



Small Satellite Market Observations

Key metrics for continued market success

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Overview of Past SEI Nano/Microsatellite Market Assessments



Past Market Assessments: 2010 - 2014

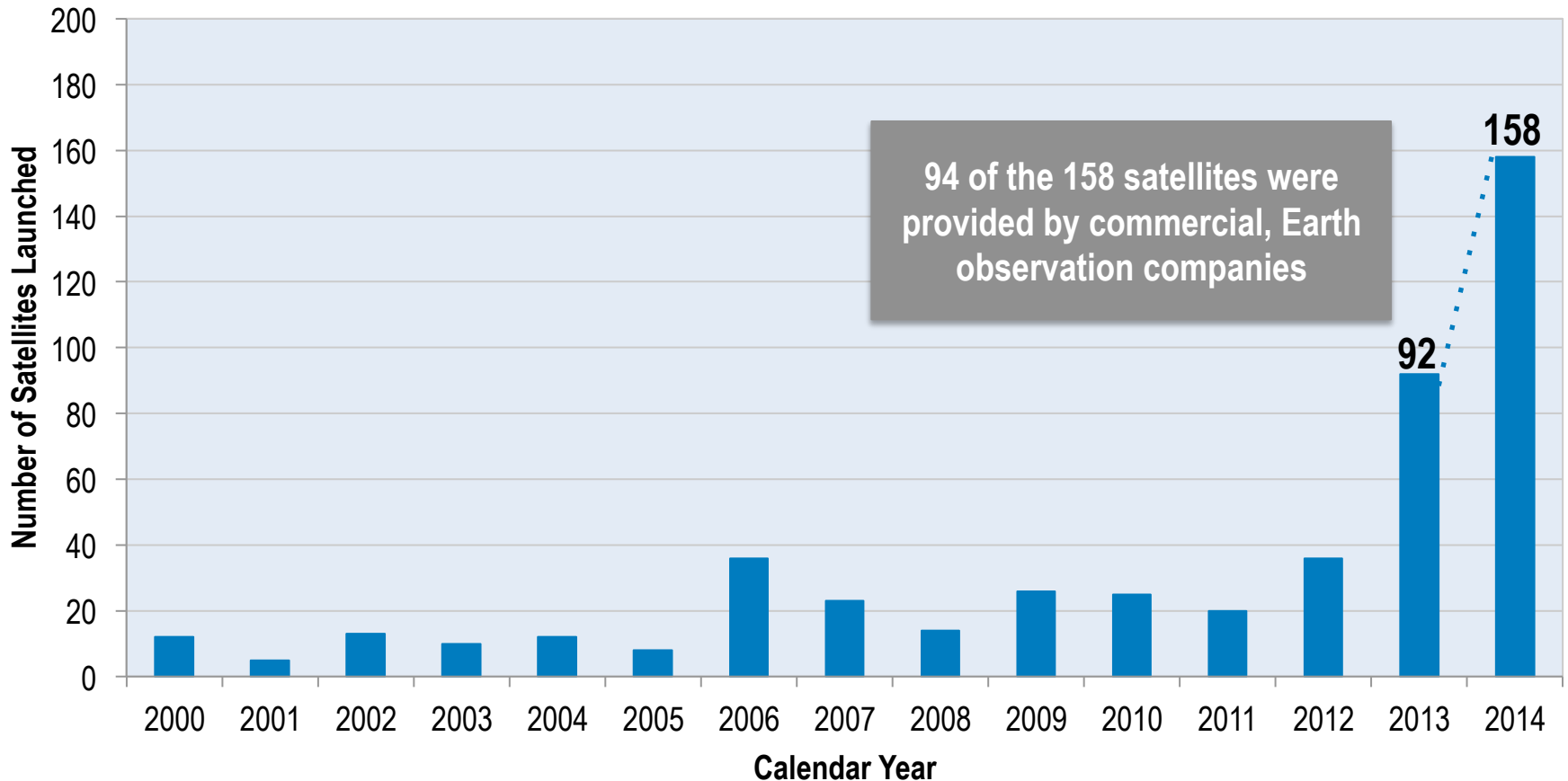
Recent Market Assessment: February 2015

- SpaceWorks has monitored the small satellite industry since 2008 and produced nano/microsatellite market assessments since 2010
- **All of the past assessments are available online at www.spaceworksforecast.com**

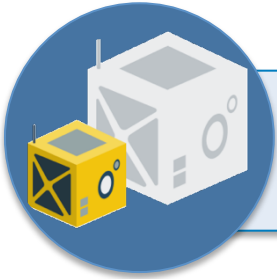
Nano/Microsatellite (1 – 50 kg) Launch History



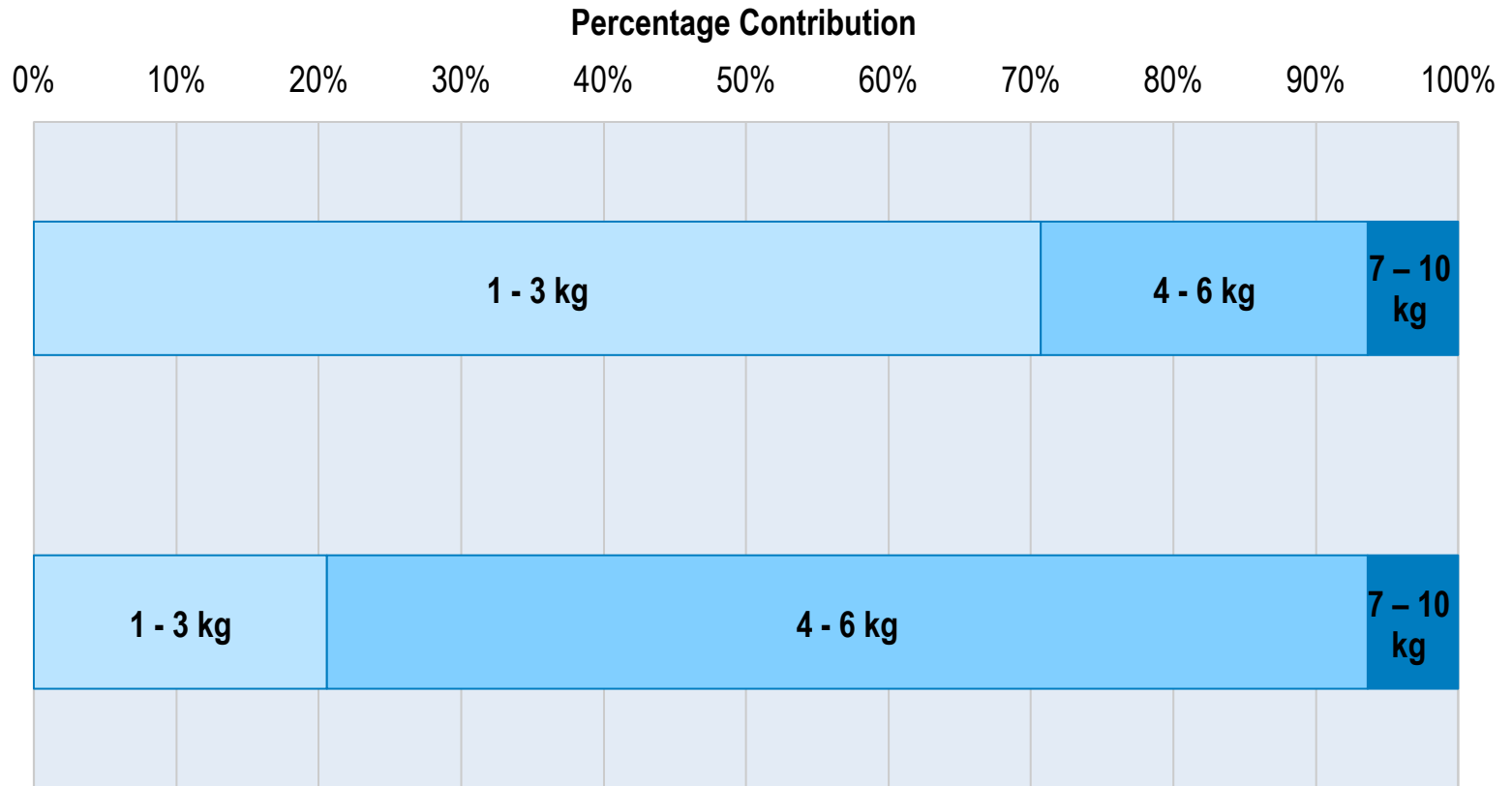
SpaceWorks projected 140 to 143 nano/microsatellites would launch in 2014; 158 satellites actually launched



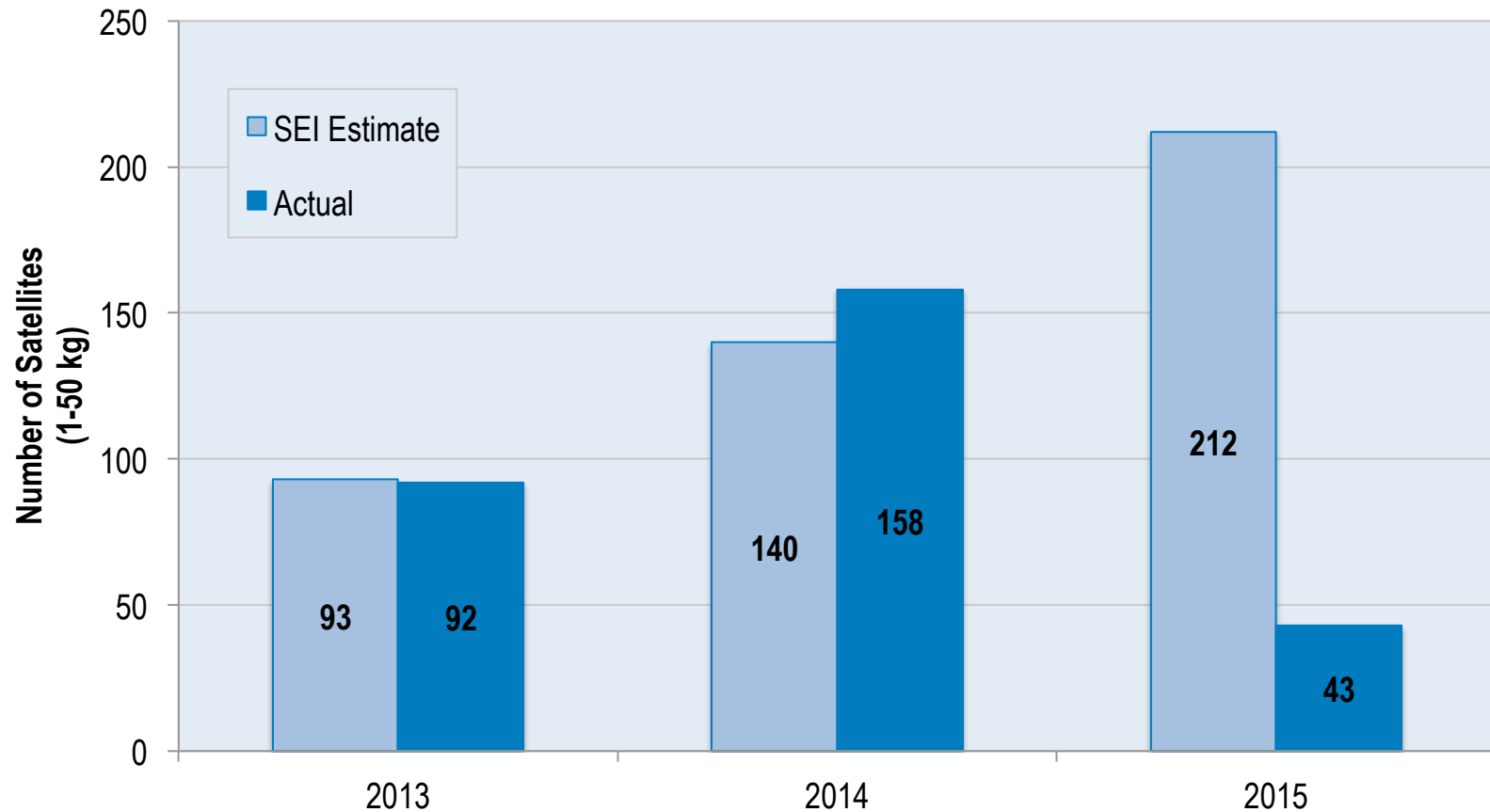
Nano/Microsatellite (1 - 50 kg) Mass Trends



1U (~1 – 3 kg) satellites were scarce in 2014; 3U (~4 – 6 kg) satellites are becoming increasingly popular



Nano/Microsatellites Launched (2013 – Aug. 2015)



43 nano/microsatellites (1-50 kg) have launched so far in 2015; by this same time last year, 123 satellites had already launched

Key Metrics for Nano/Microsatellite Market Success



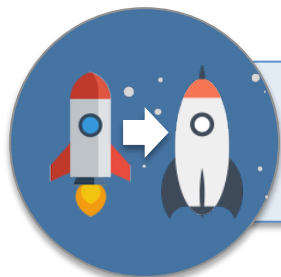
Launch Vehicle
Flexibility



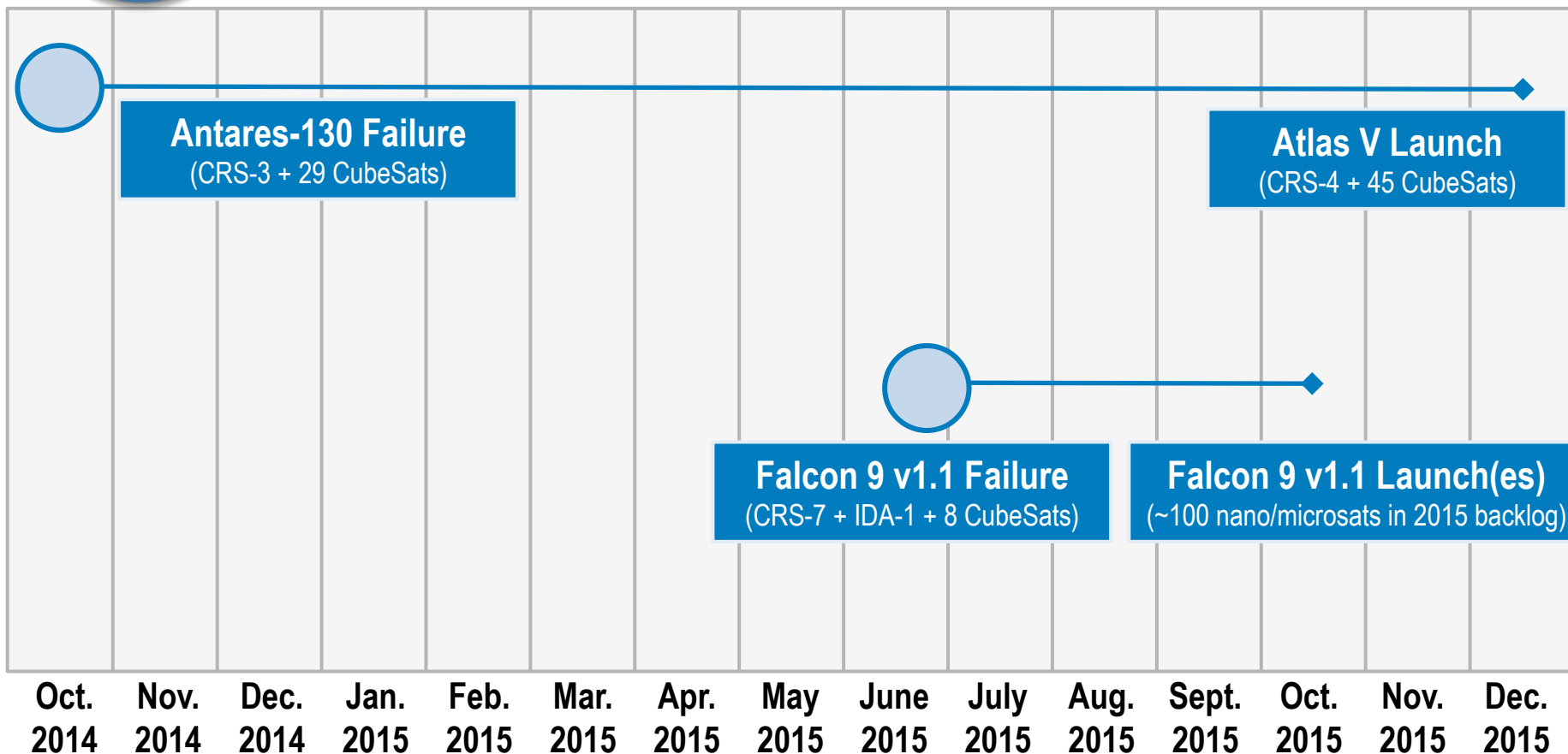
More Launch
Vehicle Options

Barriers currently exist that could prevent the nano/microsatellite (1-50 kg) market from reaching its full potential

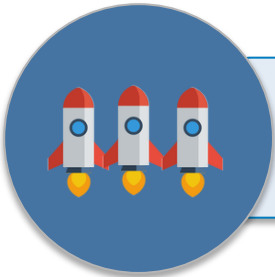
Metric #1: Launch Vehicle Flexibility



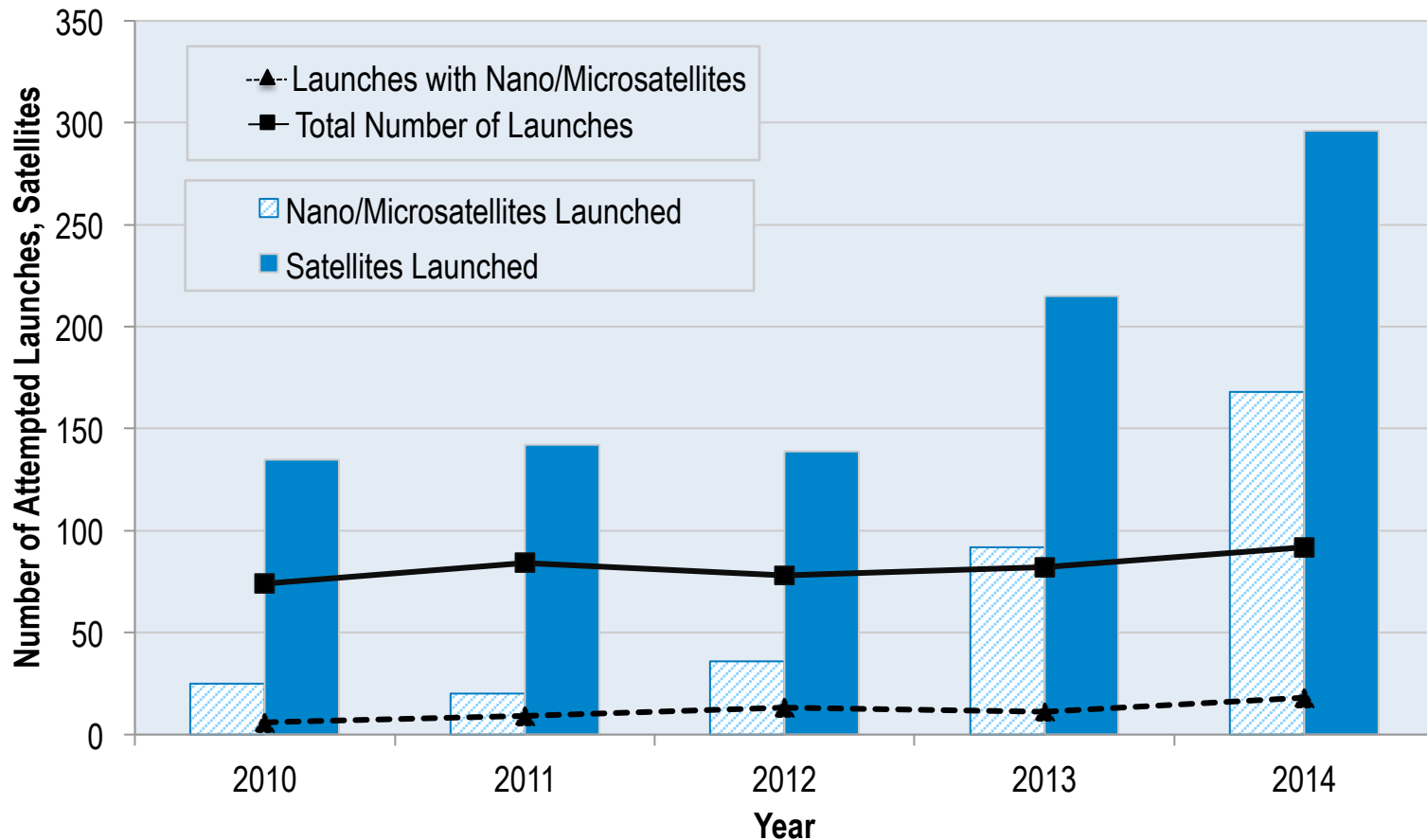
Failures can significantly impact launch timelines; flexibility is limited



Metric #2: More Launch Vehicle Options



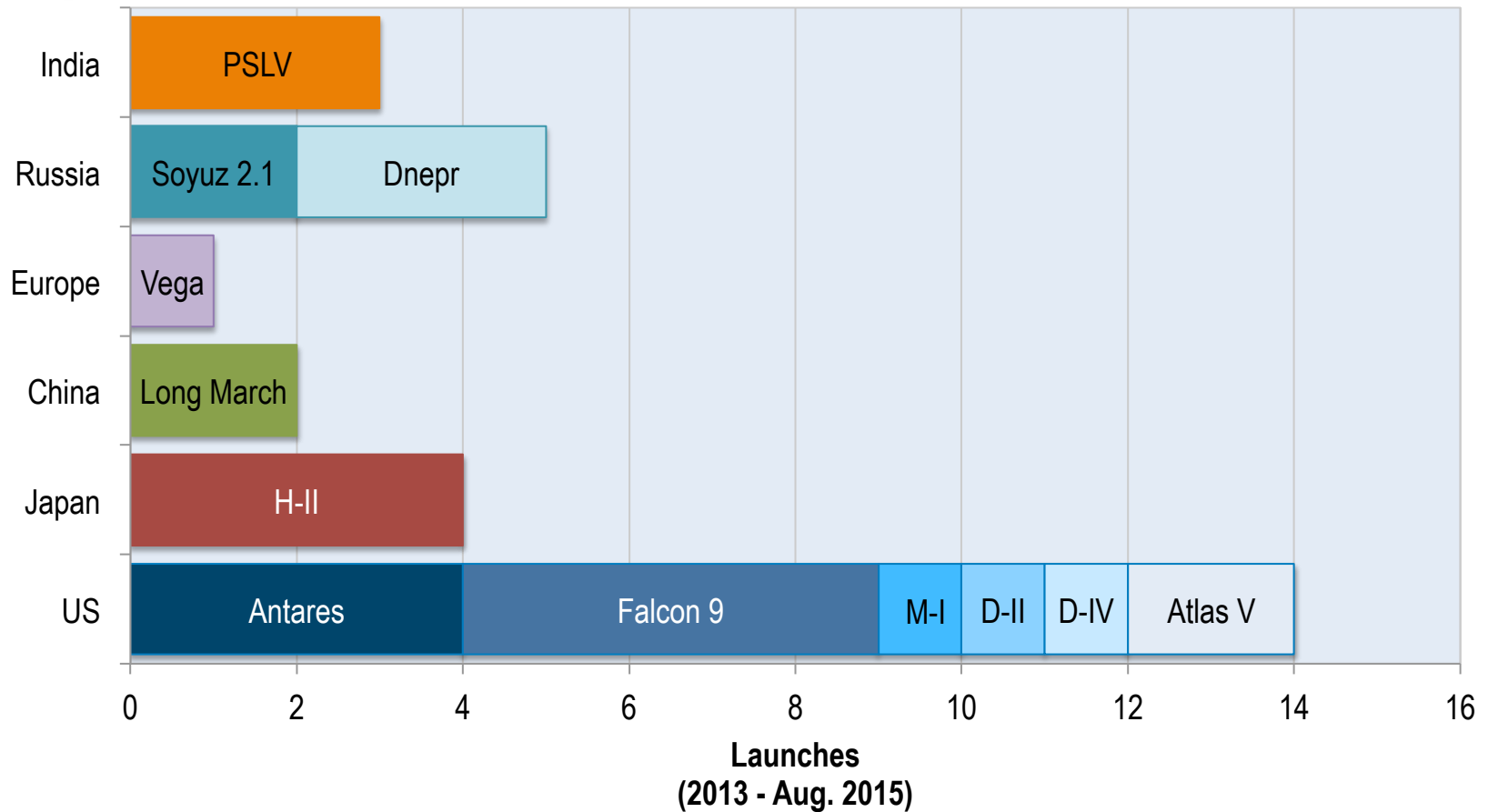
In the last five years, less than 15% of attempted launches had nano- and microsatellite (1-50 kg) payloads onboard



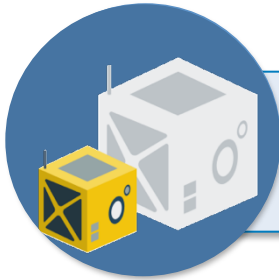
Metric #2: More Launch Vehicle Options



From 2013 – Aug. 2015, nearly 300 nano- and microsattellites were launched by 12 launch vehicle families



Small Satellite Launch Vehicles Continue to Emerge



~20+ small satellite launch vehicle companies emerged to address launch issues facing small satellites



Compared to small satellite startups, little investment is reaching new commercial launch companies



Initial operational capability (IOC) dates continue to slip



Small satellite launch vehicle companies will need unique services, frequent launch opportunities, and competitive prices to succeed

Conclusions

- 2014 was a busy year: **158 nano/microsatellites launched**; market dominated by commercial, Earth observation satellites
- Operators starting to favor larger, more capable satellites
- **The launch market as it relates to small satellites is imperfectly competitive**; launch failures can significantly influence the industry's growth
- Less than 15% of launches in a given year include nano/microsatellites; launches are offered by a similarly small number of vehicles
- **Small satellite launch vehicle companies will be poised for success if offerings, launch frequency, and prices are better than status quo**

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