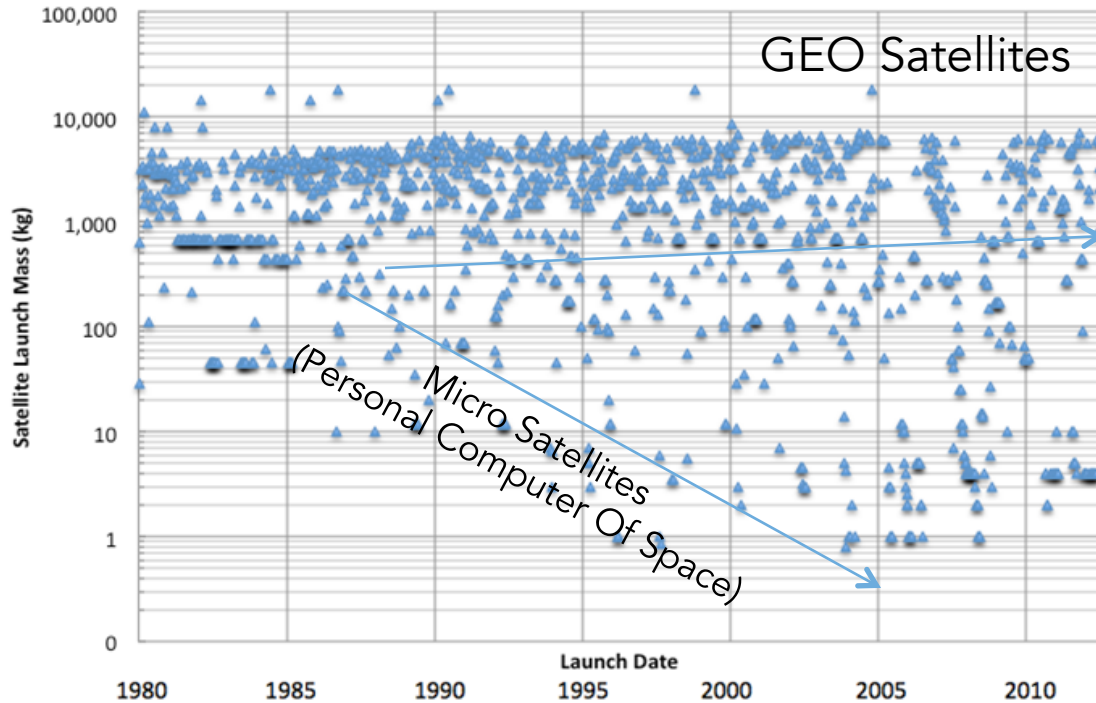


# Micro-Satellites Are The New PC



2001



2016

\*Source: UCS Satellite Database

# Vision: Empower Innovation

Phase I



Phase II



Phase III



Launch Vehicle

Galactic Sky

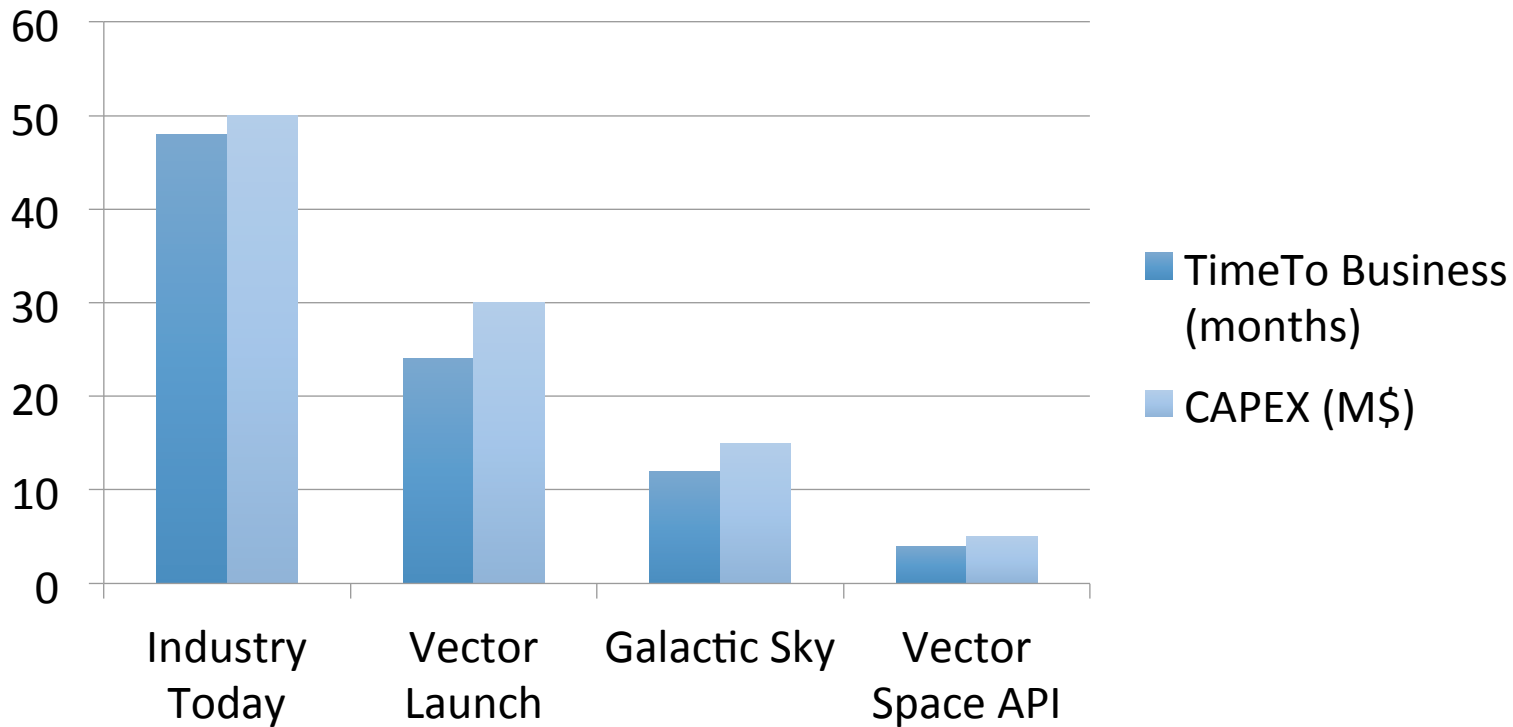
Space API

Dedicated Vector Micro Launchers  
Vector-R 50kg Vector-H 100 kg

DynoSat Satellite Design Tool  
Virtual Machine STK

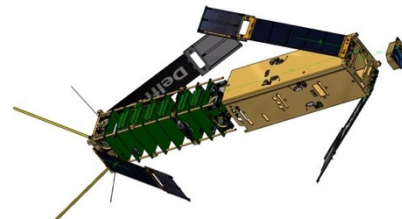
Software Defined Satellites  
Space Software Application

# Business Model: Rapid Deployment

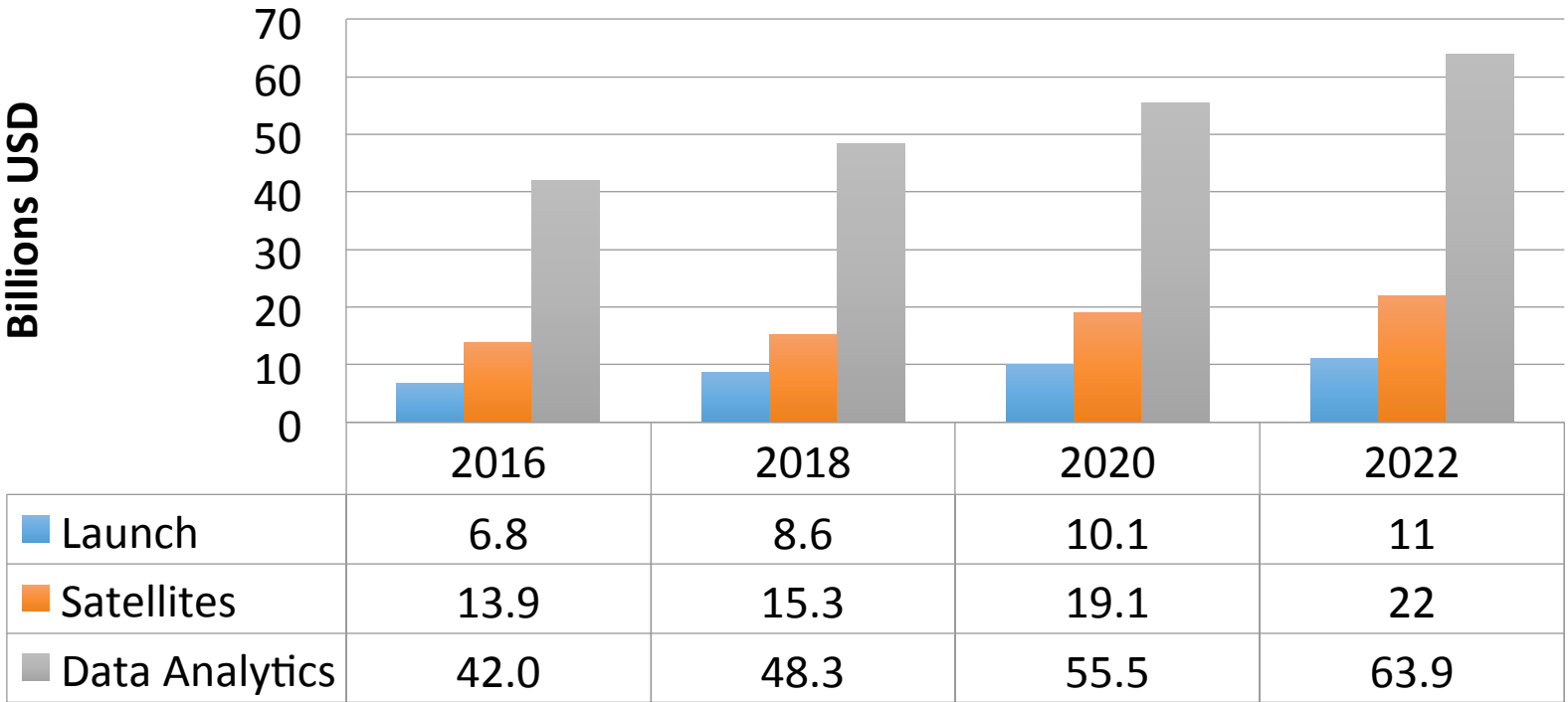


# Vector Owns End-To-End System

- Product 1: Vector Launch Vehicles
  - Vector-R 50 kg to orbit \$1.5M - \$2.5M
  - Vector-H 100 kg at \$3.0M - \$4.0M
- Product 2: Galactic Sky Satellites
  - Software Defined Satellite Toolkit
  - Virtual Machine based Galactic OS / Tools
  - DynoSat Satellite Design Tool
  - Vector Built Micro Satellites with Galactic Sky
- Product 3: Galactic Sky Space API
  - Satellite As Software App
  - Users Develop Software App
  - Vector core applications running on constellation



# Vector Total Addressable Markets



# Experienced Management



**Jim Cantrell**  
CEO  
SpaceX, Skybox,  
StratSpace, Moon  
Express, JPL, CNES



**John Garvey**  
CTO  
McDonnell Douglas, Sea  
Launch, Garvey Spacecraft  
Corp., DCX

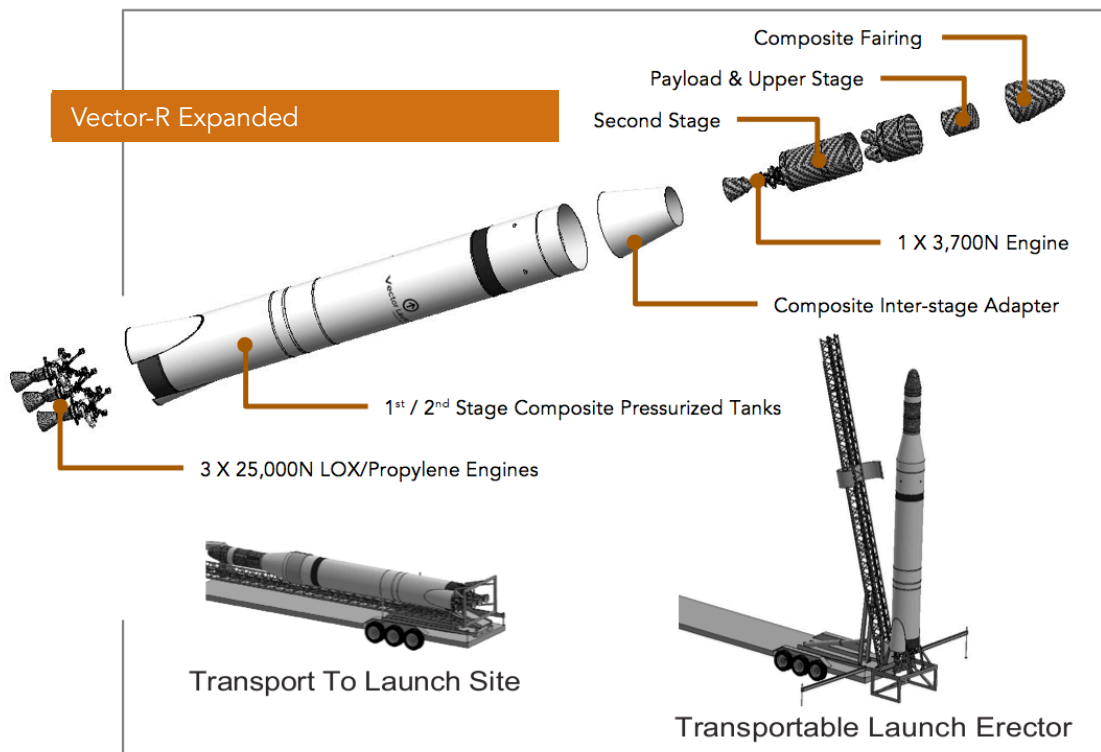


**Ken Sunshine**  
CFO  
Orbital Sciences, Virgin  
Galactic, Moon Express,  
MDA

# Results To Date

- ✓ \$2.5M In 2016 Contracts & Revenue
- ✓ \$19.5M in Proposals In Evaluation
- ✓ \$81.7M In Signed Backlog (Launch)
- ✓ Additional \$130M Backlog in Negotiation
- ✓ 11 Patents on Propulsion, Sats & Software
- ✓ **FIRST VECTOR-R FLIGHT SET FOR 2017**

## Vector-R Expanded



## Vehicle Summary

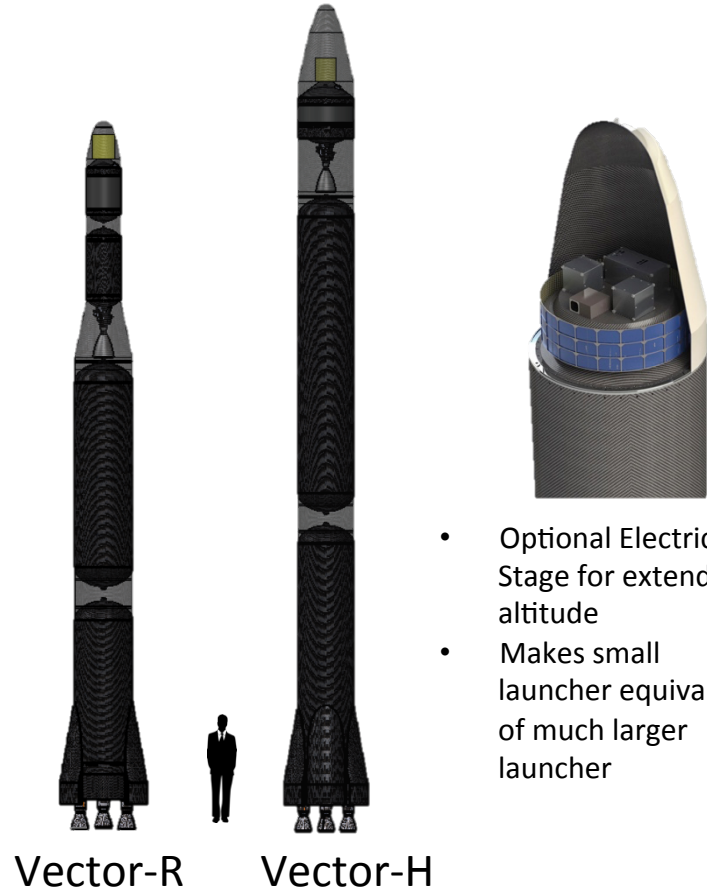
- Overall length 12 meters
- First stage diameter 1.2 meters
- Gross Lift Off Weight (GLOW): 5000 kg
- Pressurized fuel feed systems
- No explosive ordnance
- Autonomous flight termination





# Vector Launch Family

	Vector-R	Vector-H
Mass to Orbit <sup>1</sup>	50 kg	100 kg
Height	12 meters	16 meters
Cost <sup>2</sup>	\$1.5M	\$3.0M
Cost w/ 3 <sup>rd</sup> stage	\$2.0M	\$3.5M
Flight Rate / Year	100	25
Reusable 1st stage	Yes	Yes
Availability	2018	2019
Competitor	None	Electron

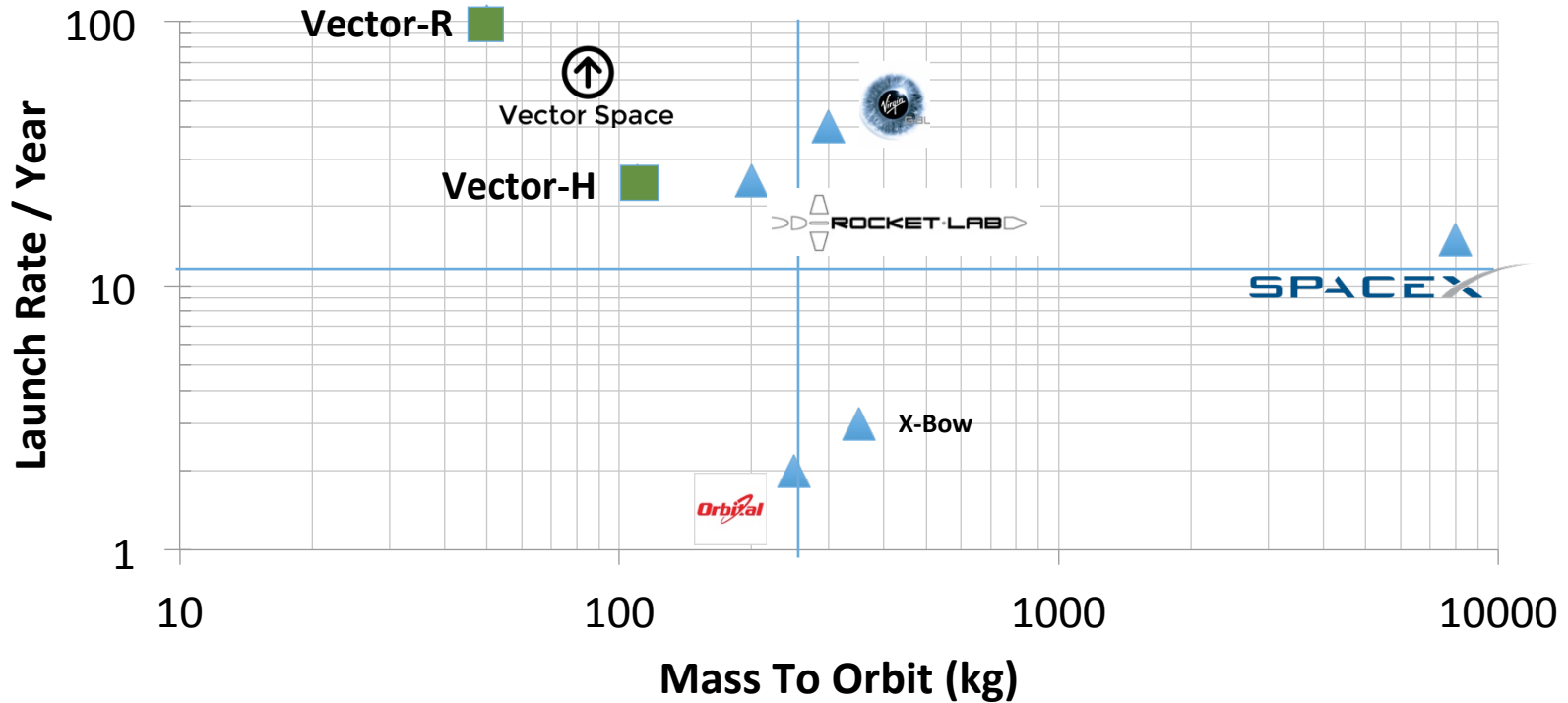


- Optional Electric 3<sup>rd</sup> Stage for extended altitude
- Makes small launcher equivalent of much larger launcher

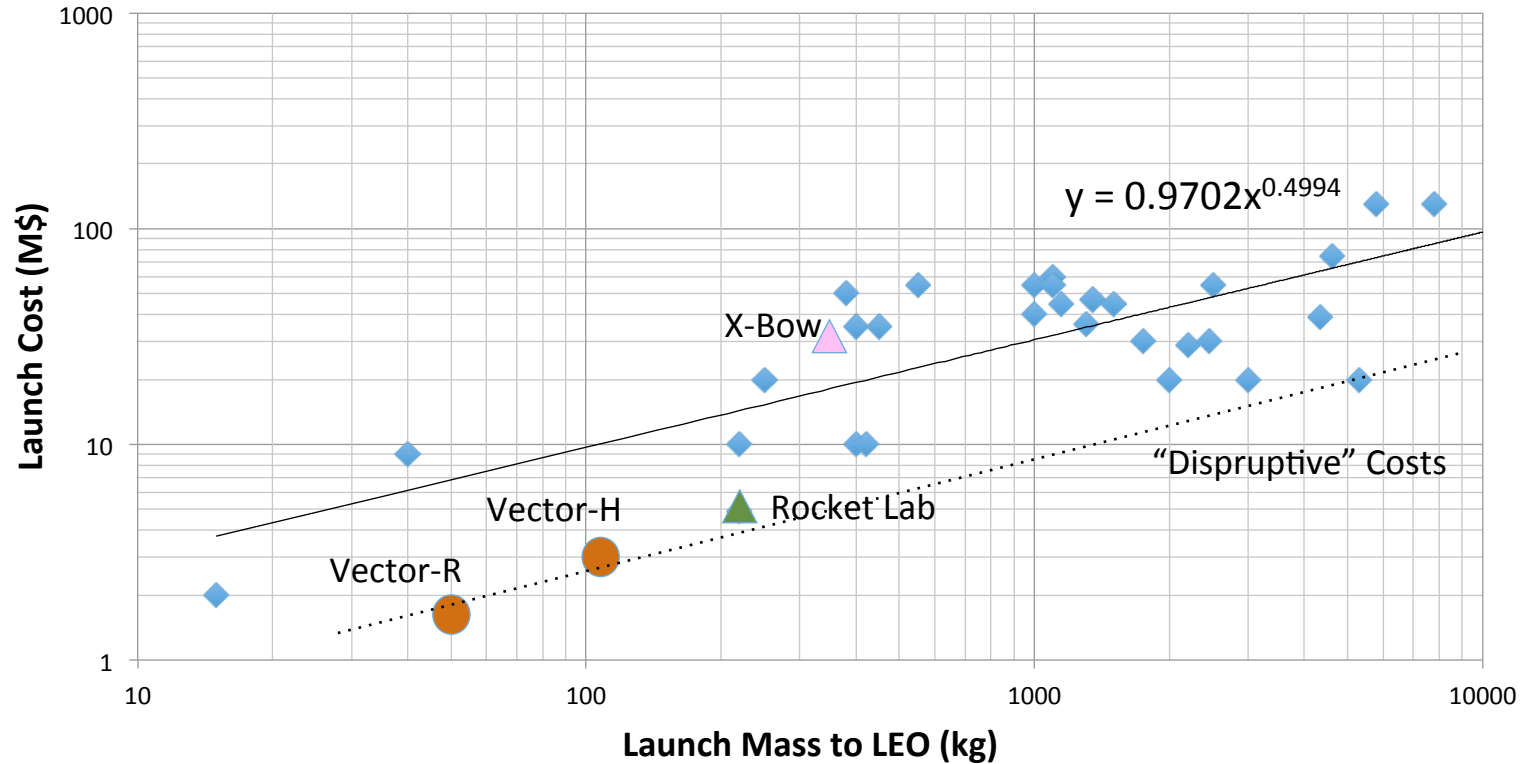
# Vector-R Is Smallest Satellite Launch Vehicle



# Vector Unique Positioning



# Vector Lowest Priced Single Launch



## VECTOR-R

50 kg to LEO  
Weekly launch  
1.5-2.5 M\$  
Lead: 3 mo.  
Alaska, CCAFS



## ELECTRON

150 kg to LEO  
Monthly launch  
5 M\$  
Lead: 24 mo.  
NZ Launch



## VECTOR-H

100 kg to LEO  
25 launches/yr  
3 M\$  
Lead: 3 mo.  
Alaska, CCAFS



## FALCON 9X

8000 kg to LEO  
10 Launches/yr  
75 M\$  
Lead: 36 mo.  
US launch



# Unique Monetization Strategy

Traditional



Primary Challenges

- High CAPEX
- Large Scales
- High Costs

Vector



Primary Challenges

- Range Flow
- Manufacturing

# First Launch – First To Market

150 kg  
5 M\$



Rocket Lab

50 kg  
1.5 M\$



Vector-R

200 kg  
10-15 M\$



Launcher One

100 kg  
3 M\$



Vector-H

25 kg  
2.5M\$



Arion 2

2017

2018

2019

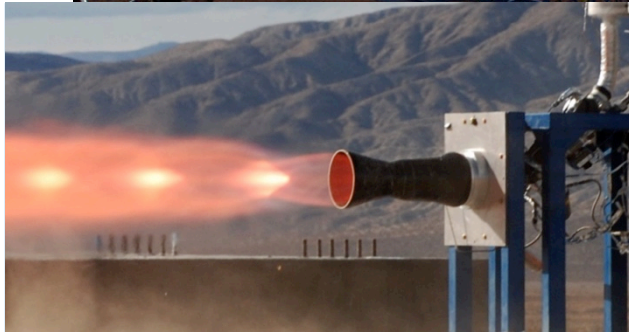
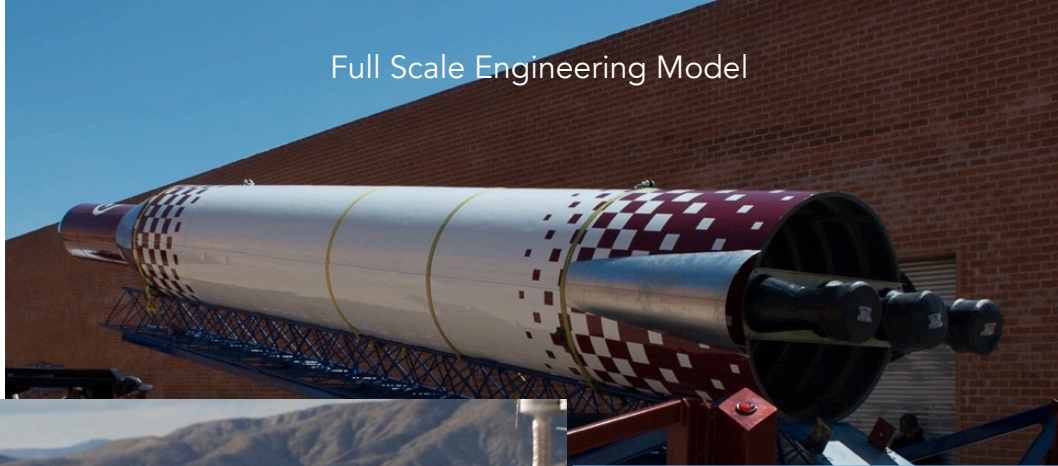
# Financial

- ✓ \$2.5M Seed Rounds 2016
- ✓ \$2.6M In New Contracts and 2016 Revenue
- ✓ Launch Manifest
  - ✓ 41 Firm Launches Signed
  - ✓ \$81.7M In Backlog (Launch/Platform)
  - ✓ Additional \$130M backlog in Negotiation
- ✓ Acquired Garvey Spacecraft Corp. (15 years Prior R&D worth \$20M)
- ✓ A Round close anticipated Q4 2016



# Technical Progress

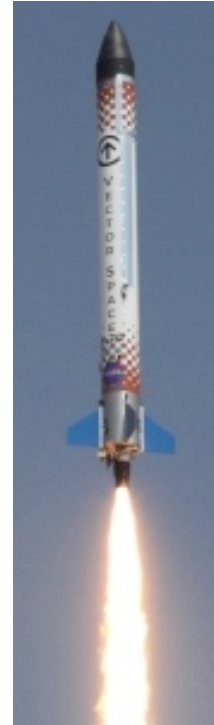
Full Scale Engineering Model



1st Stage 5000 lbf. Engine Test



2nd Stage Engine (500 lbf.) Test



P-20 Flight Test



Mobile Transporter Erector Launcher

# Facilities/Site

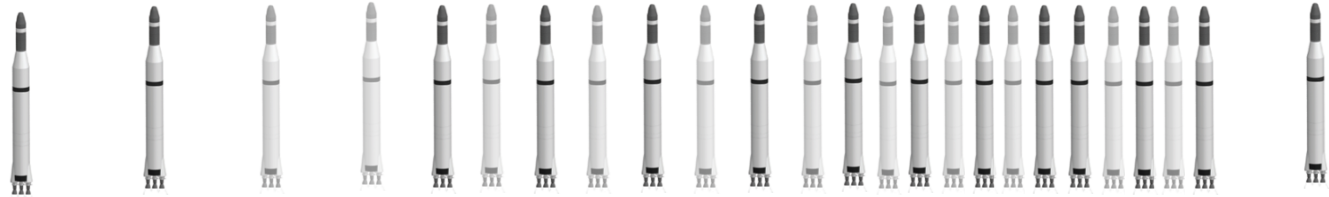
- Discussions underway with launch sites / Regulatory authorities
  - Alaska launch range coming under contract
  - NASA offering several launch pads
  - FAA regulatory process underway
  - Barge ops pathfinder September 2016
- Pima County (Tucson) In negotiation to build Vector factory in Aero Park near Raytheon
  - Bonds/Capitalization/Permitting
  - Long term lease
- Facility build out in Huntington Beach begins once A round closed



# Vector-R Flight Manifest

## Pacific Spaceport Complex Alaska (PSCA)

First Vector R  
Flight 2017



## Cape Canaveral Air Force Station (CCAFS)



2017

2018

2019

2020

# Press To Date

Activity	Results	
<p>Press Releases / Announcements</p>	<ul style="list-style-type: none"> <li>• SpaceX Founding Team Launches Vector Space Systems to Redefine Space Commerce</li> <li>• Vector Space Systems Completes Successful Test of Second Stage Engine in Advance of First Sub-Orbital Test Flight</li> <li>• Vector Space Completes 3D Printed Rocket Engine Test in Mojave</li> <li>• Vector Space Systems Completes Acquisition of Garvey Spacecraft Corporation to Enhance Micro Satellite Launch Capabilities</li> </ul>	
<p>Press Briefings</p>	<ul style="list-style-type: none"> <li>• Motley Fool – Richard Smith</li> <li>• Forbes – Alex Knapp</li> <li>• Quartz – Tim Fernholz</li> <li>• Washington Post – Christian Davenport</li> <li>• New Space Global – David Bullock</li> <li>• Aviation Week – Graham Warwick</li> <li>• Business Insider – Ali Sundermier</li> <li>• NY Observer – Robin Seemangal</li> </ul>	<ul style="list-style-type: none"> <li>• Vice/Motherboard – Jason Koebler</li> <li>• ABC News – Alyssa Newcomb</li> <li>• CNET – Luke Lancaster</li> <li>• Entrepreneur – Marty Jerome</li> <li>• BBC Live – Andrew Castle</li> <li>• Quartz – Michael Coren</li> <li>• TechCrunch – Devin Coldewey</li> <li>• Ars Technica – Eric Berger</li> <li>• CNN – Jackie Wattles</li> </ul>
<p>Coverage Secured</p>	<ul style="list-style-type: none"> <li>• Motley Fool</li> <li>• Popular Science</li> <li>• Aviation Week</li> <li>• Business Insider</li> <li>• TechCrunch</li> </ul>	<ul style="list-style-type: none"> <li>• Fast Company</li> <li>• CNET</li> <li>• BBC Live</li> <li>• Ars Technica</li> <li>• Business Insider</li> </ul>

# Action Plan

## Seed Funding

- Reduce key risks
- Engine testing
- Thruster chambers
- Vehicle design
- Range safety initiative
- Pathfinder launch
- LOI's

## Design/Manufacturing

- Team building
- Engine completion
- Flight software/Avionics
- Vehicle prototypes
- Regulatory approvals
- Manufacturing Facilities
- Sales activities

## Initial Operations

- Low rate production
- In house tank fab.
- Test launches Alaska
- Florida launch facility
- Enterprise software
- Recovery systems
- Sales activities

## Operational Launch

- Full rate production of 50-100 per year
- Vector 2.0 SLV
- Electric Upper Stages
- Extended vertical integration in sats



## **Seed Rounds 2M\$ (Q2/316)**

- 1<sup>st</sup>/2<sup>nd</sup> stage engine test
- Pathfinder launch EF-1,2
- S1 Propulsion Qual.
- Vehicle design complete
- Vehicle prototype

## **Series A 10M\$ (Q416)**

- S2 Propulsion Qual.
- S2/S1 Engine Prod.
- Tucson Factory
- Vector-R EFT-1 Flight

## **Series B 25M\$ (Q4 2017)**

- Limited production
- Vector-R EFT-2,3,4
- Vector-R Operational
- Vector-R OF-1,2,3

## **Self Funding (2019)**

- Vector-H EFT-1
- 12 / year 2019
- 48 / year 2020
- Satellite Platforms
- Space API

Thank You !