X PRIZE
A new generation of private Spaceships

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www.xprize.org

“The best way to predict the future is to create it yourself.”
Less than <500 men and women have ever flown into space.

“Nothing... NOTHING is Impossible.”

Only 12 humans have walked on the moon.
One galaxy of 100 Billion Stars.
Our universe has 100 Billion Galaxies.

Why Explore...

• In a universe of 100 Billions Galaxies, with 100 Billion stars per Galaxy... Why explore?

• Because it’s fun! Because it’s part of human nature.

• To learn... Make discoveries... Life? New energy sources...

• To find the future home of humanity.
A brief history of rockets...

- German V2... 1943-45
- US-USSR Space Race
- October 4th, 1957... Sputnik
- April 12th, 1961... Yuri Gagarin
- 1961 – 1966... Mercury & Gemini → Apollo
- July 20th, 1969... Apollo 11 – Armstrong & Aldrin
- Dec 7th, 1972... Apollo 17 – Cernan & Schmitt
- April 12th, 1981... STS-1 (Space Shuttle)

Economics of the U.S. Space Shuttle

- Space Shuttle costs about:
  - $600M - $1Billion per launch!
  - $1.33M per person per hour
  - $22,000 per person per minute

- Employees 20,000 people to ensure safety
Launch Costs – ideal system

- 200 Kg Person into Earth Orbit
- Potential Energy: 200 KM Altitude \( (E(p) = mgh) \)
- Kinetic Energy: 7.3 km/sec \( (E(k) = \frac{1}{2}mv^2) \)

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• Cost = US$100

The opportunity for improvement from $20M to $100/person is huge!

How do we open the space frontier for the rest of us?

Need to create a new generation of spaceships...

And an economic engine that funds this frontier...
To Explore we need to get into space!

Current launch vehicles are too expensive!

To explore we need a new generation of private, low-cost spaceships!

Cost per person to orbit: $20M - $100M using government vehicles.

How many of you have flown in an airplane?
**Aviation History**

**1903 – 1908**
- Wright Brothers Flew in 1903
- By 1908 Only ten pilots had flown

**1909 – 1912**
- In 1908 the Wrights demonstrated their airplane in Europe
- Others said, “I can do that!”
  - Thousands of pilots were trained
  - Hundreds of aircraft types in 31 countries
- More than **40 cash prizes**, some for “impossible feats”

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**1927 Orteig Prize: New York - Paris**

- 1919 Raymond Orteig puts up a $25,000 challenge.
- 9 Teams register to compete
- They spend $400,000 to win the prize
- The underdog, 25 year old Charles Lindberg wins the prize!
WHAT IS THE X PRIZE?

An international competition that will award a $10 Million cash prize to the first team to:

- Privately finance, build & launch a ship
- Carry 3 people to 62 miles (100 km)
- Two flights within 2 weeks (same ship)

The X PRIZE is:

- The NASCAR of space;
- Speed, innovation, performance; and,
- A high profile, global event.
- The Ultimate drama...

ENDORSED BY THE RIGHT STUFF

"The X PRIZE is a masterstroke, a brilliant. What the X PRIZE could very well do is to jump-start a part of space exploration that is based on the active participation of regular Americans."
- Tom Hanks, Actor, Director and Producer

"The X PRIZE’s approach of providing an award is both creative and innovative."
- John Glenn

"The X PRIZE will put us back on track in fulfilling our natural quest for human exploration."
- Tom Clancy, Author

Arthur C. Clarke
Author

Buzz Aldrin
Astronaut

Dan Goldin
NASA Administrator

Erik Lindbergh
Pilot

Richard Gephardt
Minority Leader
X PRIZE MEDIA REPORT

Total Print Impressions:
May’96 – Jan’04 >2.0 Billion

- Newspaper articles… 4,000
- Radio shows… 300
- Magazine articles… 250
- TV appearances… 150
- Documentaries… 25

X PRIZE Print Impressions
1997 - 2003

27 TEAMS FROM 7 COUNTRIES

>20 teams, from 7 countries, have thus far registered to compete. More teams are expected. Each team is spending $2M - $20M to win the coveted X PRIZE.
The daVinci Project
Canada

LAUNCH METHOD: Rocket is tethered to a balloon and launched from 80,000 ft altitude

PROPULSION: Liquid oxygen/kerosene rocket system

RECOVERY: High drag re-entry ballute and parachute combined with inflatable airbag

Team Leader: Brian Feeney

Canadian Arrow
Canada

LAUNCH METHOD: Vertical takeoff from coastal launch site

PROPULSION: First Stage: Alcohol and liquid rocket engine
Second Stage: Solid Rocket Propulsion

LANDING METHOD: Parachute Landing

Geoff Sheerin -- Team Leader
Vehicle in Rockefeller Center NYC – Good Morning America
Advent Launch Systems
Houston, Texas, USA

LAUNCH METHOD: Water Launched
PROPULSION: LOX/Methane Engines
LANDING METHOD: Water Landing

18,000 lbs Thrust
Launch system ready for testing in the Houston, Texas area.

Leader Jim Akkerman - Former NASA Propulsion Engineer

Pablo DeLeon & Associates
Argentina

LAUNCH METHOD: Vertical launch
PROPULSION: Hybrid (Liquid/solid) rockets
LANDING METHOD: Parachute landing system

Half-scale Vehicle Test scheduled for December 2002

Clean room Ops  Testing Space Suit  Scale Capsule drop test from 96,000 feet
Suborbital
RUSSIA

LAUNCH: Off high altitude M-55 Aircraft, boosted to altitude with a Solid Rocket Motor.

PROPULSION: 1st: Kerosene Jet Engines & SRBs. 2nd: Solid Rocket Motor

LANDING METHOD: Unpowered Glide to conventional landing strip

LOCATION: Moscow, Russia

Sergei Kostenko
CEO, Suborbital Corp.

Starchaser Industries. Ltd.
United Kingdom

LAUNCH METHOD: Rocket Powered Vertical Takeoff

PROPULSION: Hybrid Rocket Motors

LANDING METHOD: Parachute

Bennett’s 40 foot tall Nova launched from England in Nov 2001

Hot fire rocket engine tests in Oct 2002.

Parafoil pilot training in advance of Nova capsule drop tests in early 2003.
Starchaser Testing

Armadillo Aerospace
Dallas, Texas, USA

LAUNCH METHOD: Vertical Takeoff
PROPULSION: Hydrogen Peroxide Engines
LANDING METHOD: Parachute/Crushable Nose

Drop test of “crush cone” deceleration.

Leader John Carmack - Software Guru, creator of Quake and Doom leads technical design and funding of Armadillo.
Armadillo Aerospace 2003 Corporate Video

Armadillo Drop Tests
Scaled Composites, Inc.
California, USA

LAUNCH METHOD: Runway & air launch
PROPULSION: Hybrid – N202 Engine
LANDING METHOD: Horizontal Runway

Team Leader Burt Rutan
Designer of Voyager non-stop round-the-world aircraft

Additional SS1 Images
Rutan Video: 10th Flight / Drop Test

Rutan Video: 11th Flight / 17Dec’04 / 15 Second Burn

PAUL G. ALLEN CONFIRMED AS LONG-RUMORED SPONSOR OF SPACESHIPONE
Parabolic (Zero-G) Flight

- Only method to create weightlessness on Earth.
- 25-30 seconds of zero gravity during each parabola.
- NASA has flown over 140,000 parabolas over the past 30 years without incident.
- NASA uses a 45 year old Air Force KC-135 aircraft.
- Before ZERO-G, parabolic experiences were not available to the General Public in the U.S.
ZERO-G has identified five robust markets for its services:

1. Entertainment / Film Production
2. Individual Adventure Travel
3. Corporate / Incentive
4. Research/ Education
5. Government

Coming Soon:
Zero Gravity Corporation
Parabolic, weightless flight
THANK YOU!
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