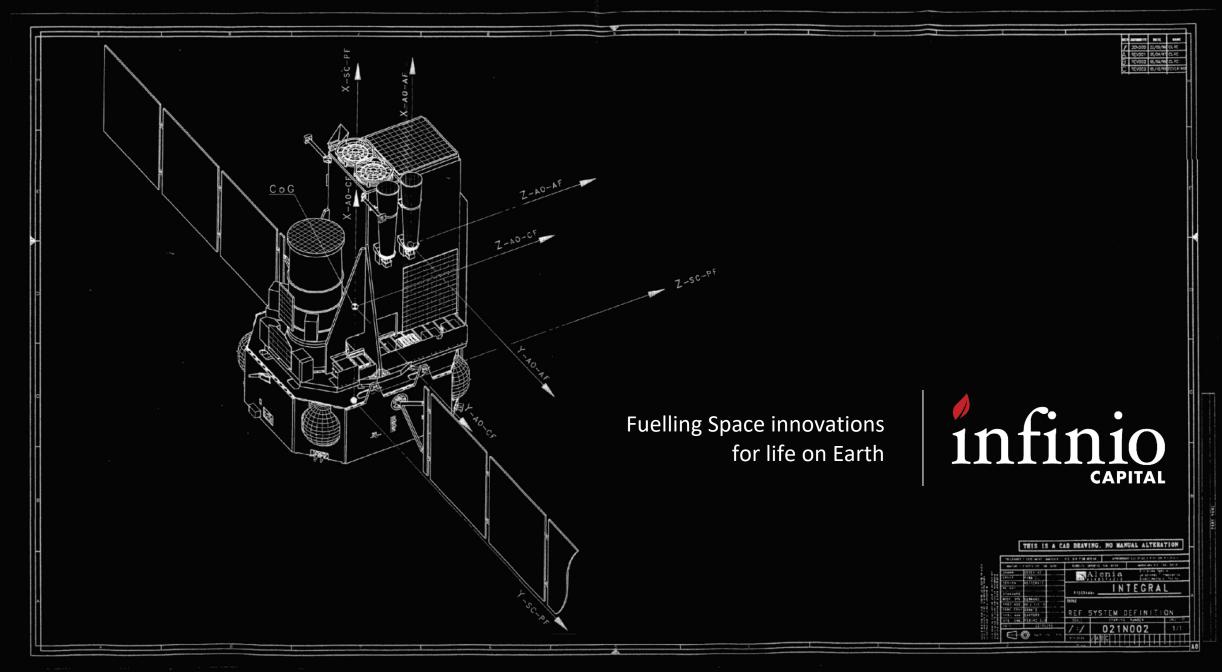
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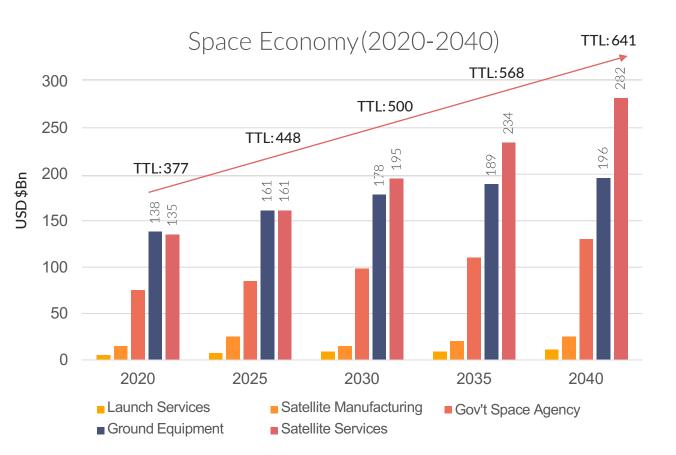
### THE SPACE ECONOMY

The Space Economy is expected to **double** in size over the next 20 years.

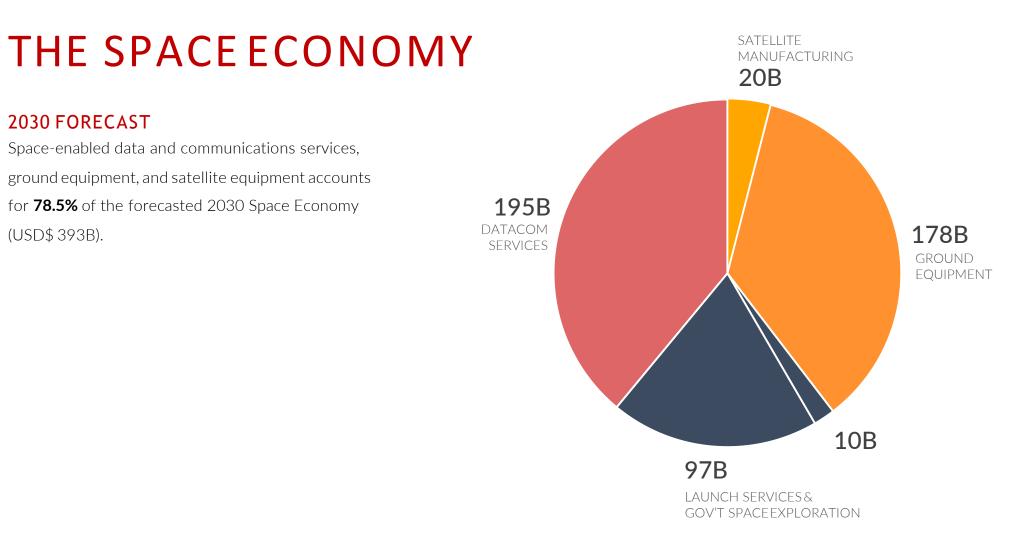
Complementary products leveraging space datacom networks; such as connected IoT, autonomous machines, and cyber security will undergo rapid growth, estimated to add an additional **USD\$350Bn** by 2040.

2040 Total Direct & Complementary Space enabled Market ~**USD\$1 Trillion** 

Haver Analytics, Morgan Stanley Research (2020)







Statista, Space Industry Report (2020)



### DRIVERS OF GROWTH

### Upstream PUSH



#### ACCESS COST REDUCTION

Advancements in rocket technology reducing launch costs 2000: **\$55k/kg** vs 2020: **\$3k/kg** 

Electronics miniaturization enables low-cost LEO constellations LEO Smallsats: **\$1m-\$5m** Conventional: **+\$500m** 

#### **Downstream PULL**



### DATA DEPENDENCY/AI

We are in data driven world at every level:

- Individuals: Customized location services (e.g., maps, autonomous mobility)
- Corporate: Real time data intelligence decisions (e.g., asset tracking, supply chain)
- Institutions: Geo Environment monitoring and Regulatory enforcement (e.g., Agriculture, Maritime, Environmental)

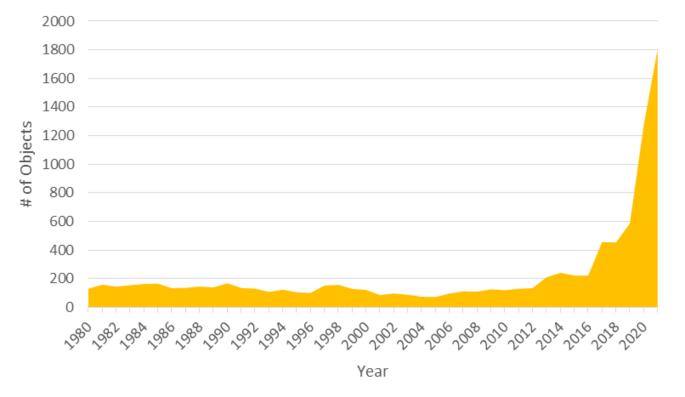


### DRIVERS OF GROWTH

Since 2016 we have seen the exponential growth of launches to Space. The democratization of Space has been lead by commercial Space startups such as SpaceX.

In the 1<sup>st</sup> Half of 2022 51% of all launches were by US companies and 46% were by US commercial Space startups.

### # of Objects Launched to Space per Year





### DRIVERS OF GROWTH

### ACCESS COSTREDUCTION

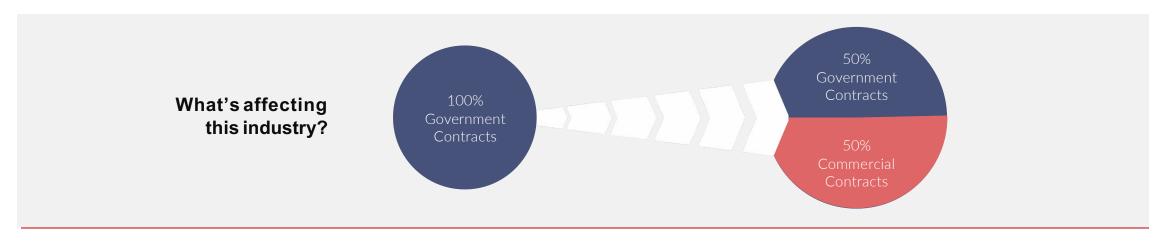
- Advancements in rocket technology reducing launch costs
  2000: \$55k/kgvs
  2020: \$3k/kg
- Electronics miniaturization enables LEO Nanosatellites (~50kg) to provide global coverage & lower latency vs GEO satellites (>1000 kg)
- LEO orbits reduce radiation exposure, enabling use of COTS components to reduce space infrastructure costs

### CONNECTIVITY NEEDS

- Expansion of Edge Networks & IoT devices (e.g., smartdevices)
- Emergence of Smart Machines and M2M communications (e.g., robotics, unmanned vehicles, automation)
- Growth of Digital Economy leading to virtual business models untethered from developed cities. (35% of world does not have broadband access)

### DATA DEPENDENCY/AI

- Corporate decisions increasingly driven by real time localized data (e.g., asset tracking, metrology, supply chain management)
- Changing Geo Environment creating new challenges which require time sensitive macro data monitoring (Agriculture, Environmental change)
- Dependence on increasingly localized data sets drives need for inter-regional data transport

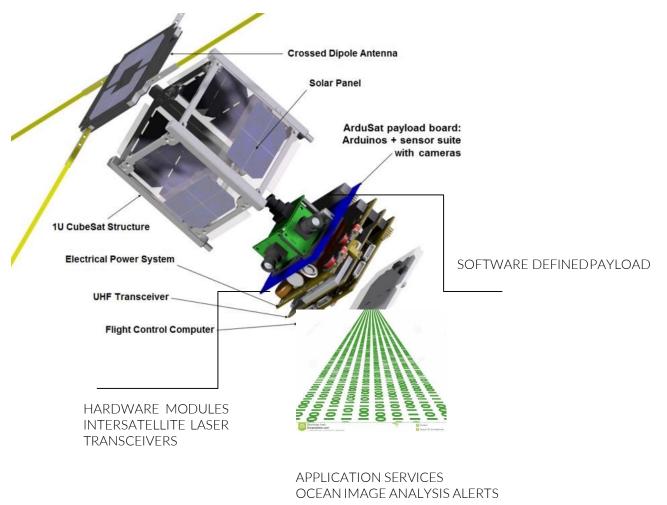




# Closer Look at a Spacecraft

Many components you might be familiar with

Basically a computer in the sky





# Don't Forget the Ground

Digital Transformation/Virtualization is hitting the ground segments like a storm, just as it did enterprise computing/storage 15 years ago





Large Teleport



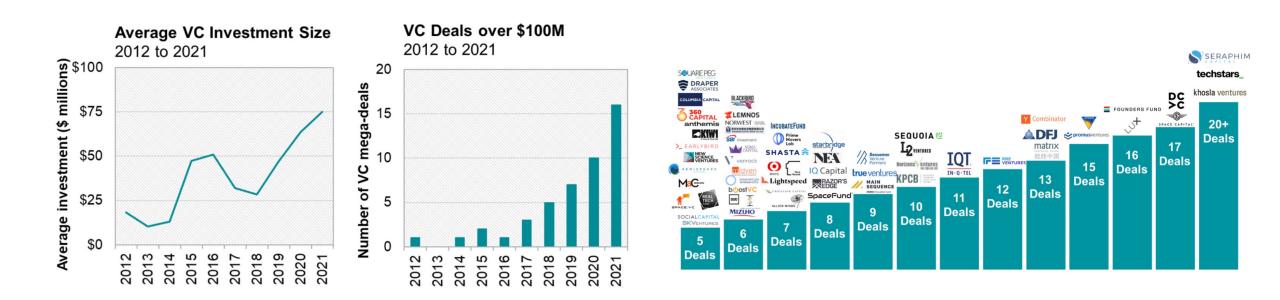
Ground Segment Computer Network

Starlink Antennas



## **TURNING TO FINANCING -**

### Venture Capital Started in 2010; large upswing starting 2018



Source: Bryce Tech



## HISTORIC SPACE INDUSTRY EXITS

### 2016-2021 EXIT HIGHLIGHTS

#### Total # of Exits: 40

**Total Exit Consideration:** +USD\$7bn (70% of transactions undisclosed)

**Biggest Market:** USA (68% of exits, 92% of Exit Value)

Exit Type: Trade Sale/M&A (87.5% of exits)

IPO (94% of Exit Value)

Trade Sale Exit Range: Low: USD\$2.6m High: USD\$145m



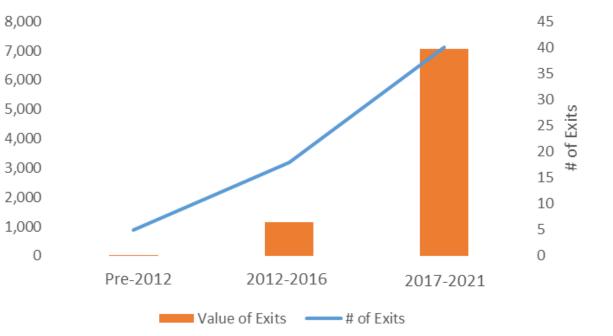
ASTRA

Public Company: NASDAQ April 2021 Exit Value:USD\$1.8bn



Acquired: By AAC Microtec Dec 2017 Exit Value:USD\$37m SPAC

Space Exits - Historic

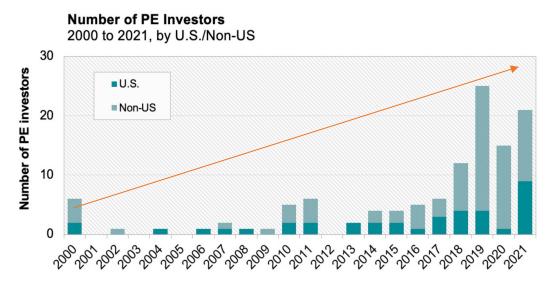




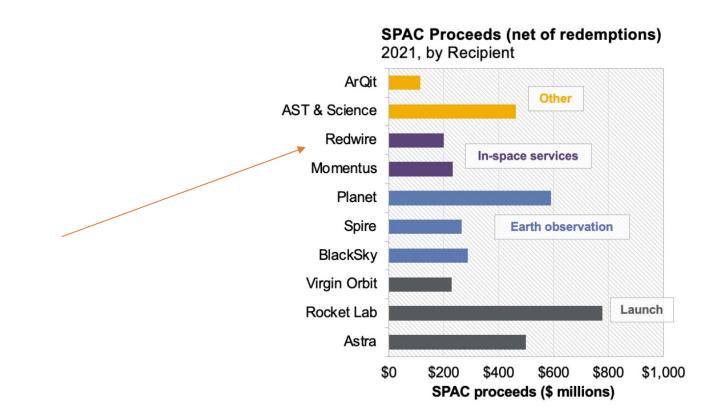
USD\$ millions

## **Private Equity Players Entering**





## What about SPACs?



## Conclusion

Private investment in space is here to stay Space funders multiplying, becoming more diverse Like in any market, diversification mitigates risk

**QUESTIONS?** 





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