A Space-Compatible Commercial Solar Technology for Smallsats

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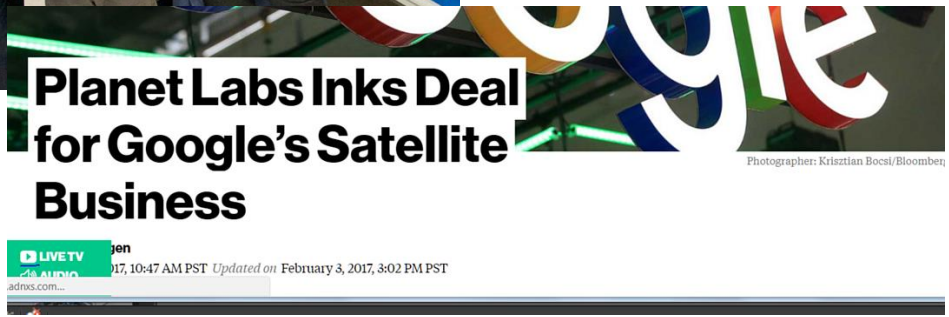
Disruption in Communications/Signal Processing

Disruption in Imaging



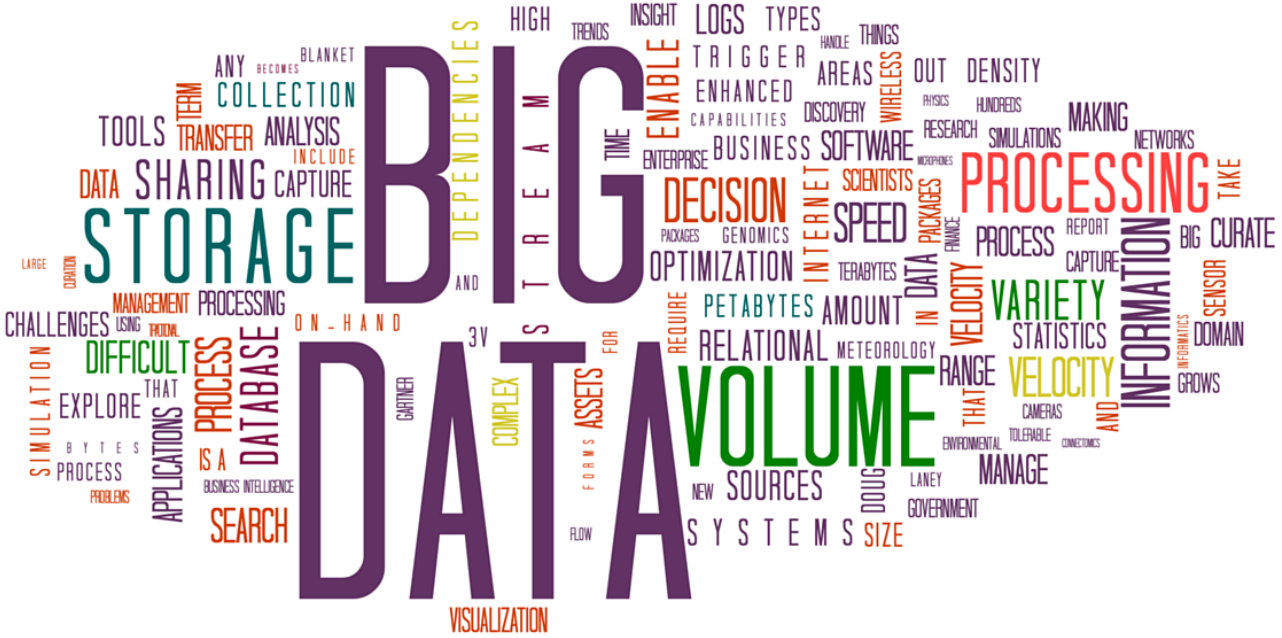
Planet Labs Inks Deal for Google's Satellite Business

Photographer: Krisztian Bocsi/Bloomberg

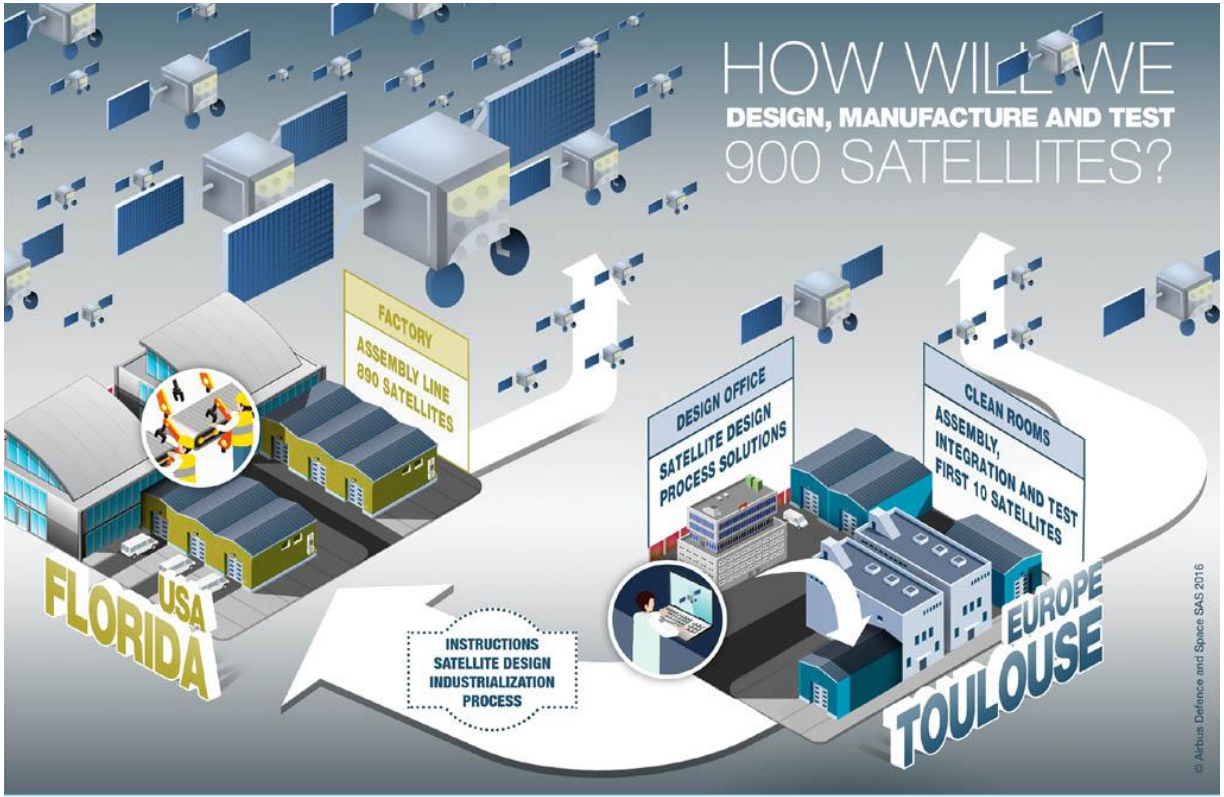
LIVE TV

017, 10:47 AM PST *Updated on* February 3, 2017, 3:02 PM PST

Disruption in Data

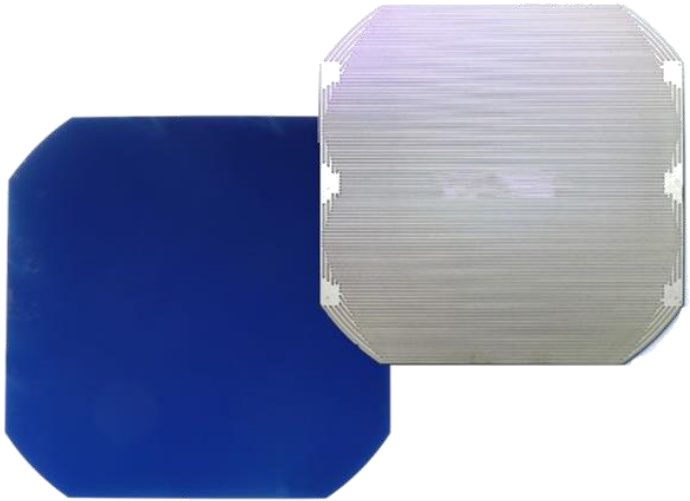


Disruption in Satellite Manufacturing

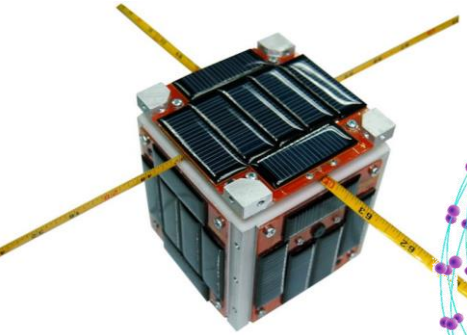


Solar Cells are a Bottleneck

- Not much change in space solar cell technology
- Still expensive, brittle, hard to work with
- Can be the most expensive hardware component!
- COTS solar cells are made from silicon – not radiation resistant

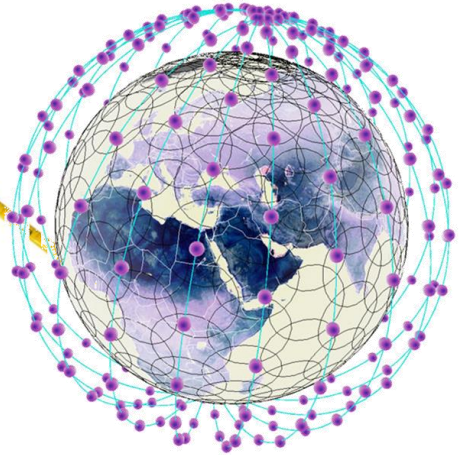


Need for Lower Cost, High Efficiency Space Solar



Cubesats
10-100W

X1000s of satellites

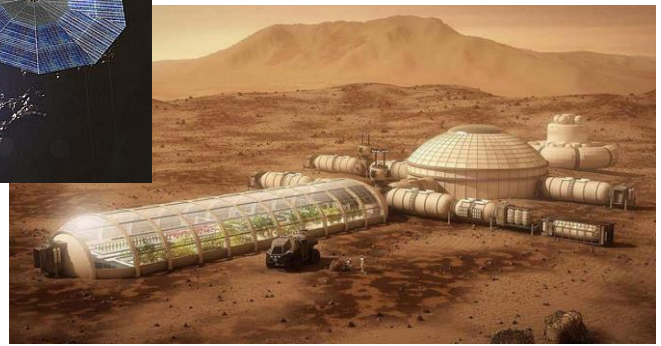


Constellations
1,000W

x1000s of satellites in next 5-10 years

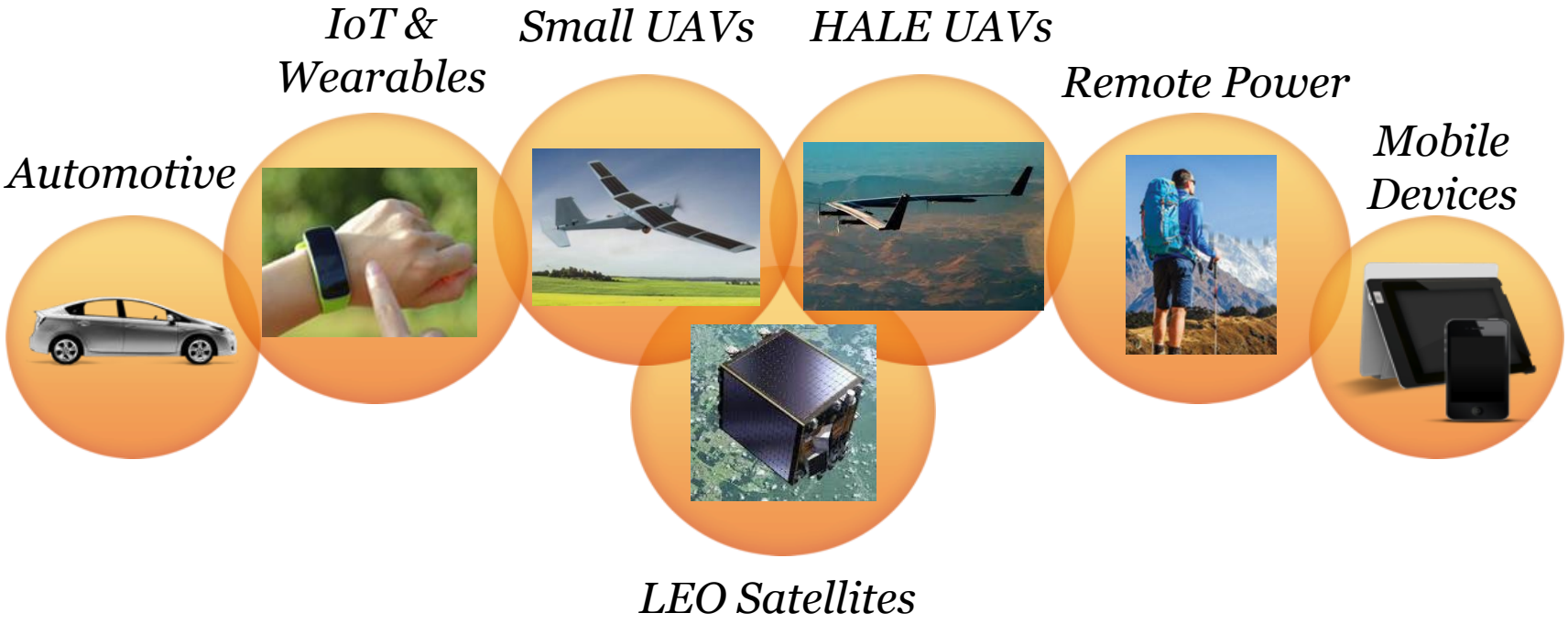
Electric Propulsion
100,000 W

x100s in 10-20 years



Moon/Mars Bases
1,000,000 W
x10s in 50 years?

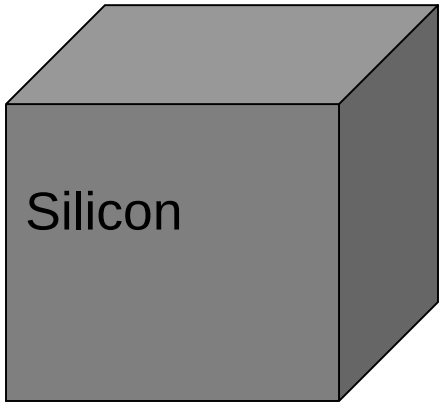
About Alta Devices

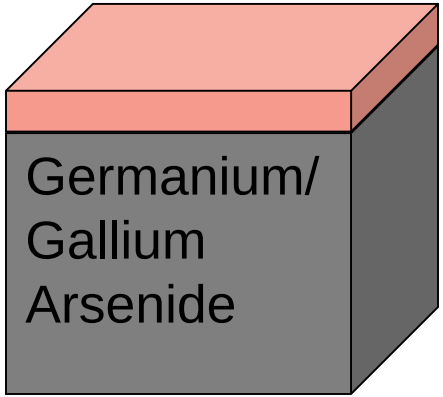


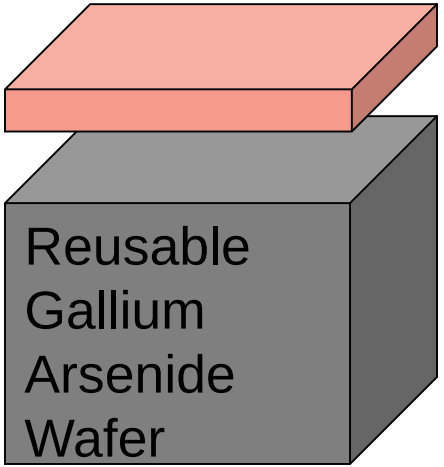
Bring high-efficiency solar to broad markets, through

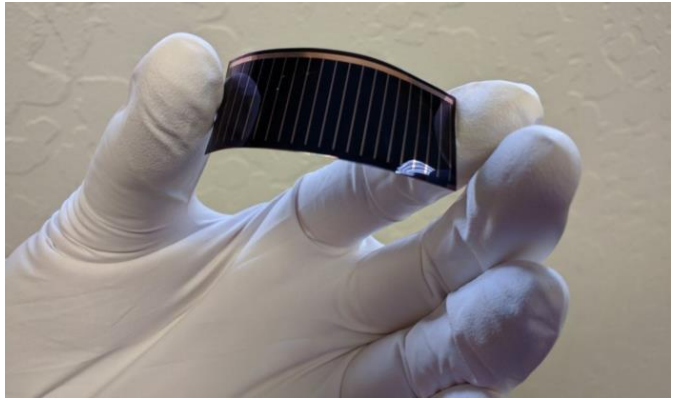
Single crystal GaAs • Epitaxial Lift Off • Advanced Cell Design

Wafer Reuse


Silicon


Germanium/
Gallium
Arsenide


Reusable
Gallium
Arsenide
Wafer

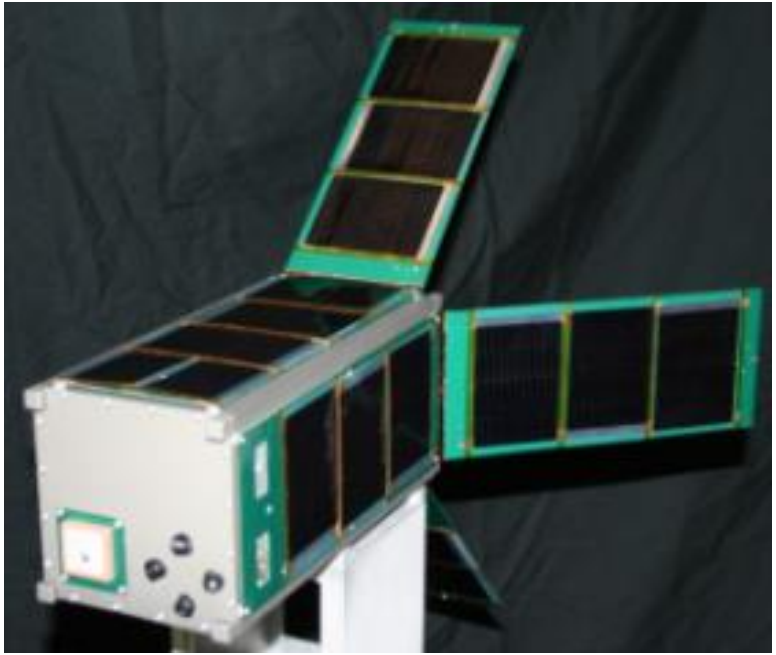


What Alta Brings to Space

- Good efficiency (20-25% AM0)
- Radiation resistance
- Light weight
- Easy to handle
- Various form factors
- Manufacturing scale

Fastbus

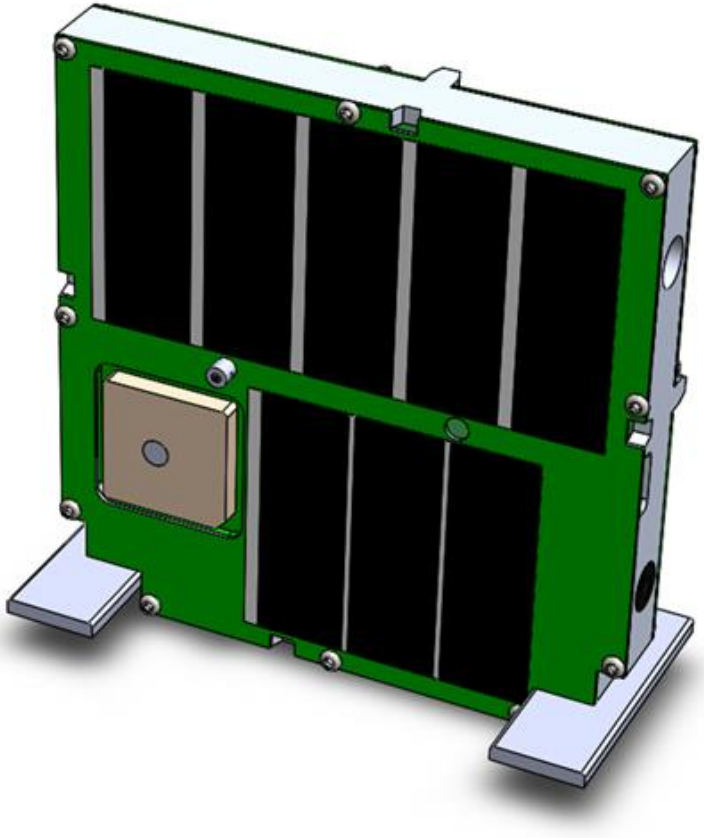
- Created by Near Space Launch
- Goal: To create a standardized CubeSat platform that will work with any payload
- Solid flight heritage



24W, 90 day mission success

Thinsats

- Virginia Space, Twiggs Space Lab, Orbital ATK, and NASA Wallops Flight Facility
- Short-term missions completed in a school year
- 5 days of orbit life
- Alta providing the solar



Summary

- New type of solar cell
- Thin, flexible, easy to handle, easy to integrate
- High volume, customizable configurations
- Building flight heritage
- Inviting collaborations from the community