



# AVIO

## Star Conference Presentation

*Milan, 20<sup>th</sup>-21<sup>th</sup> March 2019*

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# Avio: a European leader in Space Launch

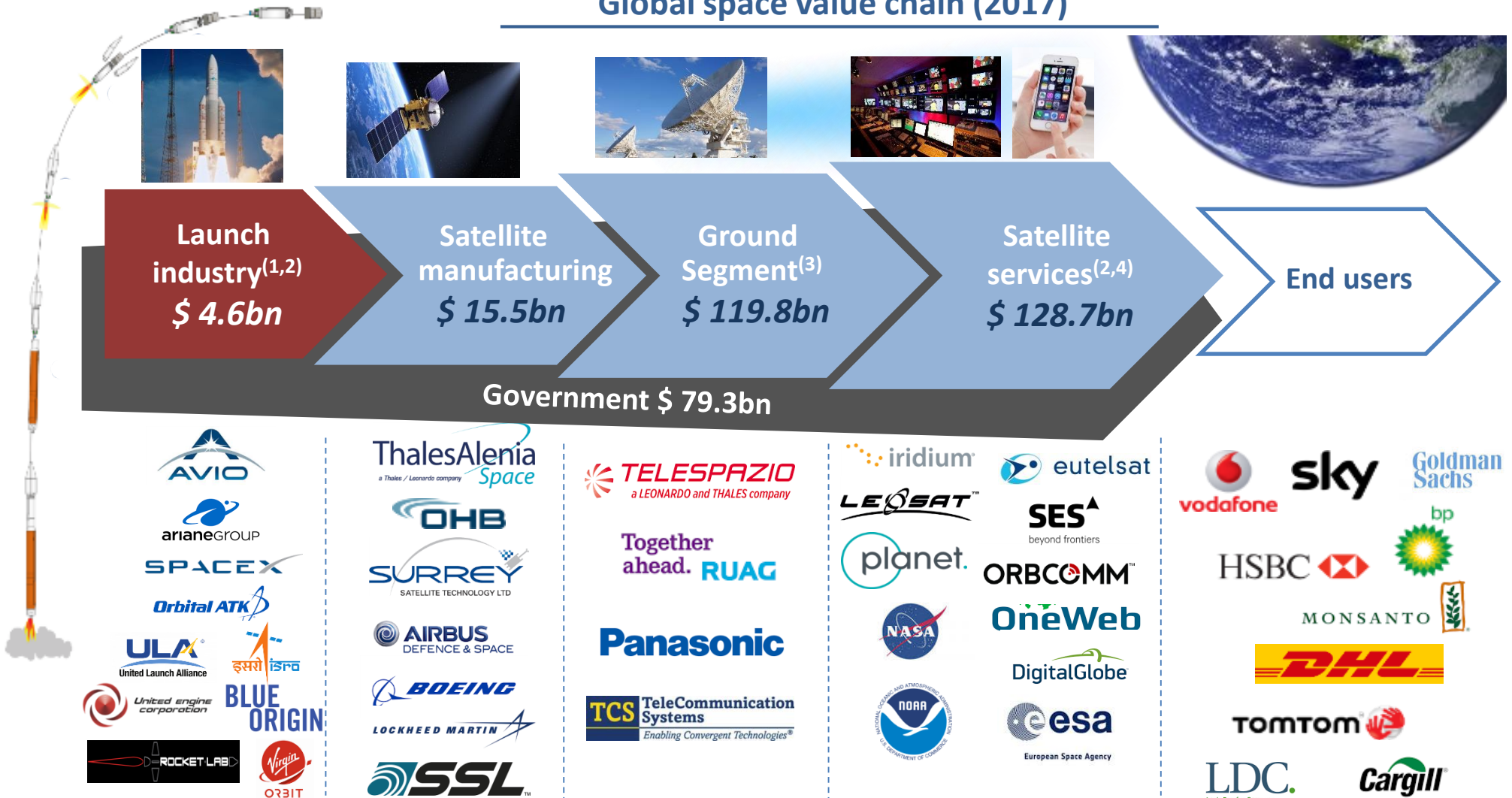


-  Prime Contractor
-  Partner/Supplier
- Public company, 320M€ Mkt Cap
- 900 employees, ~390 M€ revenues
- >65% free float, no controlling shareholder
- 4% Management share



# Launch is the upstream part of the Space industry

## Global space value chain (2017)



Source: Satellite Industry Association (2018)

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- (1): Includes launcher manufacturing and launch service activities  
 (2): Commercial services revenues only  
 (3): Includes GNSS chipsets and Related  
 (4): Includes commercial humanflight

# Space launch has three main sub-segments by type of orbit



## GEO - Geostationary Earth Orbit

Altitude 36,000km



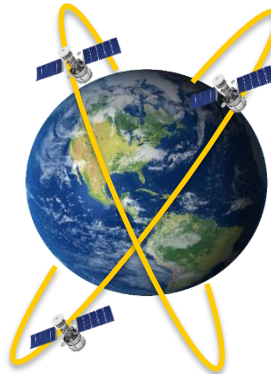
Annual avg volume :  
30 launches, 160 tons



Mature market

## MEO - Medium Earth Orbit

Altitude 3,000-22,000km



Annual avg volume :  
12 launches, 19 tons



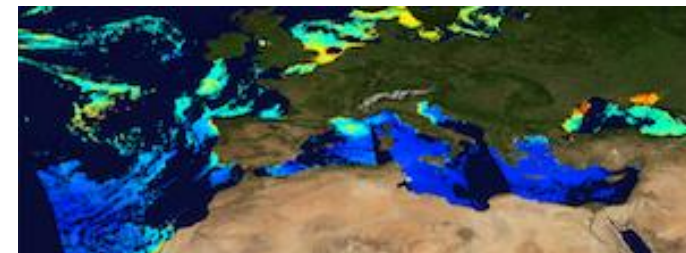
Niche market

## LEO - Low Earth Orbit

Altitude 500-2,000km



Annual avg volume :  
55 launches, 60 tons



Booming demand

# Avio works across the full spectrum of the European offer side



## Avio activity by main product lines

**Ariane 5 - Heavy launcher**  
(Avio Industrial partner)  
40% of Revenues



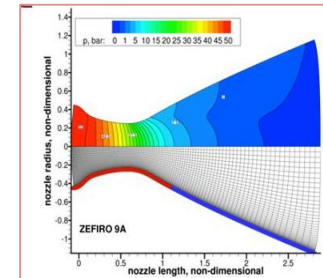
**Vega - Light launcher**  
(Avio Prime Contractor)  
55% of Revenues



## Avio activity by type of business

**Research & Product Development**

30% of Revenues



**Propulsion and Launcher Production**

70% of Revenues



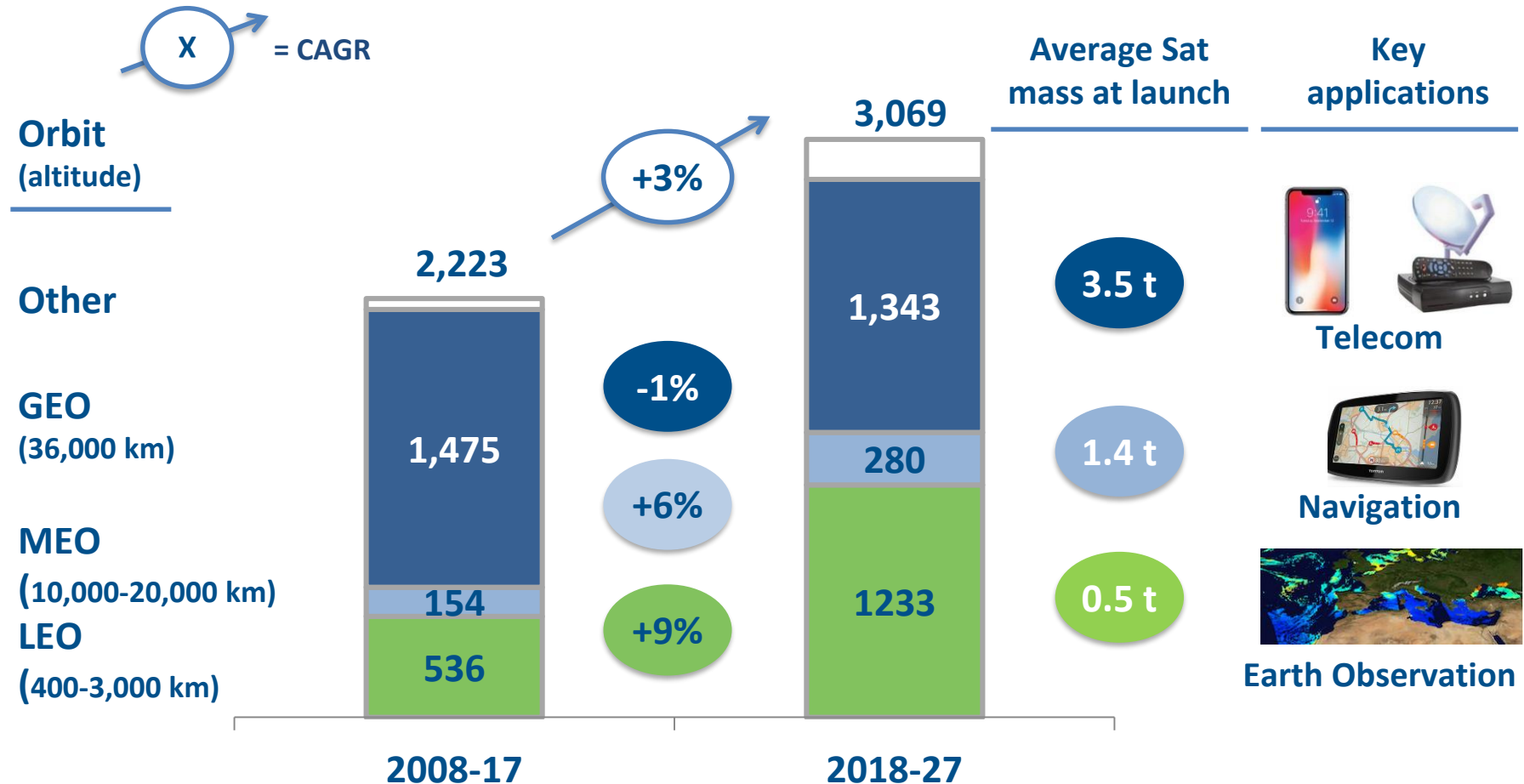
 **esa** European launchers



# For the next decade: stable launch demand in MEO-GEO, fast-growing in LEO

## World Market

### World total mass at launch (tons)



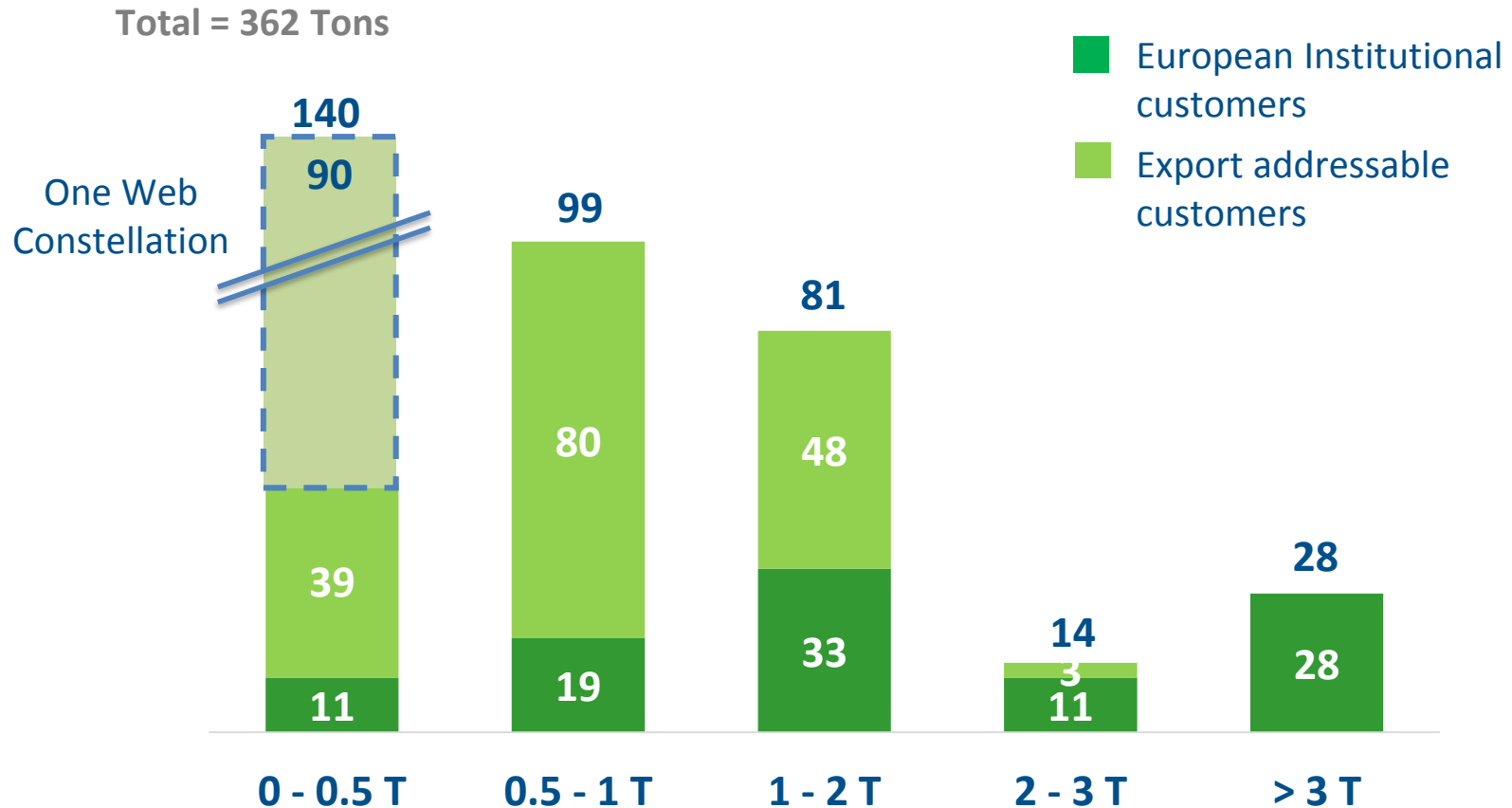
Source : Avio estimate on Euroconsult data; Excludes sats with mass <50 Kg

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# Fast growing LEO demand concentrated on satellites <2 tons in mass



## 2018-27 Potential LEO and SSO market outlook (launch mass in tons)



SOURCE: Avio estimate on Euroconsult data; Excludes the American, Chinese, Russian, Japanese institutional markets and Sats with mass <50 Kg

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# LEO demand growth and competitive environment

## Overview of LEO Launchers (capacity in tons)



*Dedicated launch*



*Rideshare*

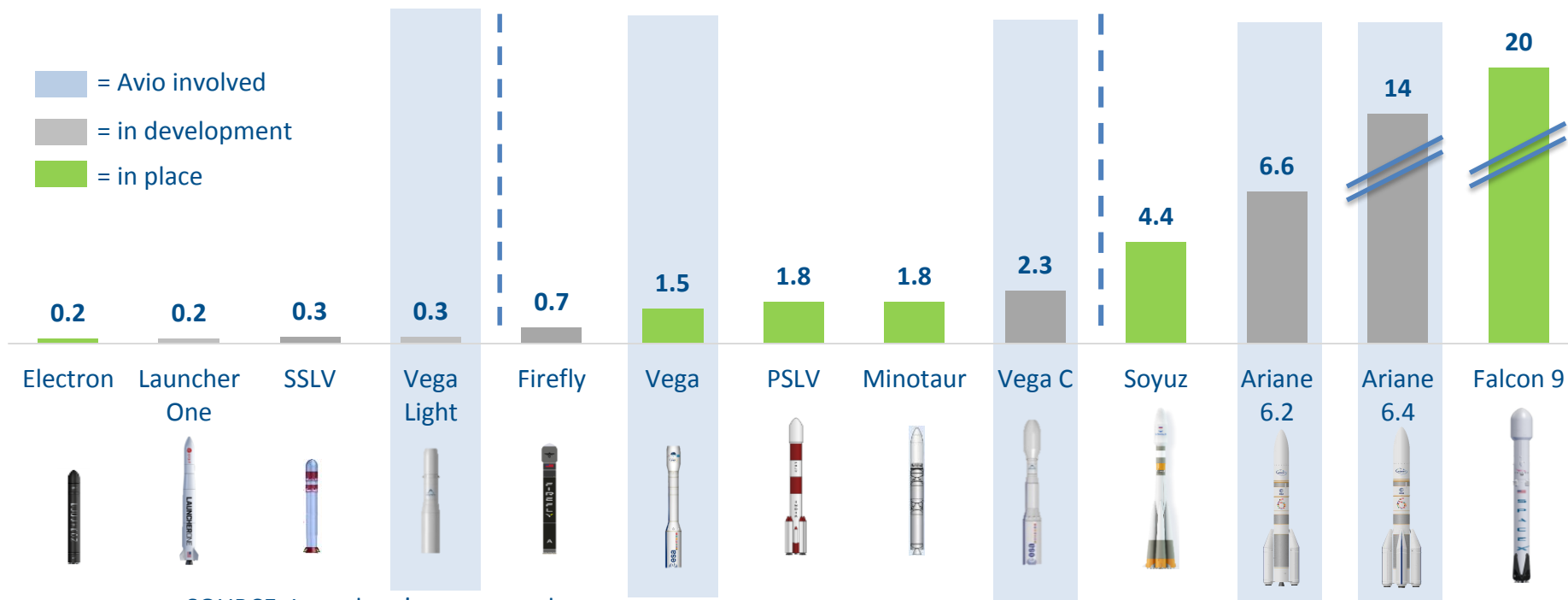
Avg mass 0.5 tons

### Mini Launchers (<0.5 tons)

### Small Launchers (>0.5, <2.5 tons)

### Large Launchers (>2.5 tons)

- = Avio involved
- = in development
- = in place



SOURCE: Launchers' user manuals

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# European Launchers evolving to meet market demand



Today

Tomorrow\*



1.5 Tons  
LEO

>3 Tons  
MEO

10.5 Tons  
GEO

2.3 Tons  
LEO

>5 Tons in  
LEO/MEO/GEO

10.5 Tons  
GEO

Broader  
product range

Lower  
costs

More  
flexibility

P80



Vega



Soyuz

P230



Ariane 5

P120



Vega C



Ariane 6.2

P120



Ariane 6.4



Vega  
Dual Payload



Fregat  
Adapter



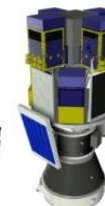
Ariane 5  
Dual Payload



Vega C  
Dual  
Payload



Vega  
Piggyback



Vega  
SSMS



Space  
Rider



Ariane 6  
Rideshare



Ariane 6  
Dual  
Payload

\*SOURCE: Ariane 6 user manual, Web Search

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# Revolutionary automation, advanced materials, simplification approach for main stage (P120) production



*First flight items production*

Vega C MF  
Ariane 6 MF

*P120 Full volume production*

2018

2019

2020

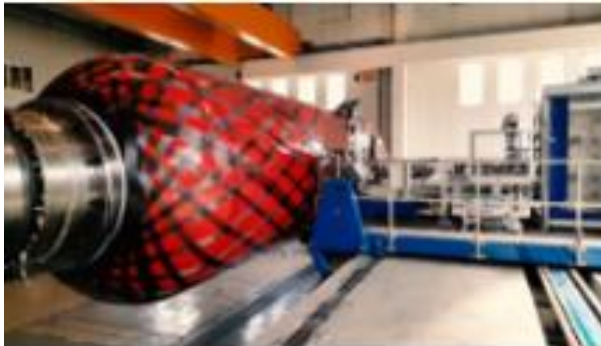
2021

2022

2023

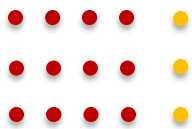


Vega Ariane 5



Vega C Ariane 6.2 Ariane 6.4

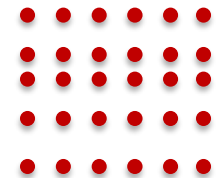
**P230 P80**



*Single main-stage, higher volumes*

*Economies of scale*

**P120**





# Motors for Vega C and Ariane 6 ready



✓ Vega C  
Launcher CDR  
successful



Avio  
developed  
TP LOX

Vinci

Avio  
developed  
TP LOX

Vulcain

Z40

P120

P120

Vega C

Ariane 6



SOURCE for Vinci and Vulcain tests: <https://www.youtube.com/watch?v=HjeEaW9nSgk>; <https://www.youtube.com/watch?v=t7TAGtIRmN8>  
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# Launch pads getting ready for Vega C and Ariane 6



**Ariane 6 ELA 4 launch pad almost ready\***

SOURCE: CNES and ESA twitter pictures

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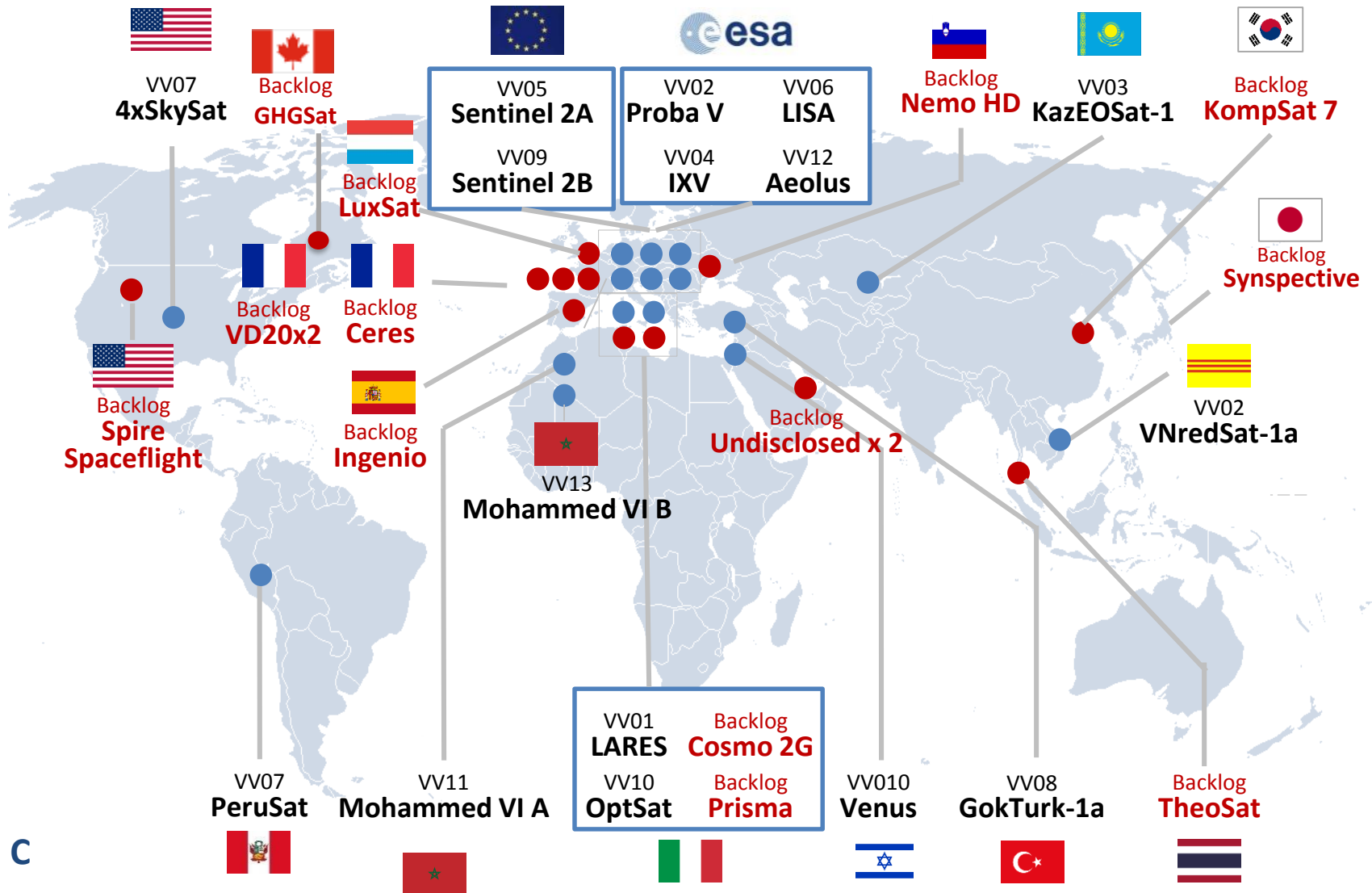
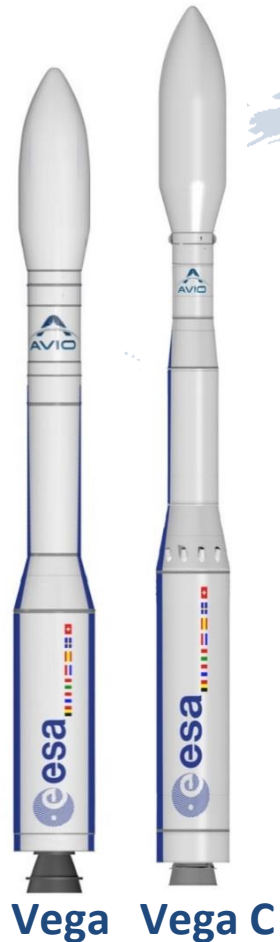


**Vega C Modified ZLV ready**

# Global customer base for Vega since its 2012 maiden flight



● = Backlog  
● = Flights



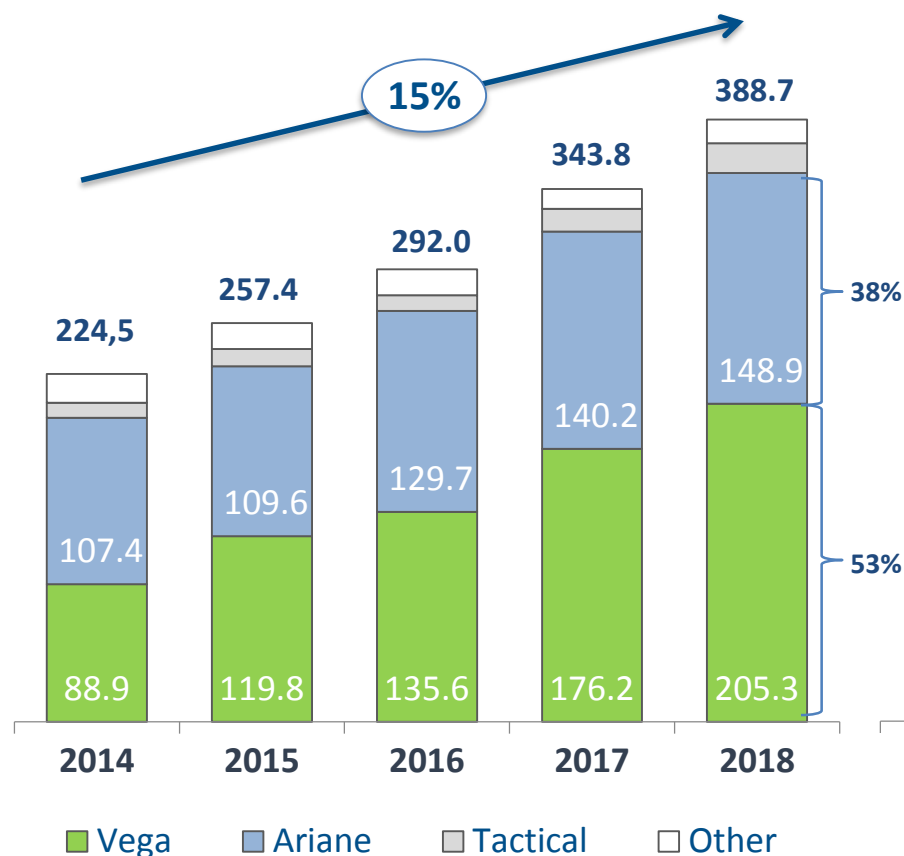


# Net Revenues growth fueled by Vega and development activities



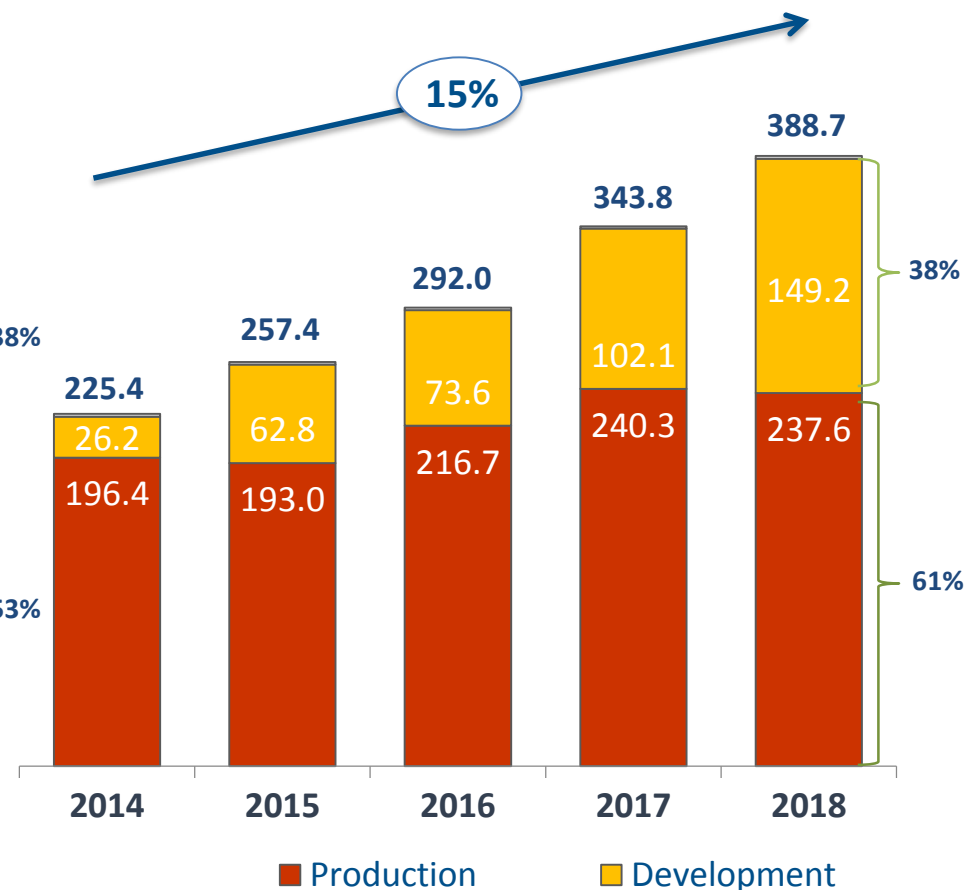
x% = CAGR 2014-18

by Line of Business (€ - M)



Vega growing launch rate and dev't activity

by Activity (€ - M)



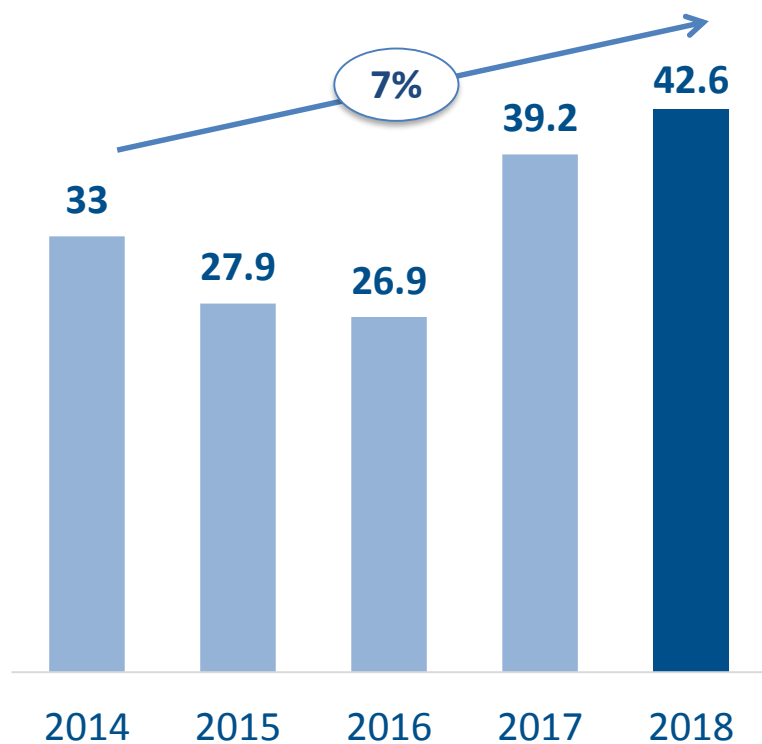
P120 and Vega dev't ramping up

# EBITDA and EBIT growing – High operating leverage

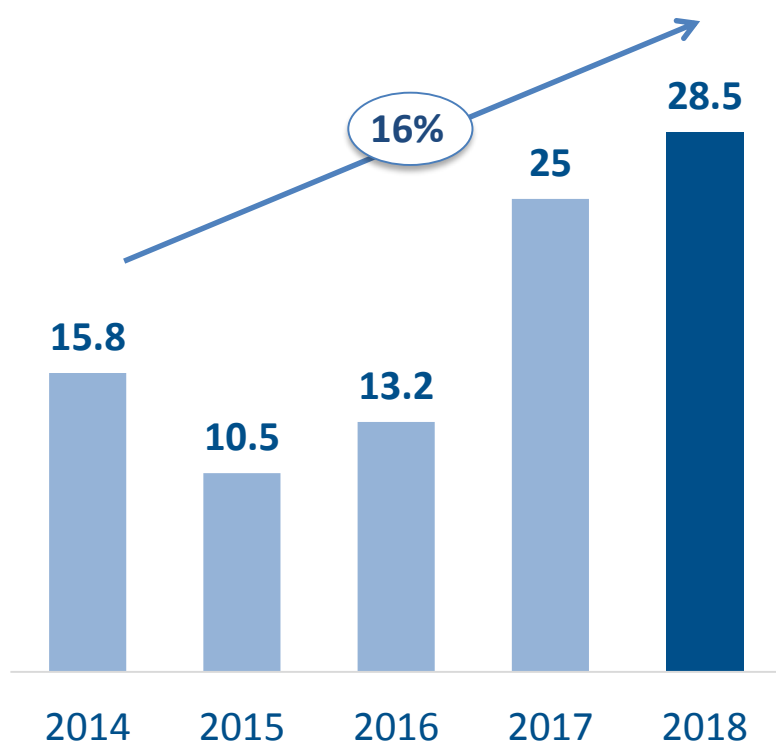


x% = CAGR 2014-2018

EBITDA (€ - M)



EBIT (€ - M)

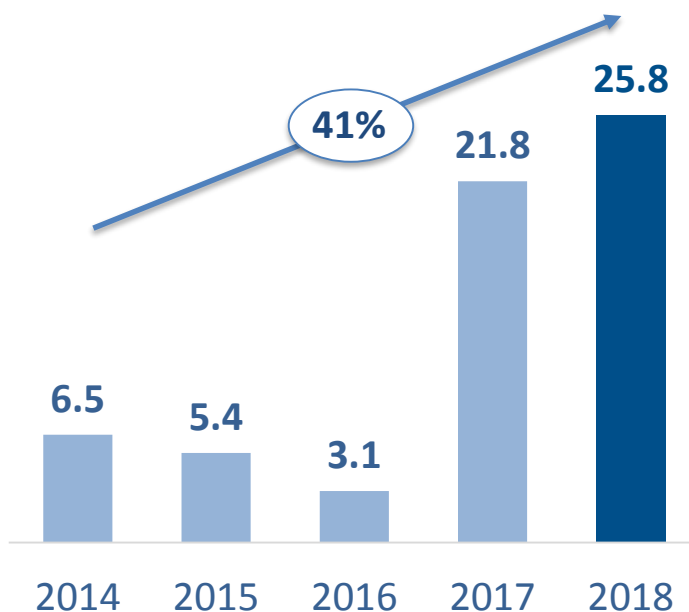


# Growing Earnings and Cash supporting dividends and capex

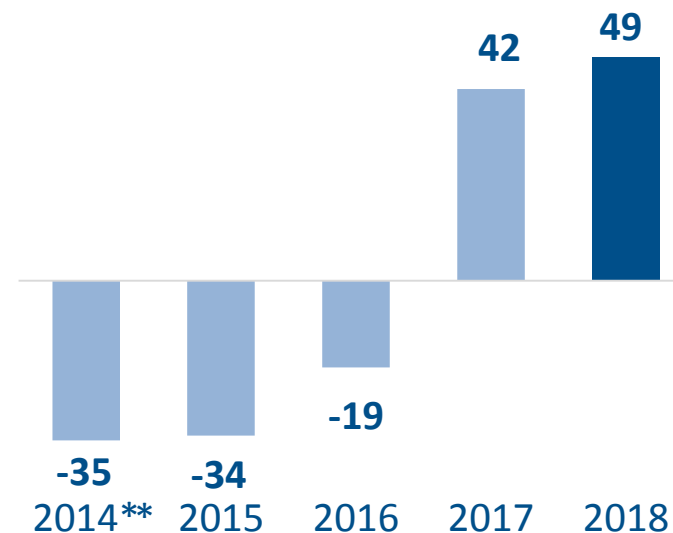


x% = CAGR 2014-2018

## Net Income (€ - M)



## Net Financial Position (€ - M)



**Dividends**  
(€ - M)

-      220\*      -      10      11.5

**CAPEX**  
(€ - M)

17      14      25      29      23

\* Extraordinary dividend    \*\* Pro-forma to account for extraordinary dividend financing



# Economic Highlights FY 2018



MAIN ECONOMICS	FY 2017*	FY 2018	DELTA	Comments
€ - M	€ - M	€ - M	%	
NET ORDER BACKLOG	952.1	877.4	(8%)	Cyclical trend with over €300M new order acquisitions
NET REVENUES	343.8	388.7	+ 13%	Higher development activities on Vega C and Ariane 6
EBITDA REPORTED	39.2	42.6	+ 9%	Non-recurring costs decreasing R&D Tax credit benefit Better absorption of fixed costs
% on net revenues	11.4%	10.9%		
EBIT REPORTED	25.0	28.5	+ 14%	
% on net revenues	7.3%	7.3%		
NET FINANCIAL EXPENSES	(3.6)	(0.7)	81%	New debt structure in place since Q4 2017, reducing interest costs substantially
% on net revenues	-1.0%	-0.2%		
TAXES	0.3	(2.0)		Non recurring effect on current and deferred tax assets
% on net revenues	0.1%	-0.5%		
NET INCOME	21.8	25.8	19%	Proposed dividend distribution of €11.5M equal to €0.44 per share (+15% on 2017 dividends)
% on net revenues	6.3%	6.6%		

\* Pro-Forma figures to compare on a “like-for-like” basis the 2017 and 2018 financials in light of the business combination occurred in 2017

# Balance Sheet



MAIN SOURCES AND USES	FY 2017 ACTUAL	FY 2018 ACTUAL	DELTA
	€ - M	€ - M	€ - M
WORKING CAPITAL	(84.1)	(86.9)	(2.8)
DEFERRED TAX ASSETS	76.5	76.2	(0.3)
PROVISIONS (EMPLOYEES' BENEFITS AND RISKS)	(27.2)	(26.6)	0.6
GOODWILL	61.0	61.0	-
CUSTOMER RELATIONSHIP ASSET	42.5	39.6	(2.9)
FIXED ASSETS	165.9	177.8	11.9
FINANCIAL RECEIVABLES	5.8	5.8	-
NET INVESTED CAPITAL	240.5	246.9	6.4
NET FINANCIAL POSITION (IFRS)	41.7	49.1	7.4
EQUITY	(282.2)	(296.0)	(13.8)
TOTAL SOURCES	(240.5)	(246.9)	(6.4)

## Comments

Working capital structurally negative

Goodwill post business combination

Capex (€23M) mainly for production facilities and development of P120 and Z40

Mainly for dividend distribution on 2017 result and positive contribution of 2018 net income  
Proposed purchase of own shares up to €9.1M (10% of Share Capital)

# Guidance and long term outlook



	2019	2023 outlook
• Net Order Backlog	• €750M – €800M	• Market expansion and presence in the LEO segment driving revenue growth • Revenue Mix evolving progressively more towards production than development activities
• Net Revenues	• €380M – €405M	
• EBITDA	• €42-44M	• Efficiency improvement through single main stage (P120) industrial strategy • Further operating leverage leading to P&L optimization and Net Income expansion
• Net Income	• €25M - €28M	



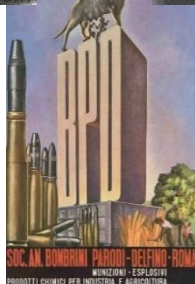
# Appendix



# An important heritage of corporate evolution



1912 – 1967



2 entrepreneurs  
(and Senators)  
Defense focus

1968 – 1990



Industrial  
group  
(listed)  
Chemicals  
focus

1994 – 2003



Industrial  
group  
(listed)  
Aerospace  
focus

2003 – 2015



THE CARLYLE GROUP

Cinven

Private Equity  
Financial focus

2017



Public  
Company  
Space  
Launchers

# 50 years in Space Launchers



**1965 – Europa**  
**7 launches**



**1976 Alfa Missile**  
**3 launches**



**1979 - Ariane 1**  
**11 launches**



**1984 - Ariane 2**  
**6 launches**



**1986 Ariane 3**  
**11 launches**



**1988 - Ariane 4**  
**104 launches**  
**(16/year)**



**1996 - Ariane 5**  
**100 launches**  
**(6/year)**



**2012 - Vega**  
**13 launches (2-3/year)**



**2019 – Vega C**  
**(4-5/year)**



**2020 – Ariane**  
**6**  
**(11/year)**



# Avio is part of the EU critical space infrastructures also through partnership with Ariane Group



## Kourou European Spaceport (CSG)



- Solid rocket motor casting (Regulus – 60% Avio\*) and integration (Europropulsion – 50% Avio\*\*)
- Vega integration and launch operations (Mobile Gantry)

## Colleferro



- Solid rocket motor design, production
- System activities, mission design
- Flight Software Factory
- Liquid propulsion design, production,
- Stage integration (Vega)
- Test center



## Turin



- LOx&LNG turbo-pump design, manufacturing and assembly



## Paris



- Management and design of SRM for development and production programs

## Airola



- Carbon Epoxy Prepreg manufacturing and testing



\* 40% Ariane Group, \*\* 50% Ariane Group

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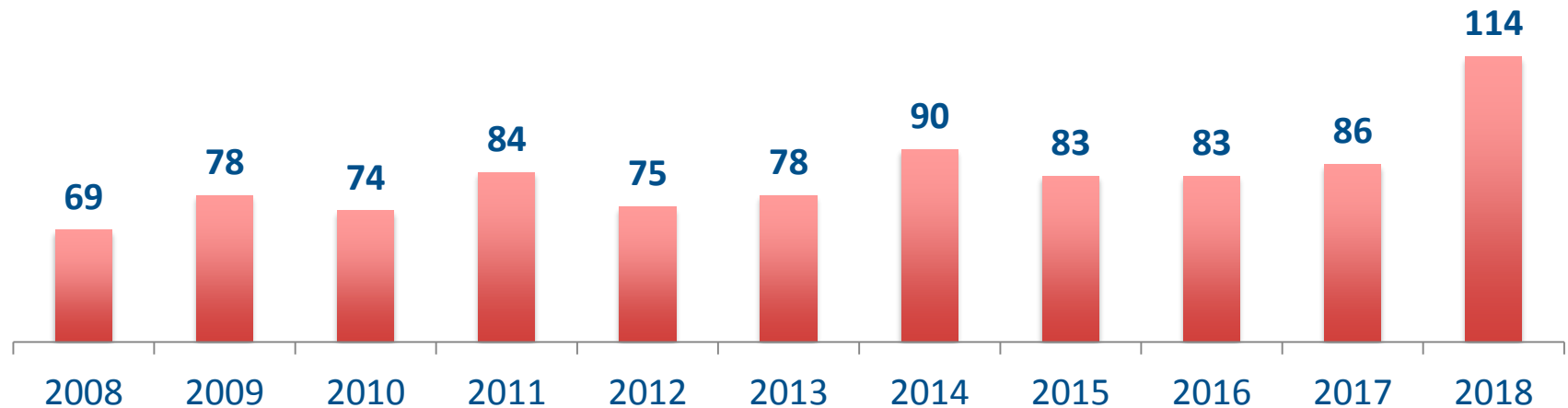
Source: Company information



# Space launches grow at 5% CAGR, with few countries having launch technology

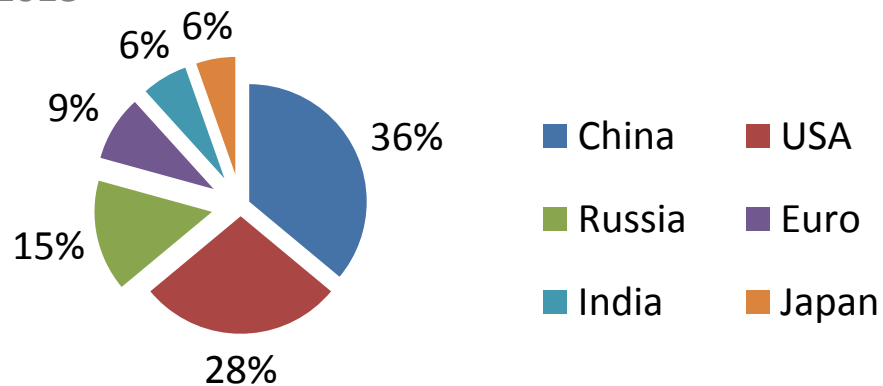


## 2008-2018 Total # of Space Launches Worldwide - CAGR 5%



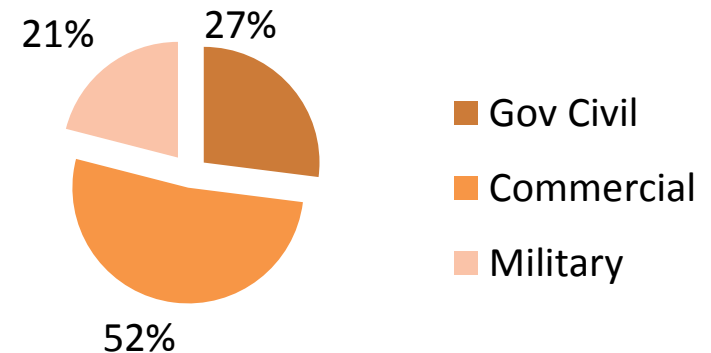
## Space Launches by launch country

2018



## Space Launches by customer type

2017-18



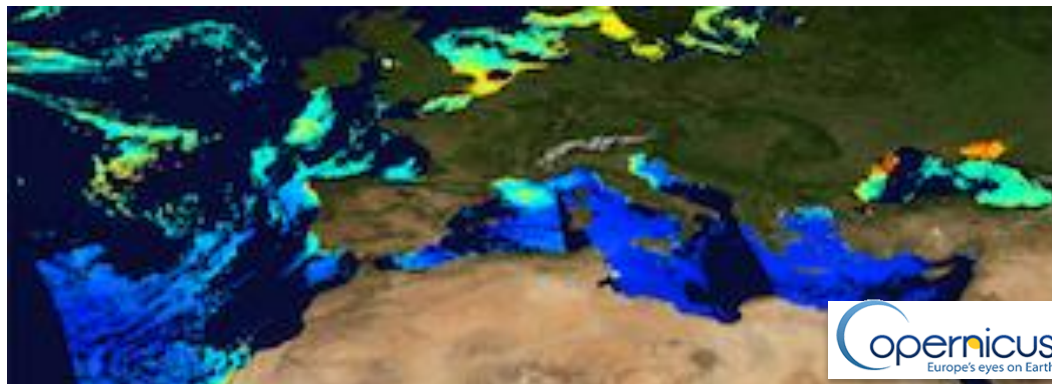
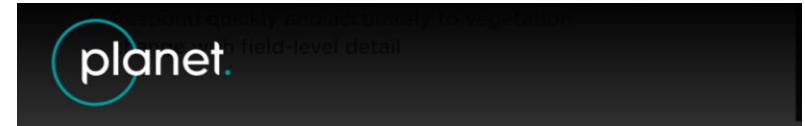
1 Dedicated flights to supply the International Space Station

Source : Gunter Space Page and SpaceFlightNow

# Smallsat growing demand is fueled by the increasing need for advanced telecom and remote sensing services



Satellite telephone communication



Mediterranean Sea temperature monitoring



Crop vitality monitoring



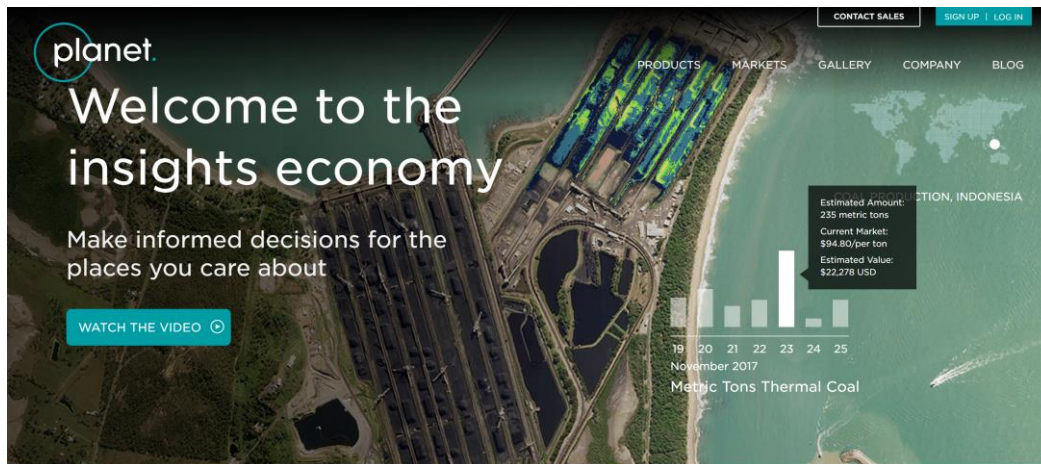
# Satellite imaging is creating a new «insights economy» to support civil, military and commercial needs



**Military Airfield monitoring**



**Damage assessment : Pre-earthquake view**



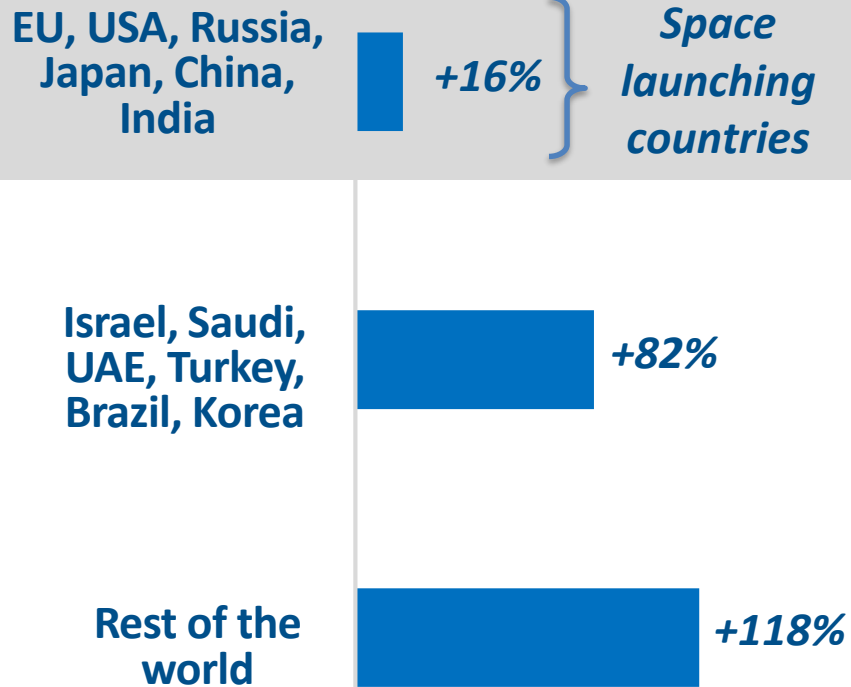
**Coal production monitoring**





**Damage assessment : Post-earthquake view**

# Incremental opportunities from growing domestic government demand in EU

## Government satellite demand growth by geography



## EU Multiannual Financial Framework EC Proposed Space Budget (€Bn)

	2014-2020	2021-2027
<ul style="list-style-type: none"> <li>  </li> </ul>	7.7	9.7
<ul style="list-style-type: none"> <li>  </li> </ul>	4.8	6.0
<ul style="list-style-type: none"> <li>Other programs</li> </ul>	-	1.2
	<b>12.5**</b>	<b>16.9**</b>
	<b>+35%</b>	



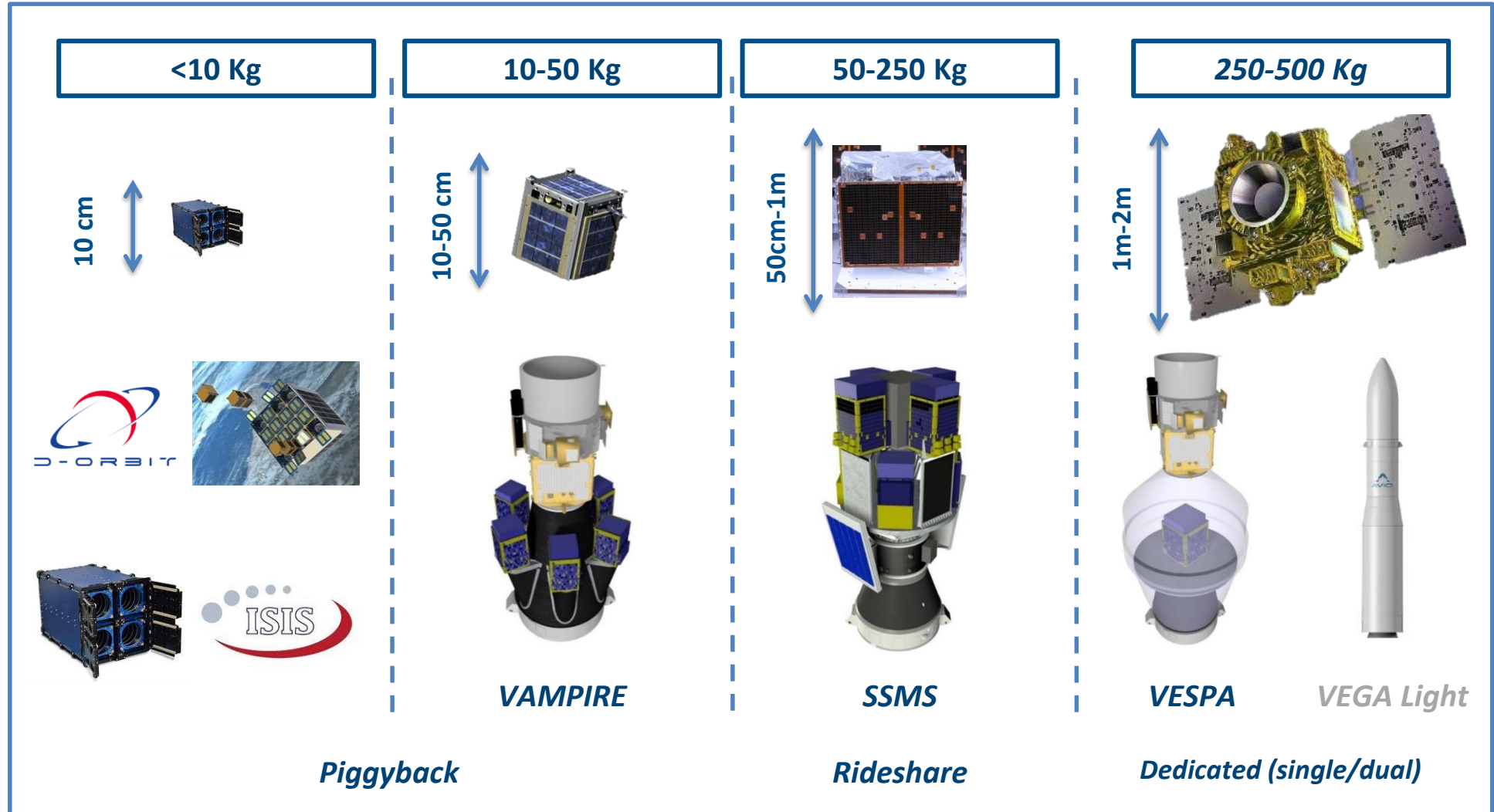
Source: the Space Launch Report, FAA annual compendium 2018

\* Ariane 5 has double launch capacity in GTO, unlike most other launchers

\*\* Current prices



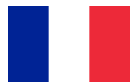
# Vega now also re-tooled with adapters to meet all sub-segments of demand for piggy back, rideshare or dedicated launch



# Vega C competitiveness generating positive market momentum – recent commercial achievements



## Vega and Vega C future launches

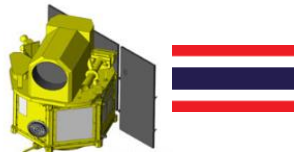


**Pleiades**

- 4 satellites
- 2 Launches in 2020 and 2021



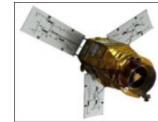
- COSMO SkyMed satellite
- Launch in 2021



- Thailand's THEOS-2
- Launch in 2021



- NAOS satellite for Luxembourg and NATO
- Launch in 2021



- South Korean Space Agency (KARI) satellite KOMPSAT-7
- Launch in 2021



- Spain Ingenio Satellite
- Launch in 2019

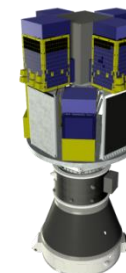


European Space Agency

- 25 Oct 2018 : Joint Statement for Institutional Exploitation signed by major EU countries and ESA
- Aggregation of launch demand for EU institutional payloads in the long term
- Robust EU/domestic backlog for Ariane 6 and Vega C



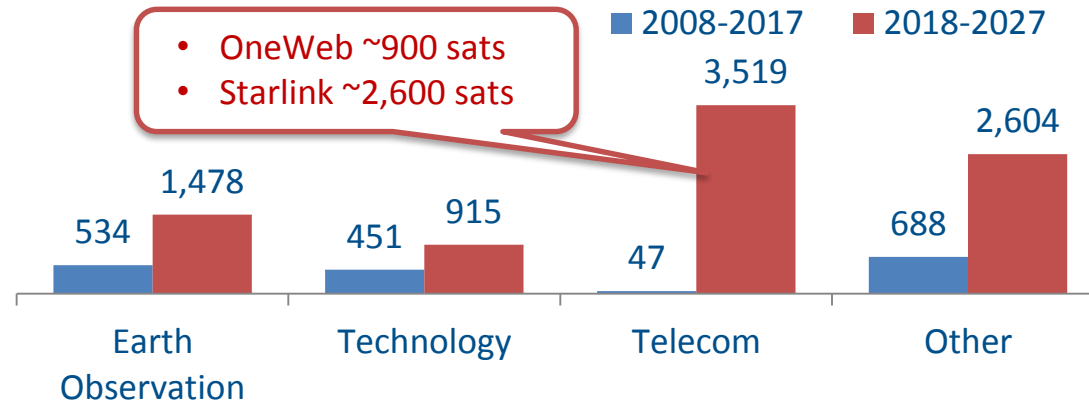
- SSMS maiden flight to fly by mid 2019



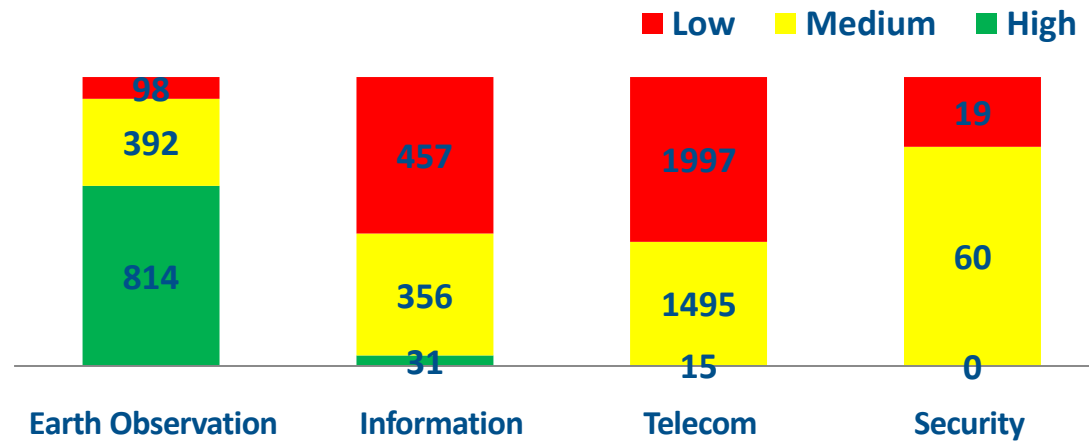
# Within smallsats, more robust growth expectations appear to be for Earth Observation applications



SmallSats demand by application domain (0-500kg)



Maturity of constellations by application domain 2018-2027

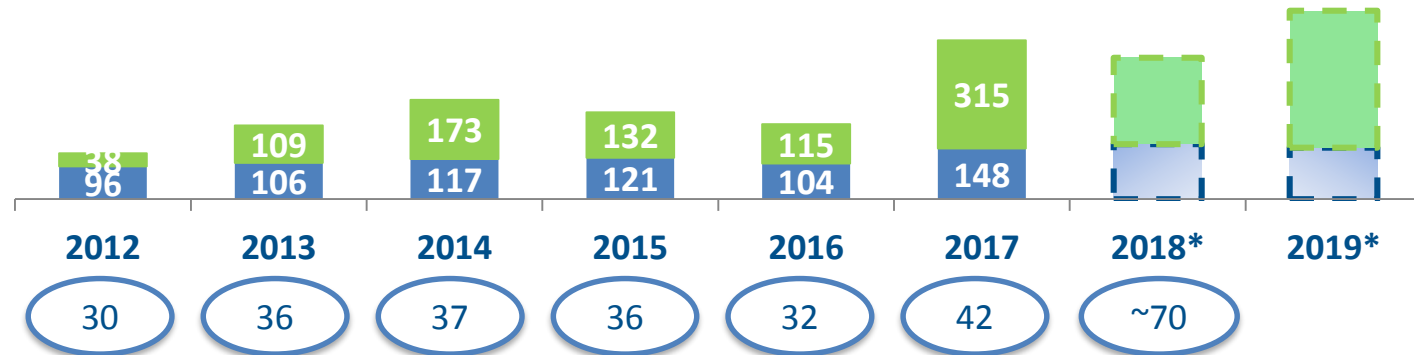
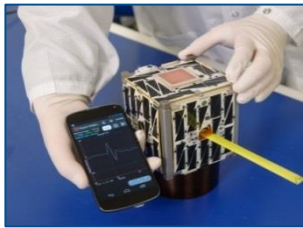


# Vega flight rate increases as demand is shifting towards small sats (<500kg)



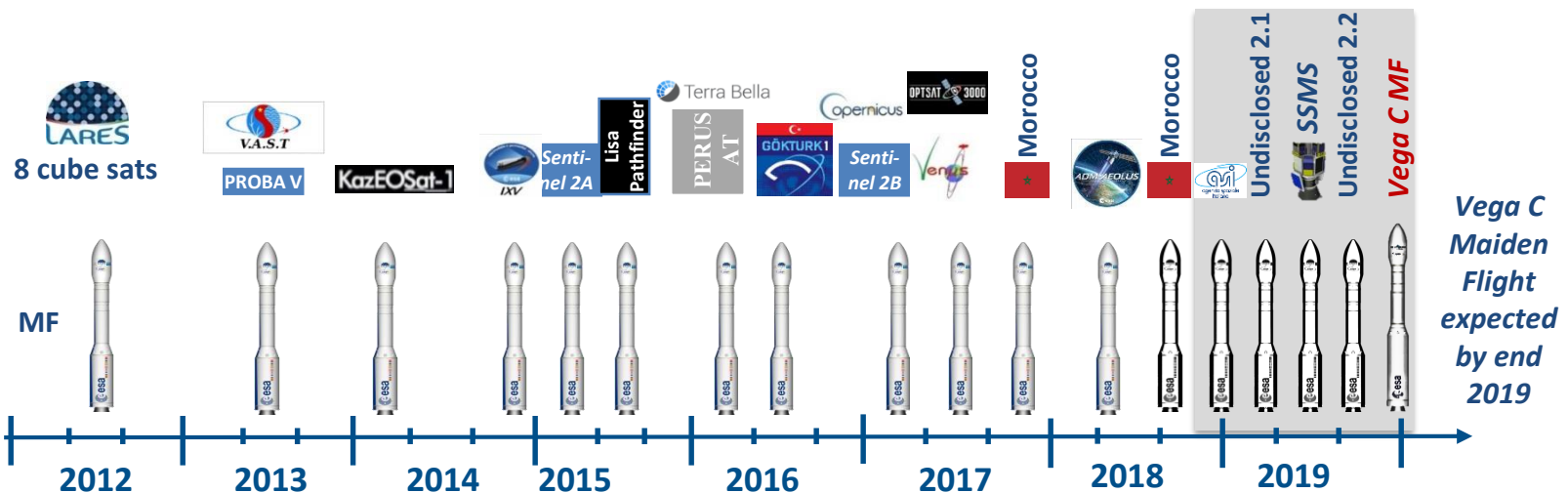
Total nr. of satellites launched into Space worldwide

■ Sats > 500 kg ■ Sats < 500 kg



Nr. of flights in LEO

Vega flight record since 2012 and near term manifest\*\*



Vega C Maiden Flight expected by end 2019

• Estimated figures for 2018 year end and 2019 forecast

\*\* Launches already sold and accounted for as the order backlog for 2018- 2019

Source: Space Launch Report; Gunter's Space

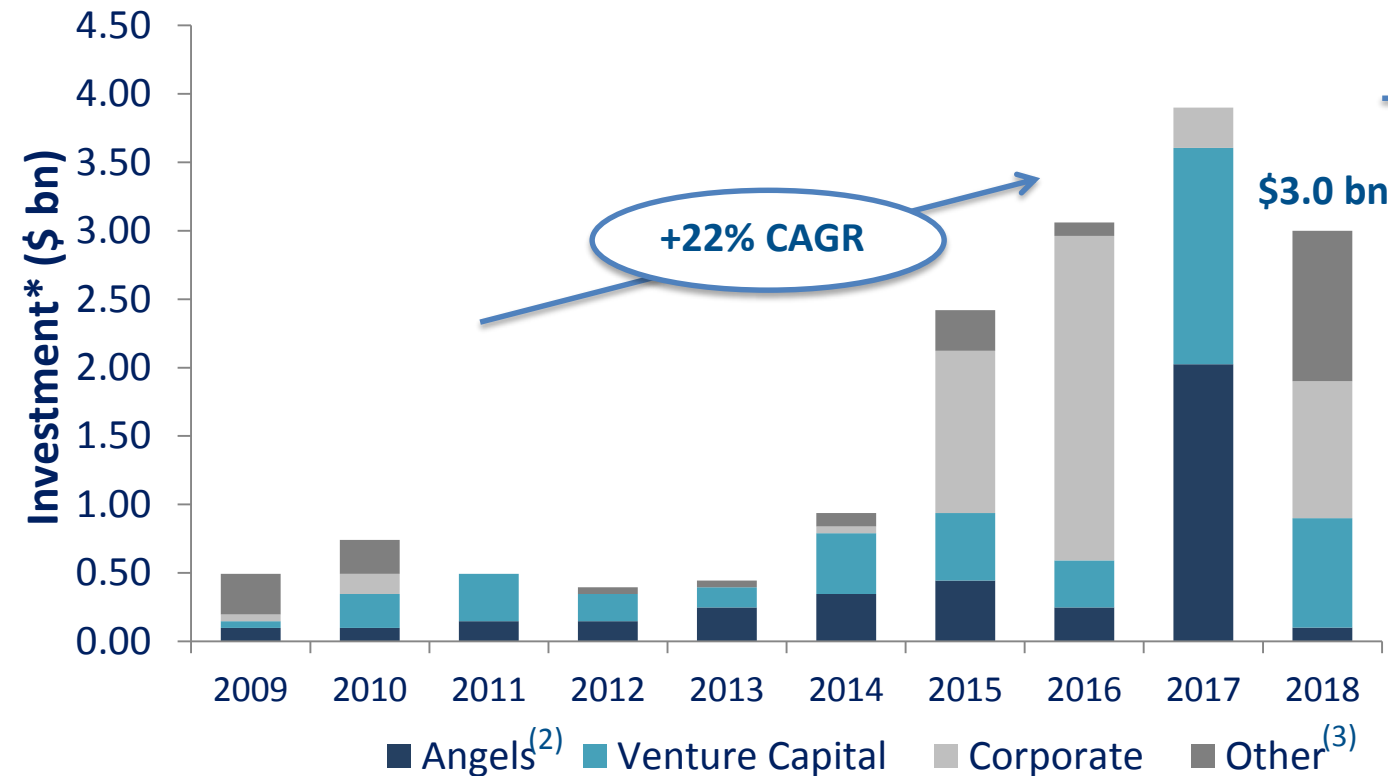
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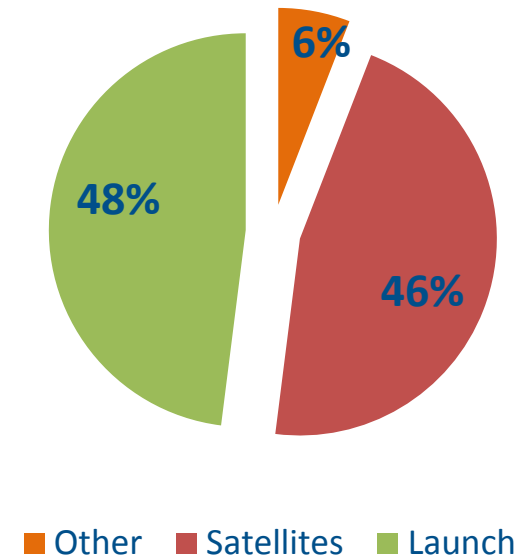
# Investments in the Space sector continue to grow rapidly



## Equity investment in Space Ventures



## Breakdown of cumulated 2009-2018 investments by sector (% of 18\$ Bn)



(1) Annual non-governmental equity investment

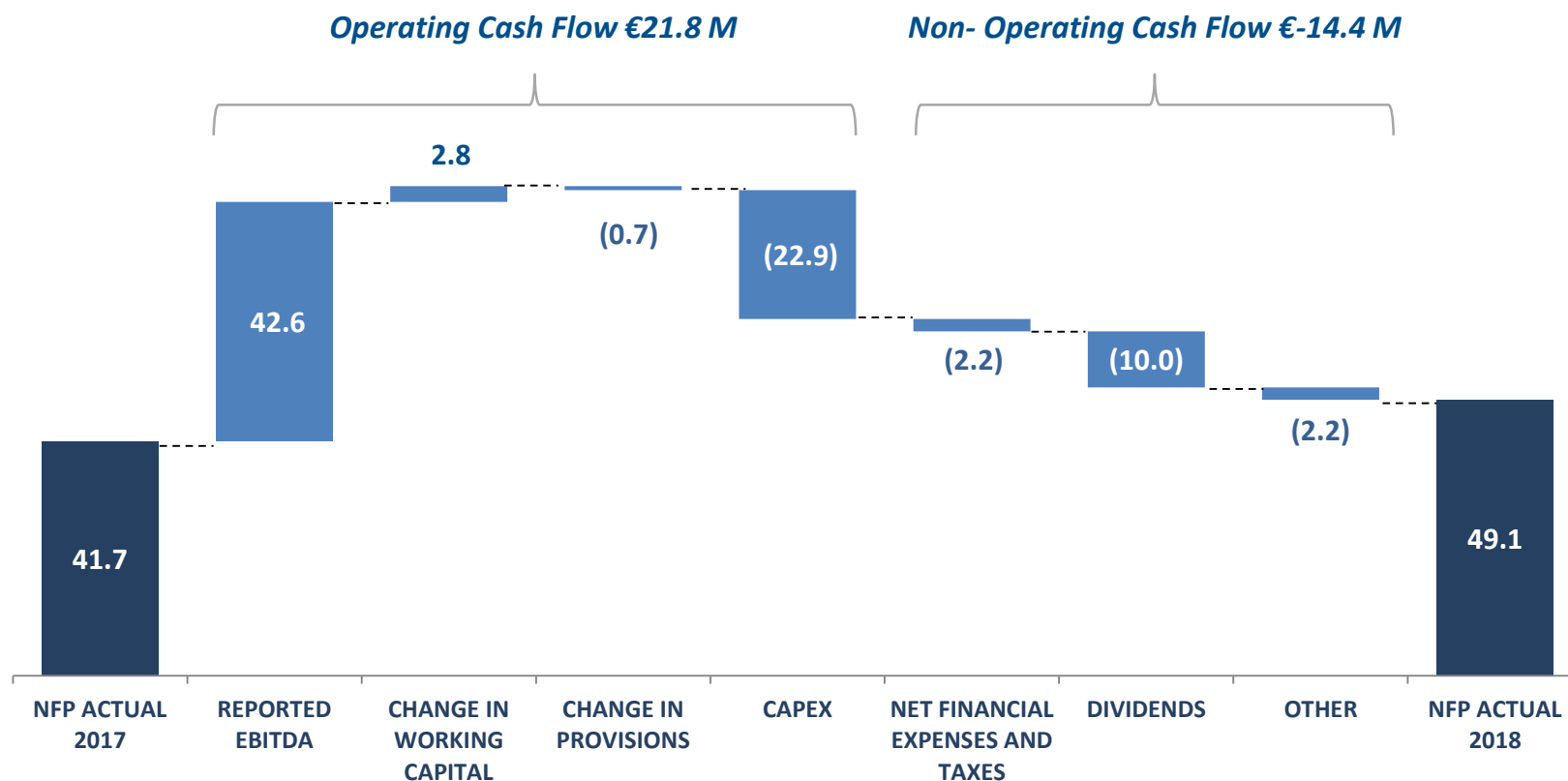
(2) Angels include investments from Jeff Bezos, Richard Branson, Elon Musk, and Robert Bigelow (total \$>2 bn)

(3) Other includes Foundations, Private Equity, Sovereign Funds, Crowd Platforms, etc.

Source: Space Angels Q4 2018 Investment Report

# 2018 - Net Financial Position Evolution

## NFP evolution and Cash Flows (€ - M)





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