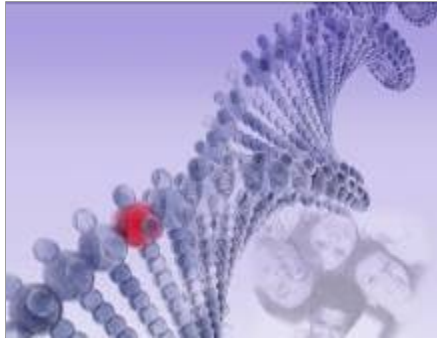
Education



Exploration



Current and Future X PRIZES



\$10,000,000

Launched: 10.04.06

Vertical: Life Sciences

Sequence 100 human genomes in 10 days;

genomics.xprize.org

Active X PRIZES



\$30,000,000

Launched: 09.13.07

Vertical: Exploration

Land a robot on the moon, rove 500 meters and send back images;

space.xprize.org



\$10,000,000+

Launch: 03.20.08

Vertical: Energy & Environment

Build an affordable, desirable, manufacturable 100 MPGe car

auto.xprize.org





\$10 Million Purse for the first team to:

*- Sequence 100 Human Genomes
in 10 days*

Purse funded by: Dr. Stewart & Marilyn Blusson

The Genome 100: Stephen Hawking, Larry Page, Larry King, Richard Branson, Anousheh Ansari...

Archon X PRIZE -- Genome 100



Genome 100 —the human face of personalized medicine...celebrities, benefactors, and representatives of patient groups.

Google
LUNAR

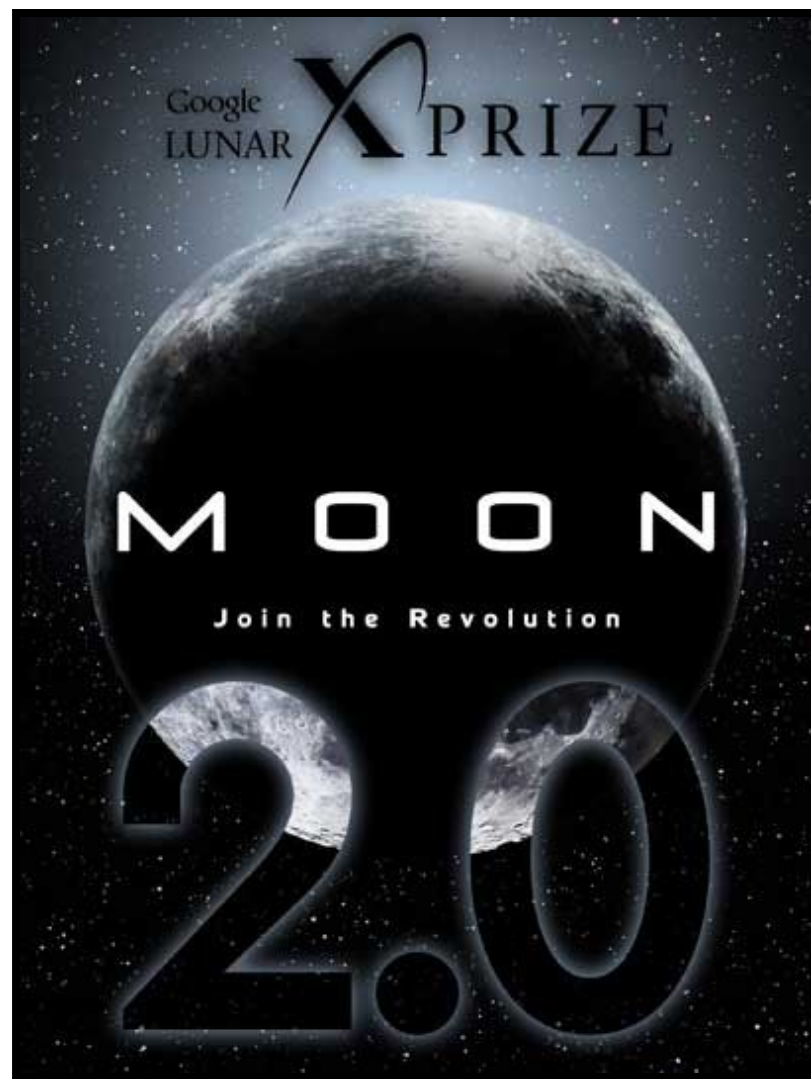
XPRIZE

MOON 2.0
Join the Revolution
googlelunarxprize.org



What is the Google Lunar X PRIZE?

- **\$30,000,000 purse**
 - \$20M 1st place
 - \$5M 2nd place
 - \$5M in Performance Bonuses
- **Open to world-wide competition**
- **Privately financed teams must:**
 - Land a rover on Moon
 - Explore at least 500m of the lunar surface
 - Return two packages of high definition video and imagery called “Mooncasts”
- **Bonuses encourage:**
 - Roving further along the lunar surface
 - Visiting man-made hardware
 - Surviving a lunar night



20 Teams Registered





PROGRESSIVE
AUTOMOTIVE

X PRIZE

www.progressiveautoxprize.org

100MPGe

Automotive Revolution Through Competition



To Win: *The fastest car **under strenuous and diverse testing** while exceeding 100 MPGe*

Grand Challenge: Inspire a new generation of viable, super-efficient vehicles to break our addiction to oil and stem the effects of climate change

Vehicles: Must be manufacturable, have a readily available fuel infrastructure, safe, affordable

Two classes:

- Mainstream
(4 seat/4 wheels)
- Alternative
(at least 2 seat)

Purse Sponsor:

Progressive Insurance

Purse : \$10M total

Competition Dates:

April-August 2010



Teams (Jan '10):

- 111 registrants narrowed to 41 teams from 10 nations (17 US states)
- 51 vehicles (25 new / 26 converted)
- 27 Mainstream / 24 Alternative Class

Some of the Competitors...



Aptera Motors
Electric & Hybrid models



Future Vehicle Technologies
Gasoline engine



Tata Motors
Electricity/Petrol
First large automobile manufacturer

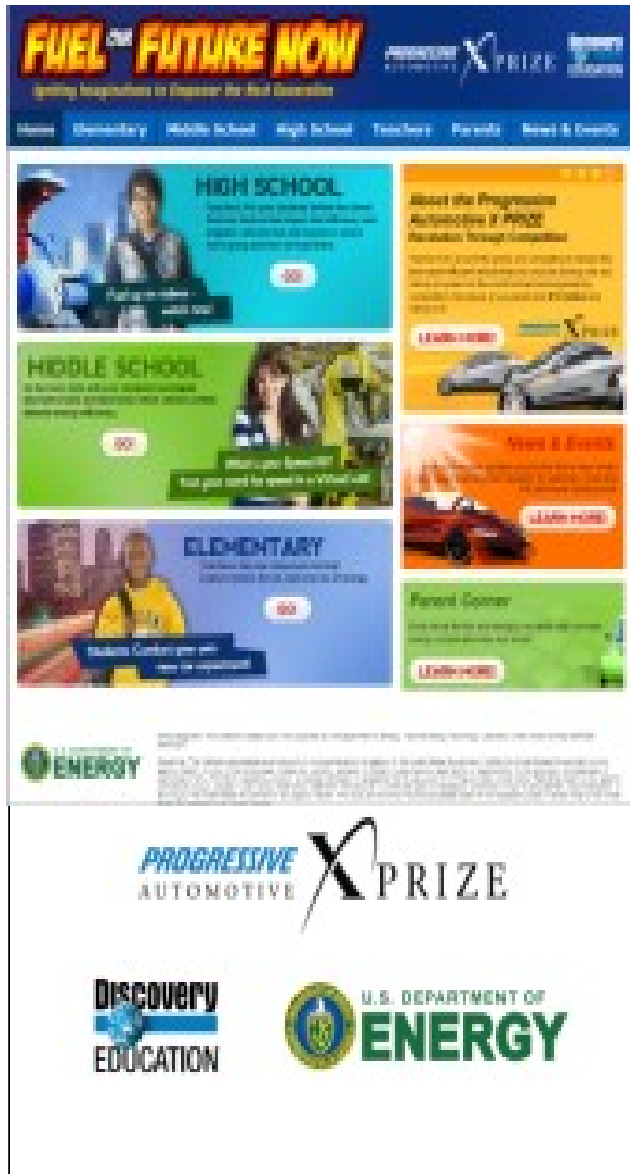


Commuter Cars
Electric

COMPETITION TIMELINE



DOE-Sponsored \$3.5M Edu Program



- **DASH+** national high school contest to reinvent the vehicle dashboard for eco-friendly driving

www.FuelOurFutureNow.com

- **To engage students and the public** in learning about advanced vehicle technologies, energy efficiency, climate change, alternative fuels, and the science, technology, engineering, and math (STEM) behind efficient vehicle development
- **To inspire youth** to learn more about and pursue careers in advanced vehicle development and generate enthusiasm about the energy-efficient vehicle options of the near-future
- **To showcase the 21st century learning skills** needed to succeed in work and life, including creativity and innovation, critical thinking and problem solving, communication and collaboration

Broad Base of Support



Al Gore
Former U.S. Vice Pres.



Jennifer Granholm
Governor, State of Michigan



Michael Bloomberg
Mayor, City of New York



Jay Leno
Host, The Tonight Show



Arnold Schwarzenegger
Governor, State of California



Gavin Newsom
Mayor, City of San Francisco



THE INDEPENDENT GREEN LIVING

Mean, green racing machines: £10m prize for inventor of the world's fastest eco car

Fifty international teams of maverick inventors are racing to build the world's - and win \$10m. The Walker catches up with the leaders

Wednesday, 27 January 2008

This year, the future of the motorcar may be decided not in the BMW boardroom, nor on the Fiat factory floor, but around the kitchen table of a home inventor with a very big idea. Such is the democratizing power of the automotive X prize, or XPZ, which will offer a \$10m (£6.1m) pot and a manufacturing deal to whoever can design and build the world's fastest car that will



edmunds.com

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Alternative Fuels

Automotive X Prize
Five Teams and Their 7
By Dave Charnovick, Car
ESQ
Date Posted: 10-09-2007

Building a car from scratch, producing a capable vehicle, ends less greenhouse gas (1) 1000 1000 two years — it



THE WALL STREET JOURNAL

News Today's Newspaper My Online Jou

AUTO SHOW TRACKER
2008 New York Auto Show

Award Alert: World Car of the Year Goes [...]

March 20, 2008, 3:40 pm

er Ponies Up to Sponsor X Prize

Prize Foundation and Progressive Corp. announced development of a production viable, 100 mile-per-gallon

More than 50 vehicles will be races in cities



POWERED BY YOU AND **Detroit Free Press**

The Progressive Automotive X PRIZE vehicle at the New York auto show on Wednesday. The car is to be officially unveiled today; the contest seeks cars that can



msnbc

Technology & science / Innovation

\$10 million bounty for super-efficient cars
Insurance company provides the purse for Automotive X Prize

By Alan Bouley

ConsumerReports.org

Expert • Independent • Nonprofit

More than 50 vehicles will be races in cities



THE CHRISTIAN SCIENCE MONITOR

WORLD USA COMMENTARY WORK & MONEY LEAD

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This three-w per kuno, A Progressive, contest for the car, it was on York International March 10 SOURCE: LEE AD



TODAY msnbc.com



Video



THE WALL STREET JOURNAL

AutoWeek

\$10 MILLION QUEST FOR 100-MPG CAR

Small innovators rule so far in the entries for the Progressive most fuel-efficient car.


Green cars prize
Mar 29, 2008

NEW YORK (AP) — entered a competition engineers said Thurs

The Progressive Auto September 2008 in wh per gallon (20 miles fu

Unleashing the concept. Blandy described 1 spur soldiers to car is

"The economically & when down to sport an



Discovery

BEHIND THE WHEEL DRIVING INTO THE FUTURE

GNBC GNBC GNBC GNBC GNBC FIRST IN BUSIN



WIRED

100 MPG! THE RACE TO BUILD THE ULTIMATE FUEL-EFFICIENT CAR



Forbes

U.S. EUROPE AS

HOME BUSINESS TEC

Video Blogs E-mail Ne

washingtonpost.com

POPSCI.COM

PPX CARS GEAR & GADGETS DIY MILITARY, AVIATION & SPACE ENTERTAINMENT & C

TIMESONLINE

NEWS COMMENT BUSINESS SPORT LIFE & STYLE ARTS & ENTERTAINME

CAREER & JOBS DRIVING EDUCATION FOOD & DRINK HEALTH PROPERTY TRAV

Where am I? Home Life & Style Driving Features

From The Sunday Times
January 13, 2008

The first 100mpg car - now that's a conc with legs

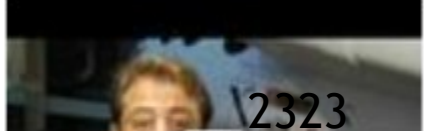
X PRIZE

© 2010, X PRIZE Lab@MIT

Automotive X-Prize is Official; Progressive to Sponsor

So far 65 teams have signed up to compete for a piece of the \$10 million prize

By Seth Fiedler Posted 03.20.2008 at 3:25 pm 1 Comment



X PRIZES in development

Oceans Exploration



Rapid TB Detection



Bionics

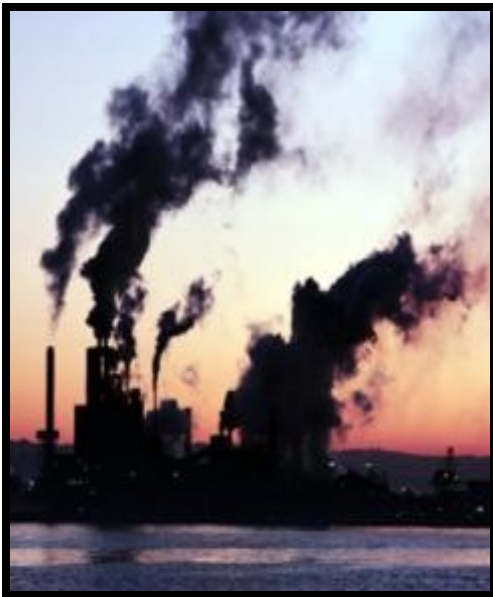
(c) 2010, X PRIZE
Lab@MIT

X PRIZE Concepts

Brain-Computer Interface



Carbon Capture



A.I. Physician



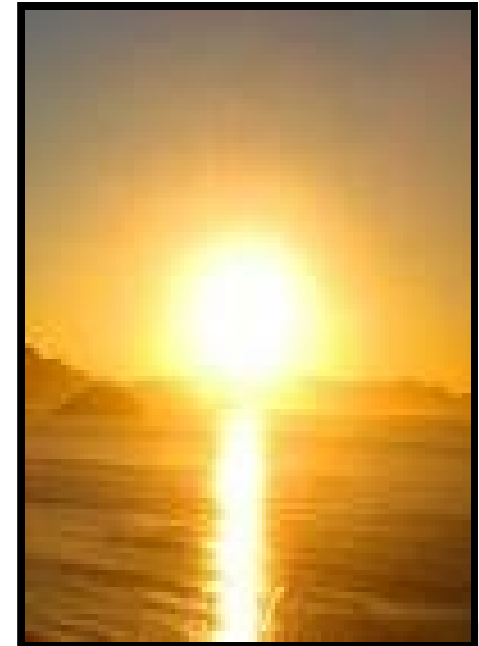
X PRIZE Concepts

Education

Clean Water



Energy



Designing an X PRIZE



Prospective Prizes

- Orteig (Lindbergh)
- DARPA
- X PRIZES

Retrospective Prizes

- Nobel Prizes
- MacArthur Genius
- Friedman Prize

Future-Focused Incentives

Inspire

- “Can it be done?” becomes “When will it happen?”
- Target categories that are stuck
- Create heroes
- Define a problem, not a solution

Acknowledge

- Accomplishments from years ago
- Rarely create media excitement
- Don’t inspire future breakthroughs

Past-Looking

Awards
(c) 2010, X PRIZE
Lab@MIT

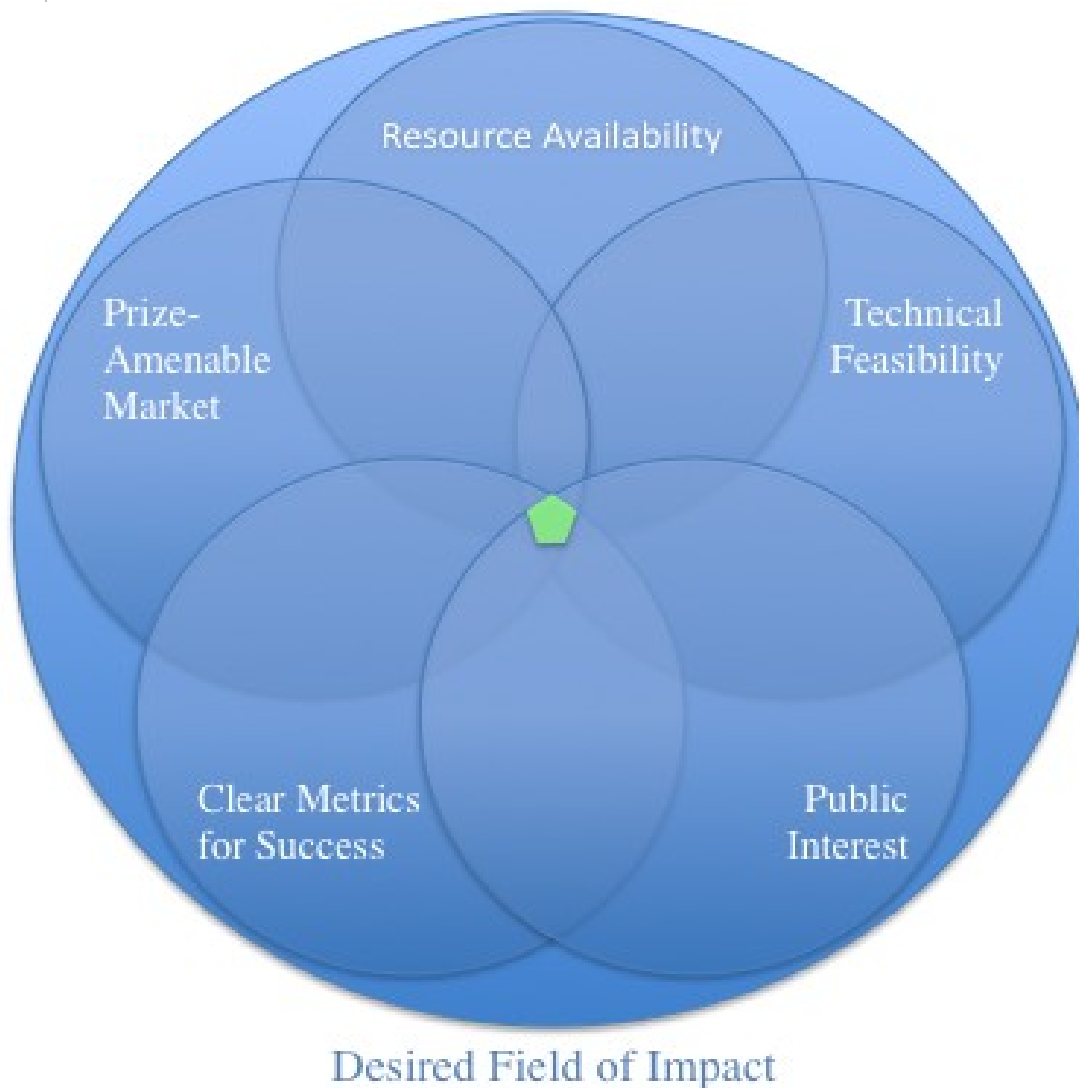
Hallmark Attributes of Large Incentive Prize Competitions

Donate to a non-profit:	Leverage 1:1	\$
Offer a matching gift:	Leverage 2:1	\$\$
Sponsor a Prize:	Leverage 50: 1	\$\$\$\$\$

1. **High Leverage:** Teams spend roughly 10 – 50 times the value of the purse
1. **Efficiency:** You only pay the winner... pay-for-performance
2. **Encourage Industry Development:** Rather than give rise to a single solution, a prize gives rise to many solutions...



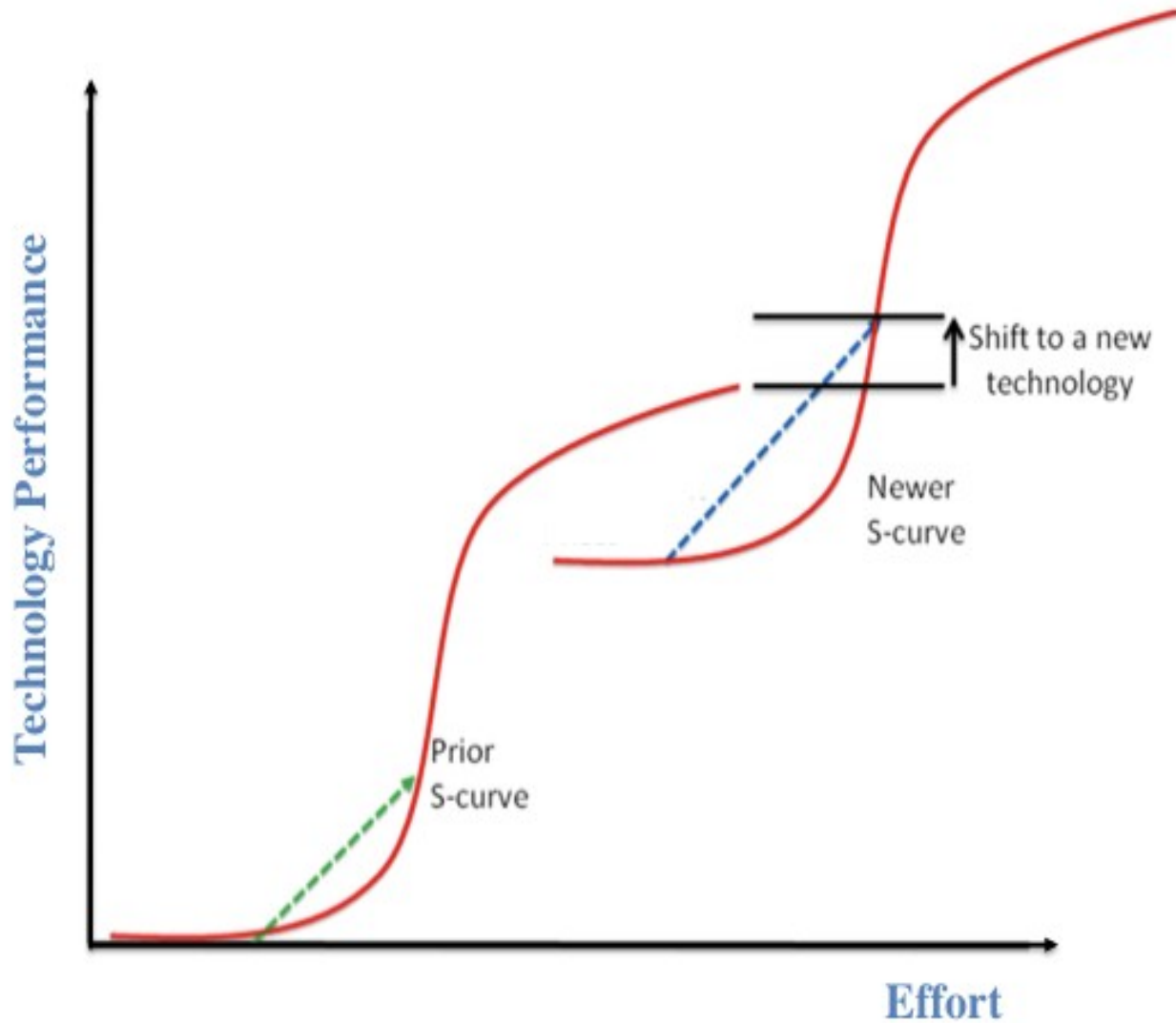
Finding appropriate targets



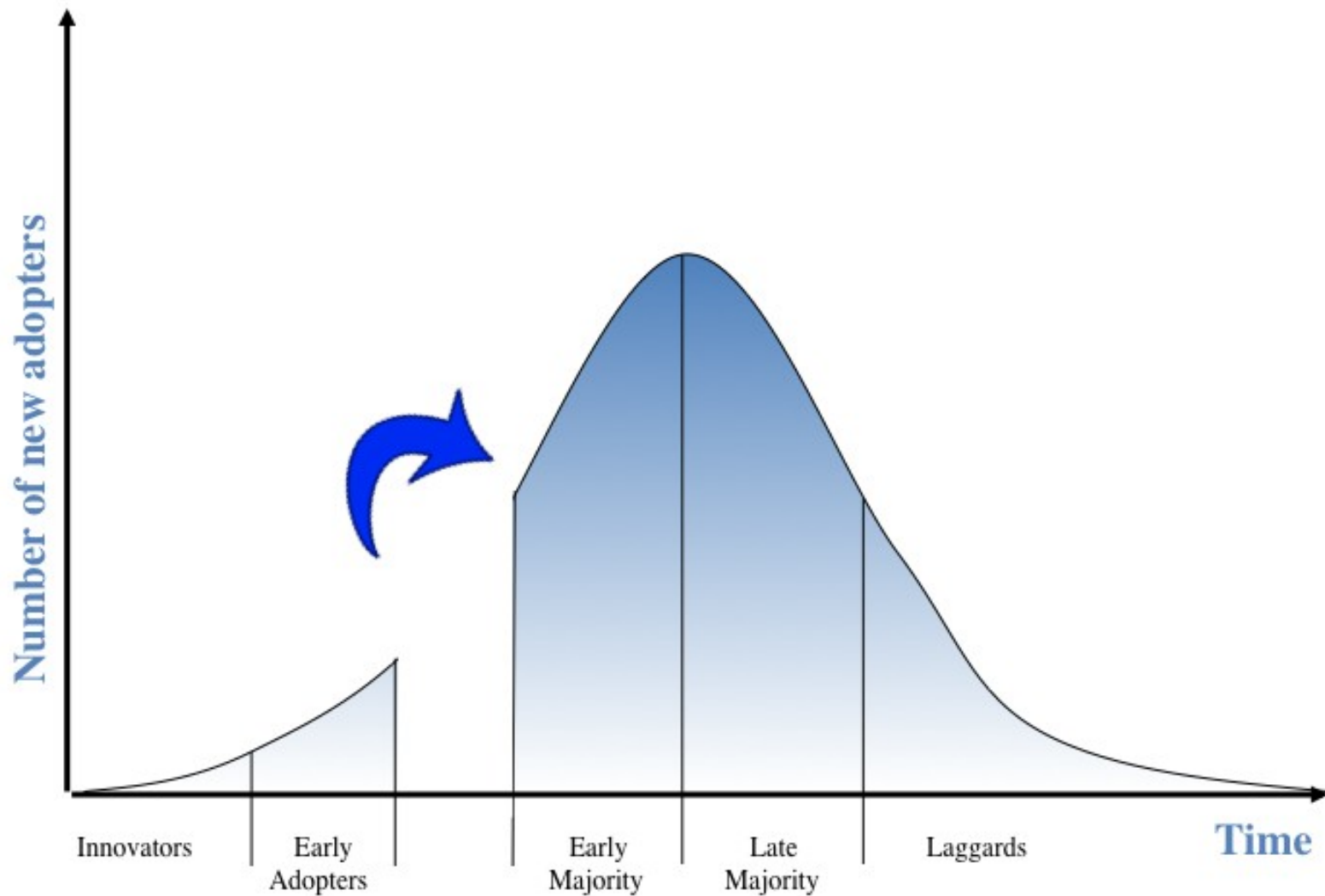
Promising Targets

- Areas where capital doesn't flow because markets are inefficient, blocked, or dominated by monopolies
- Technology demonstrations where a large enough proof of concept can change perception enough to drive investment in taking existing technology to scale
- Behavioral modification, particularly where such modification induces lasting effects, such as hardware or policy changes
- Futuristic technologies where the conversation needs to be shifted from “can it be done?” to “when will it be done?”

Advancing S-Curves



Crossing the Chasm



X PRIZE Design Principles

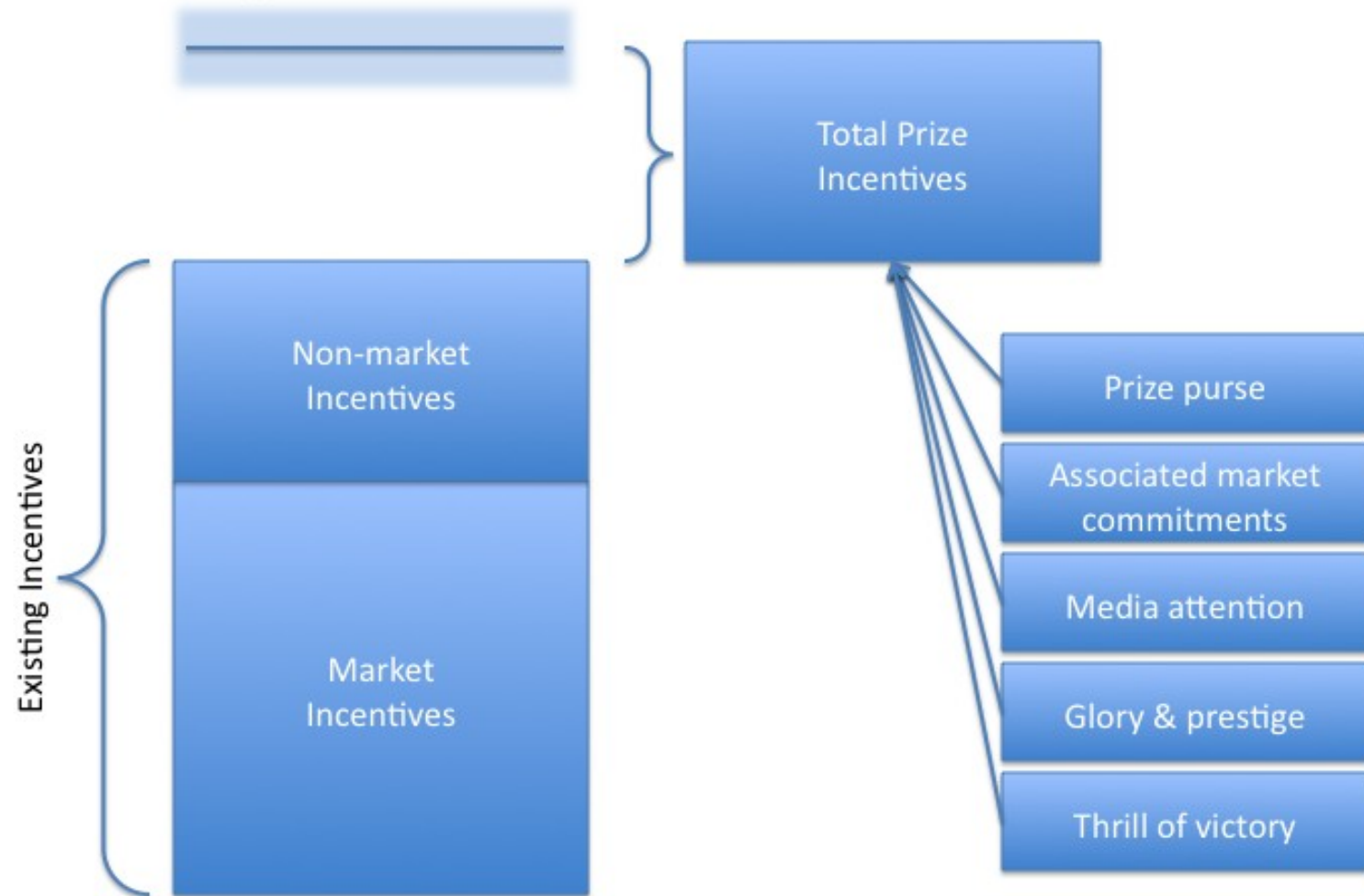
- Solution-Independent Problem Statement
 - Allows for diverse competitors and approaches.
- Clear and Measurable Outcome
 - Quantifiable or unassailable metrics identify a clear winner.
- Finite Period of Competition
 - 3-8 year win desired for PR and investment horizons.
- \$10M+ Prize Purse
 - Attracts PR and encourages competitor investment.
- Integrated Media Campaign
 - Provides key incentive above and beyond prize purse.

Prize Economics 101...

Prize		Purse	Amount Invested by Winning Team	Total Invested by All Teams
Orteig		\$25K	\$10K	\$400K
Ansari		\$10M	\$26M	\$100M
NASC*		No purse, \$300K event cost	\$4.1M	\$12.3M

Incentive Stacking

Investment Threshold
(with uncertainty)



Portfolio of Incentives for Innovation



“...in these great challenges, the victors may claim the glory, but the world will claim the spoils.”



Revolution Through Competition.

www.xprize.org



Prize definition, development, and testing

Educational outreach and “junior X PRIZES”

Nexus for interdisciplinary innovation

Ideal X PRIZE Profile (Economic)

- Create new markets for unmet needs
 - Developing world diagnostics and therapeutics
- Sufficiently raises NPV in an industry to stimulate new talent and investment
 - Service companies of marginal profitability
 - Ex: Preclinical drug discovery, orphan indications
- Address “Tragedy of the commons”
 - Low direct compensation, positive externalities
 - Ex: platform companies, low barriers to entry
- High degree of economic leverage
 - Capital infusion to win prize
 - Increased investment in sector post-prize
 - Human capital infusion

