



THE EUROPEAN GATEWAY TO SPACE

Cowen 42nd Annual Aerospace/Defense & Industrials Conference

February 10th, 2021

Giulio Ranzo – Avio CEO

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Avio: a pure player in Space launchers



European heavy launcher (10.5 tons in GTO)

Avio: Strap-on boosters



350 € Mln

Mkt Cap

1,000

Employees

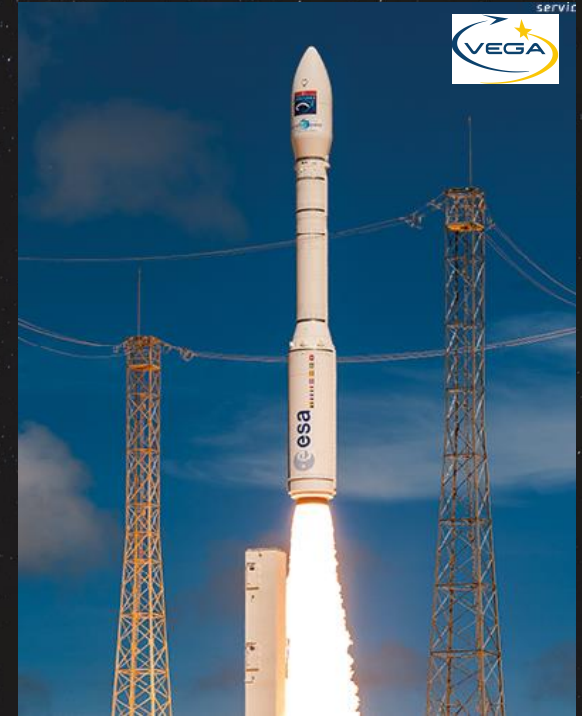
65%

Free Float

4%

Mgmt Share

NEW 2021-22



European light launcher (1.5 tons in LEO)

Avio: System integrator

A public company managed by a team of investors

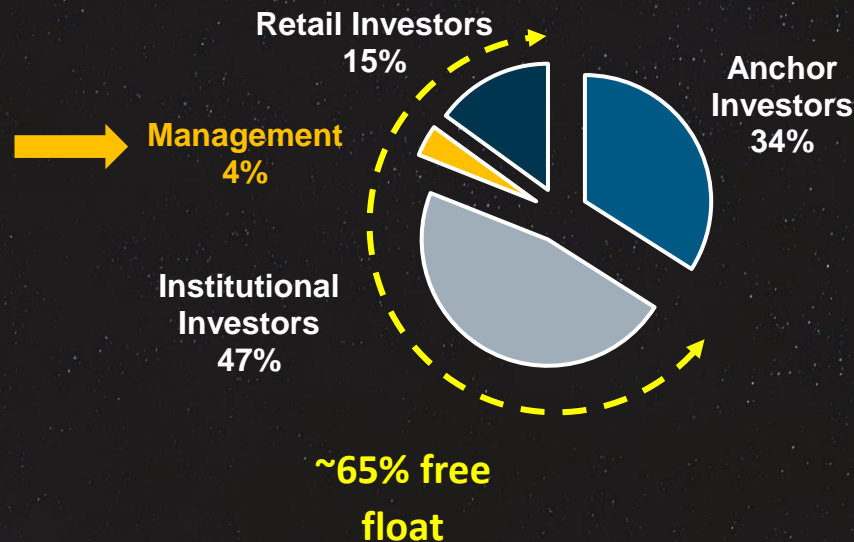


70 Avio managers

Milan Stock Exchange

Ticker: AVIO.MI – ISIN: IT0005119810

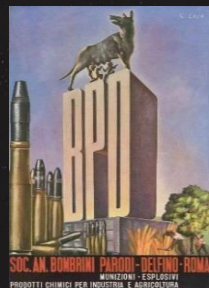
Avio shareholders' breakdown



50 years of track record in Space launch



Ammunitions



1912

**Ariane 1-3
Separation
motors**



1968

**Ariane 4
9.5 ton
boosters**



1990

**Ariane 5
230 ton
boosters**



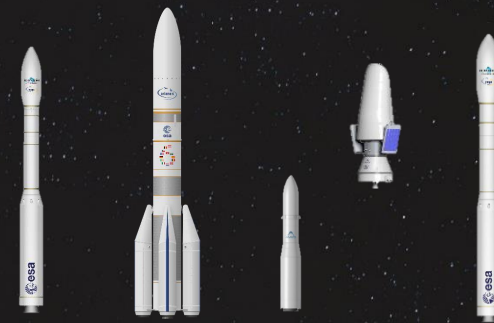
2003

**Vega
launch
system**



2012

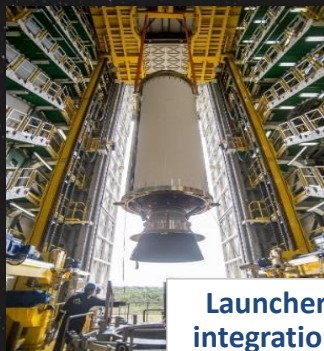
Vega C Ariane 6 Vega light Space Rider Vega E



2021-22

2025

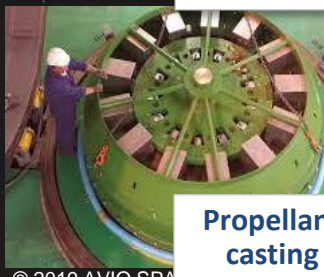
Industrial operations in Europe and French Guyana




**Launcher
integration**




**Main stage
integration**



**Propellant
casting**


 Colleferro, Rome
(GMT +1) N41.727 E13.0030

- SRM design, production
- Mission analysis
- Flight Software
- Stage integration
- Testing

 French Guiana
(GMT -3) N4.003 E52.999

Avio runs three facilities at the European Spaceport :

- SRM casting and integration
- Vega launcher operation

Paris 
(GMT +2) N48.856 E2.351

Large SRM
design/integration



**SRM
Manufacturing**



**Upper stage
integration**



Firing tests

The launch segment : the gateway to the Space economy



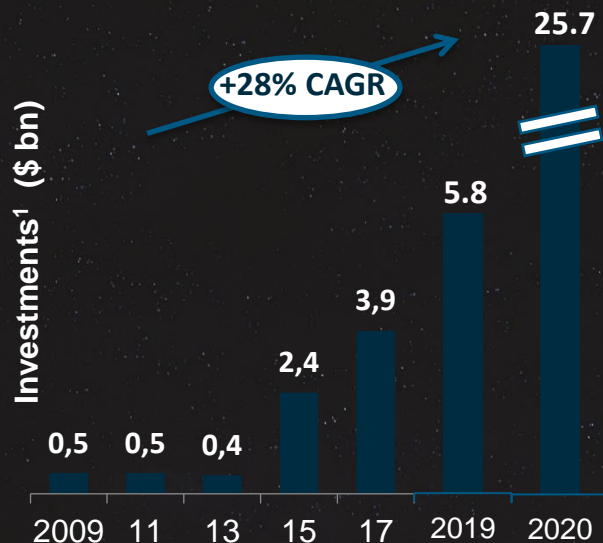
Global space value chain (2019)



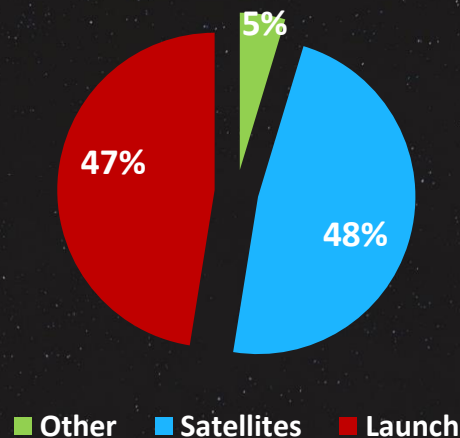
The Space industry is mobilizing significant investment, half of which in the launch segment



Equity investments in Space Ventures⁽¹⁾



Breakdown of cumulated 2009-2019 investments by sector (% of 26\$ Bn)



IPOs and Space Investments Newsflow

- IPOs of Space Companies:
 - Avio (2017)
 - Virgin Galactic (2019)
 - Momentus (2020)
 - Astra (expected in 2021)
- Space-focused Public Equity Investment Funds (ETFs):
 - Procure Space UFO (2018)
 - Ark Invest fund (announced)

World total mass at launch (tons)



Innovative services driving strong demand growth for LEO orbit



Infrastructure & Transportation

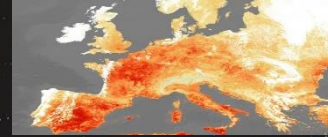


- Investors & financial analysts (Quant, Commodity)
- Intelligence analysts
- Customs & Border agents

ICEYE



Environment & Climate



- Farmers
- Insurance companies
- Meteorological agencies
- Civil Protection agencies



Security & Intelligence



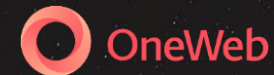
- Defense
- Intelligence agencies
- Rescue operations



Connectivity - IOT



- Direct broadband connectivity for remote areas in the globe
- Retail (Starlink, OneWeb, Kuiper) and corporate/industrial (Telesat) customers



Overview of Galileo and Copernicus programs



Navigation

- GNSS (Global Navigation Satellite System) civil system
- 26 operating satellites + 4 spares
- Positioning: MEO Orbit
- Satellite mass: 675 kg
- 6 launches for Ariane 6.2 already contracted



Ariane 6



Connectivity constellation

- EU independent LEO-based broadband constellation
- Reliable, secure and cost-effective communication and high speed for governments and businesses
- Services expected from 2025-2030

Earth Observation



Vega C

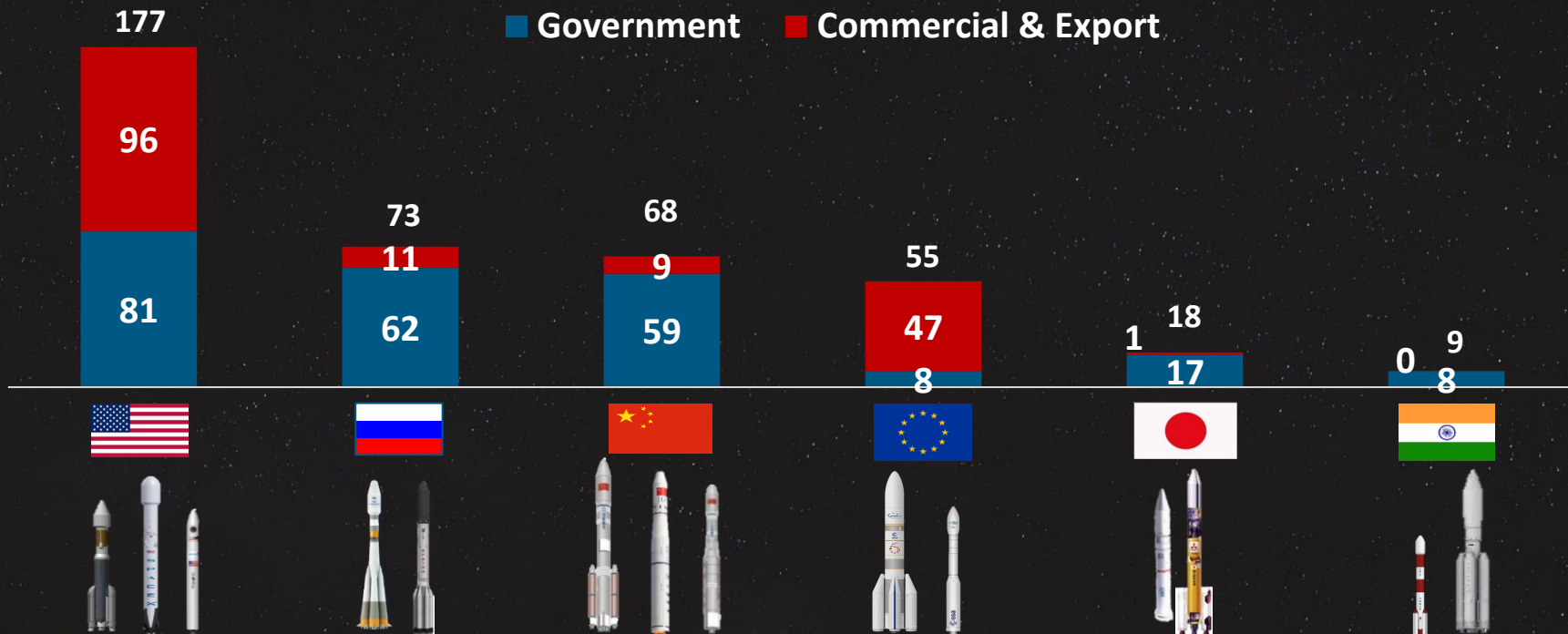
- Earth Observation constellation of the European Union
- Positioning: SSO Orbit
- Satellite mass: 1,000<->2,000 kg
- >20 further Sentinel satellites expected to be launched in orbit by 2030

Additional funding expected of ~€15 Bn by the European Union in the 2021-27 Budget to support Galileo and Copernicus

European launchers well positioned in the global commercial market

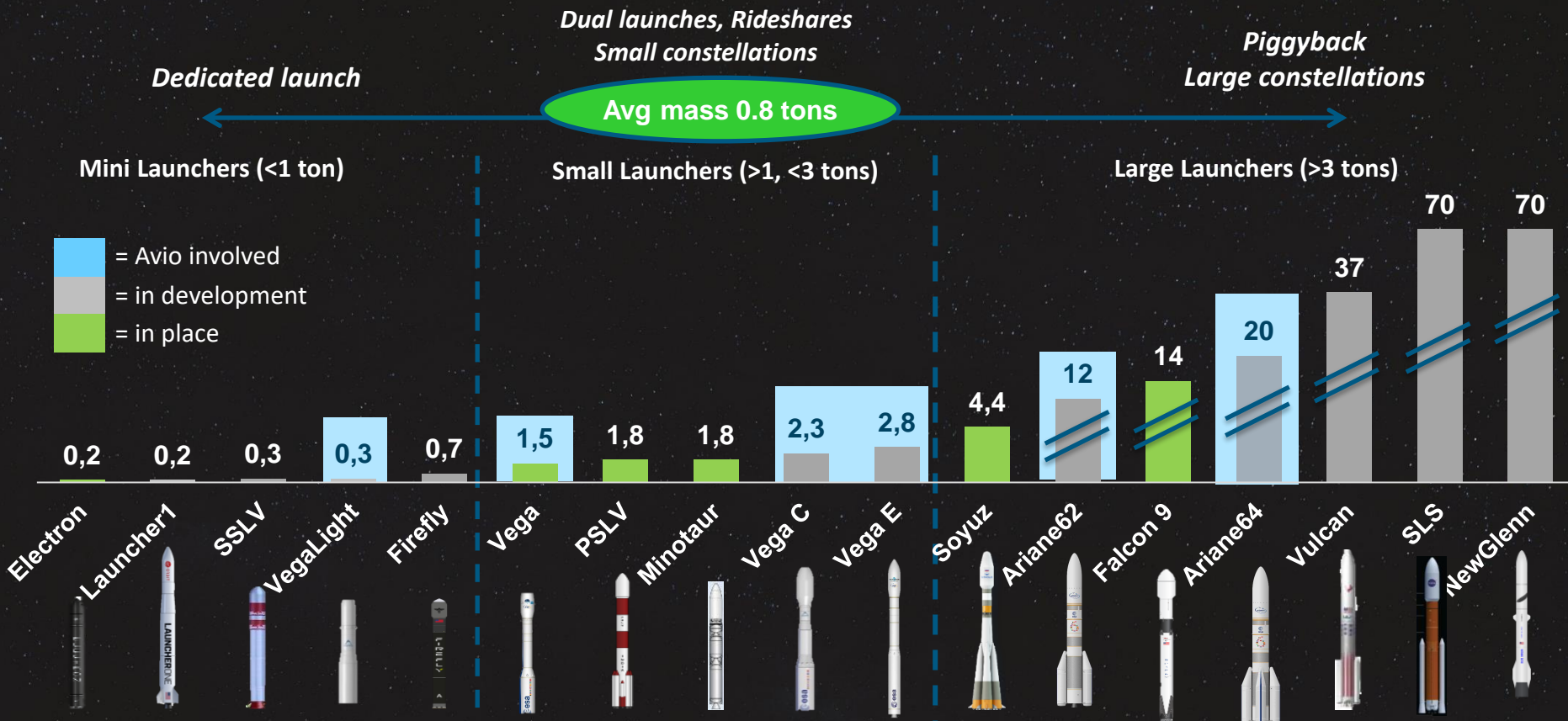


Average Annual Mass Launched in 2016-20 (Tons)





Avio's products well positioned in the launch competitive arena



European Launch capabilities evolving to meet demand



Capacity
Reference Orbit

10,5 t
GTO

1,5 t
LEO

6 t
GTO

11 t
GTO

2,3 t
LEO

0,8 t
LEO

2,8 t
LEO



Launch & Re-entry

Upper
Stage

P120

P120

P120

TODAY

2021/2022

2023

2025

Ariane 5

Vega

Ariane 62

Ariane 64

Vega C

Space
Rider

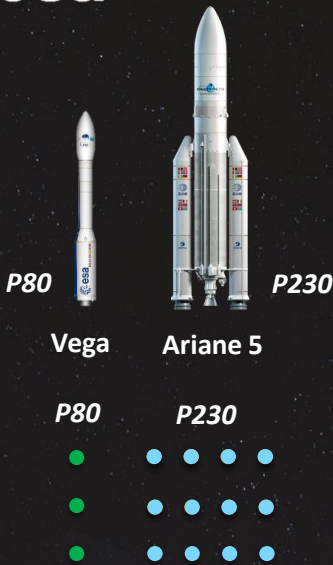
Vega E

Established legacy and
track record

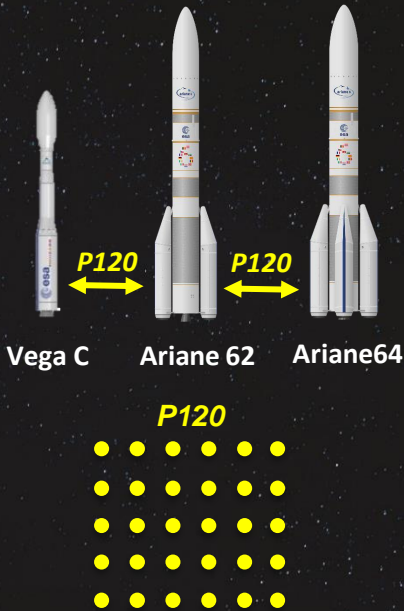
Commonalities and cost
reduction

Broader offering and
further cost reduction

Automation and standardization, cost reduction



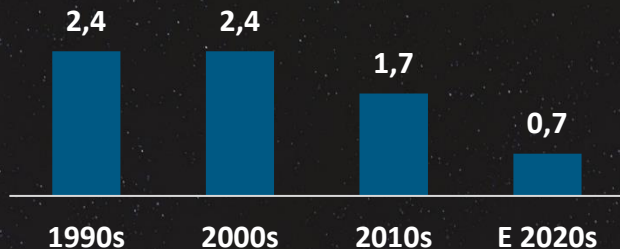
Single main-stage, higher volumes, economies of scale



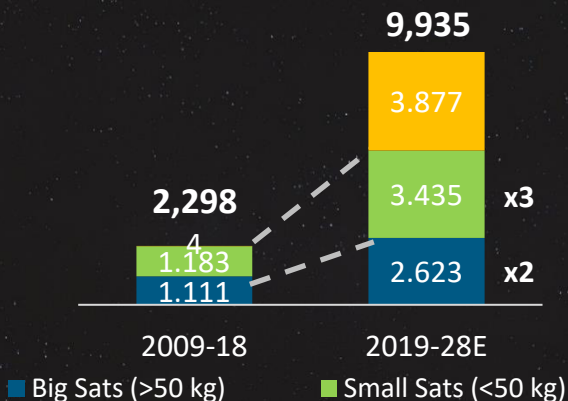
SSMS mission to unlock a growing market for Vega



Average satellite mass (tons)



of sats to be launched by size*



SSMS Vega solution

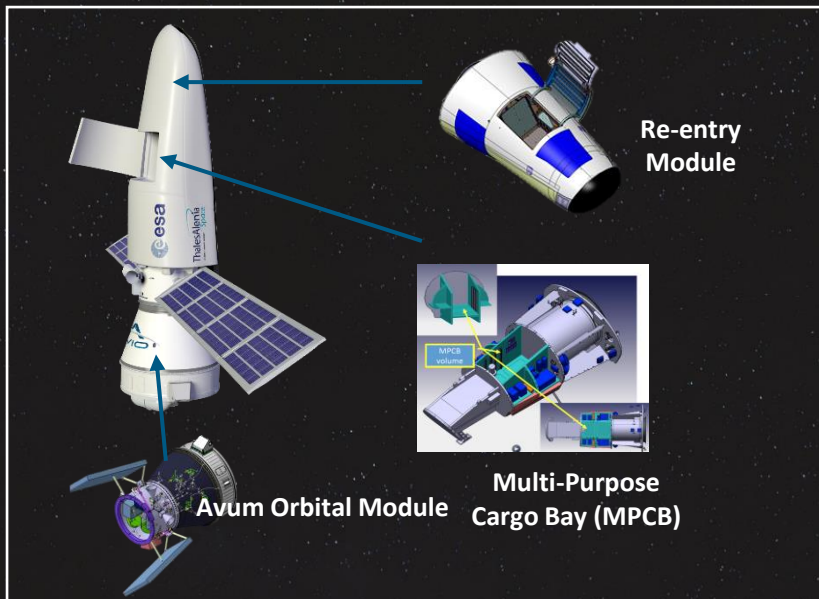
- Qualified SSMS as a new standard for smallsat rideshare
- Delivered to Space 53 satellites from 21 customers
- Sat mass from 1 to 150 kg
- Released on two different orbital planes (1st time)
- New customers on SSMS-derived hexagonal plate to “complete” available space on next VV18



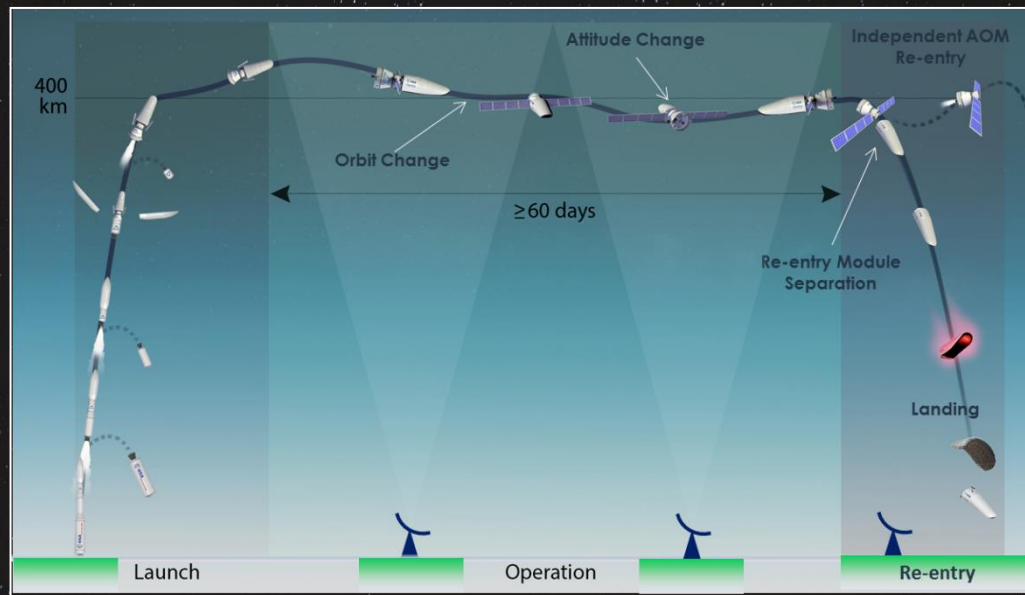
Space Rider: orbital and re-entry vehicle



Space Rider Configuration



Typical Mission Profile

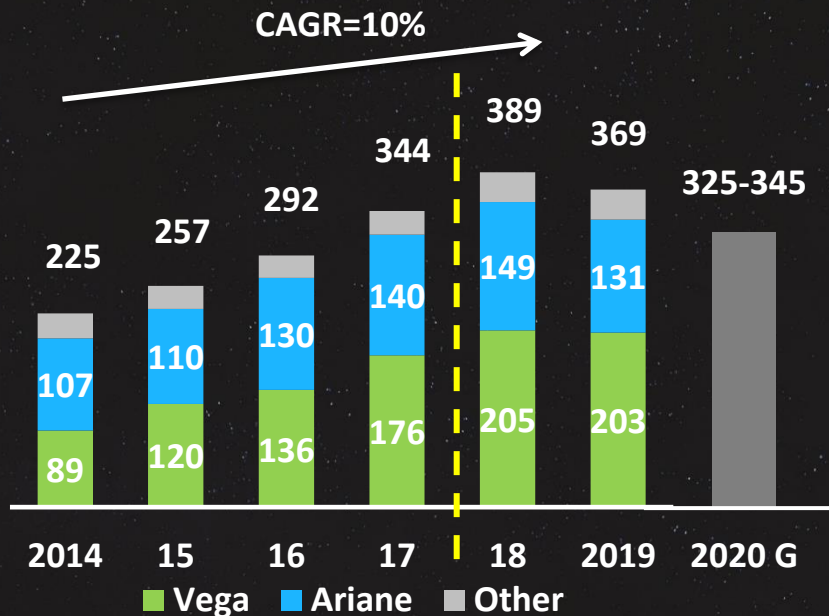


- Provides **highly customizable recoverable and reusable orbital space laboratory** for
- **Microgravity, Earth Observation, Science, Research, Robotic exploitation**
- Launched on **Vega-C** ranging from **equatorial to SSO orbits**
- Performs **in-orbit PL operations, de-orbits, re-enters, lands and re-flies** after limited refurbishment

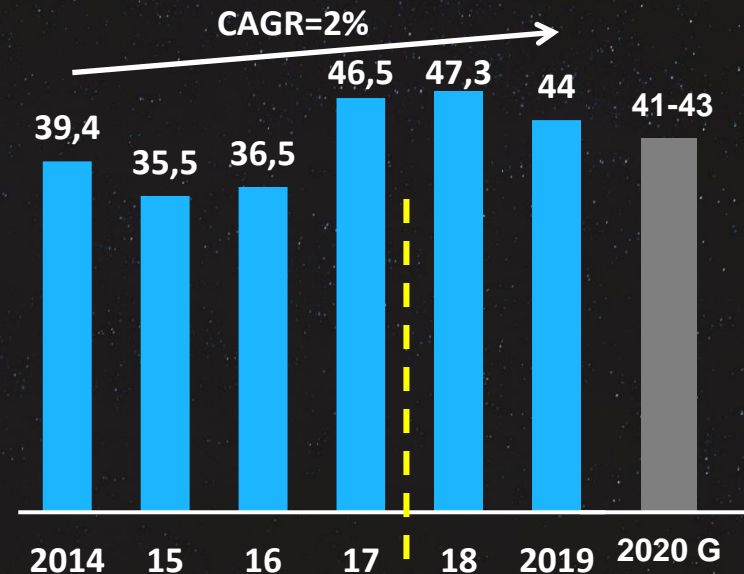
Growing Revenues and EBITDA



Revenues by Line of Business (€ - M)

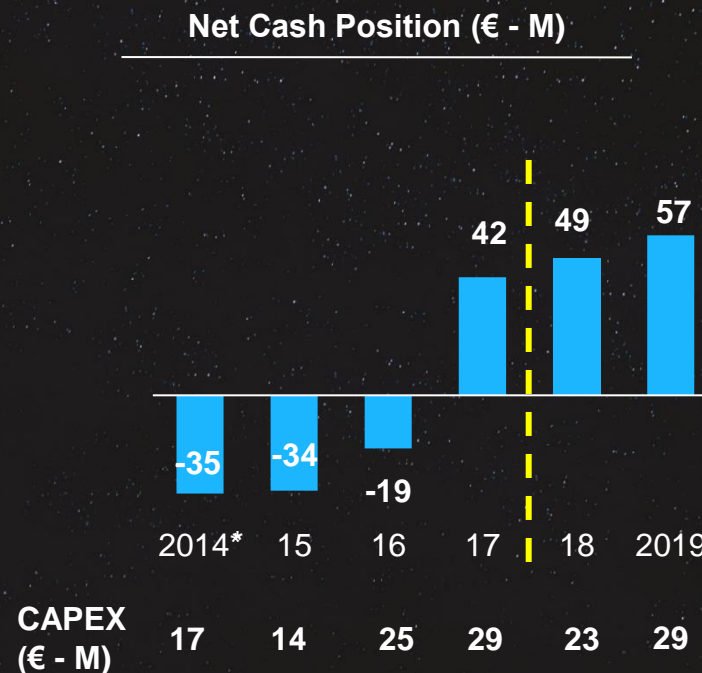
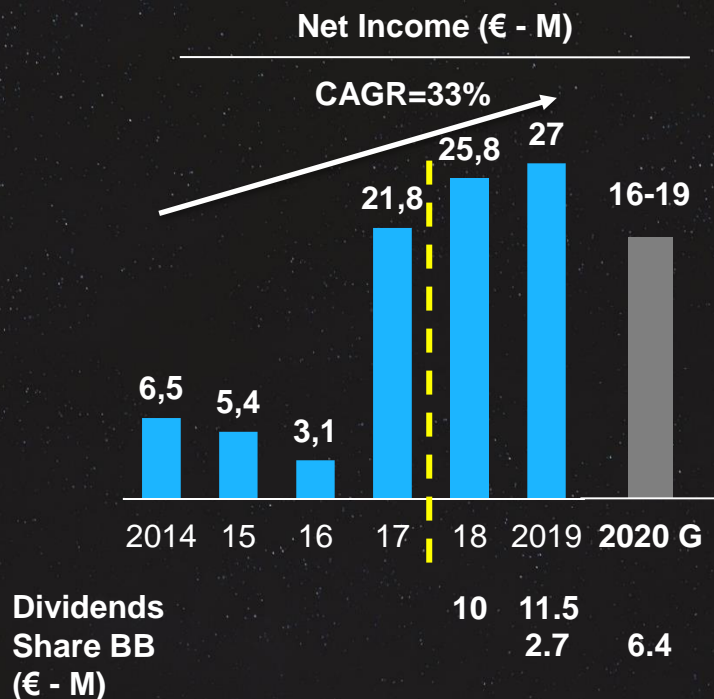


EBITDA Adjusted (€ - M)



! = IPO

Growing Earnings and Cash supporting dividends and capex



*Pro-forma to account for extraordinary dividend financing



THANK YOU

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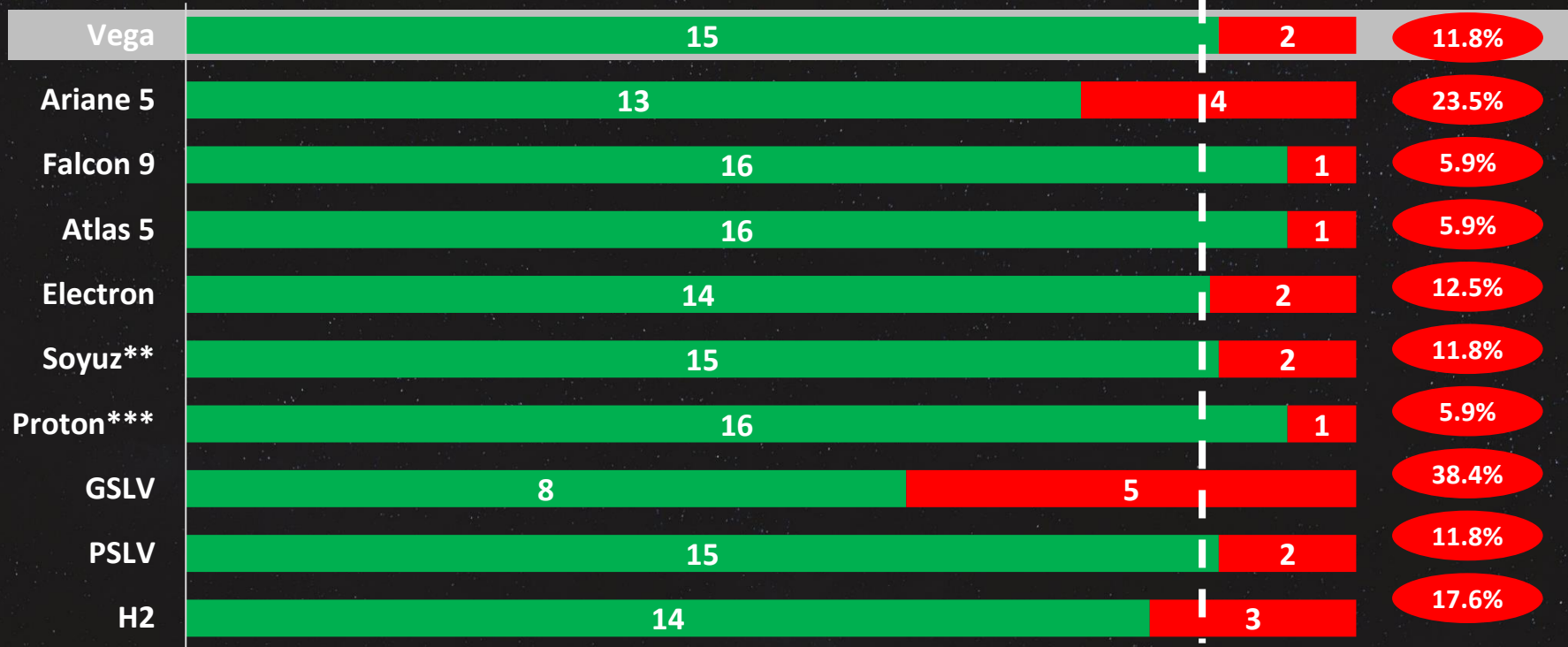
Vega failure rate in line with the market



Space Launchers' performance of the first 17 launches

Average **14.5%**

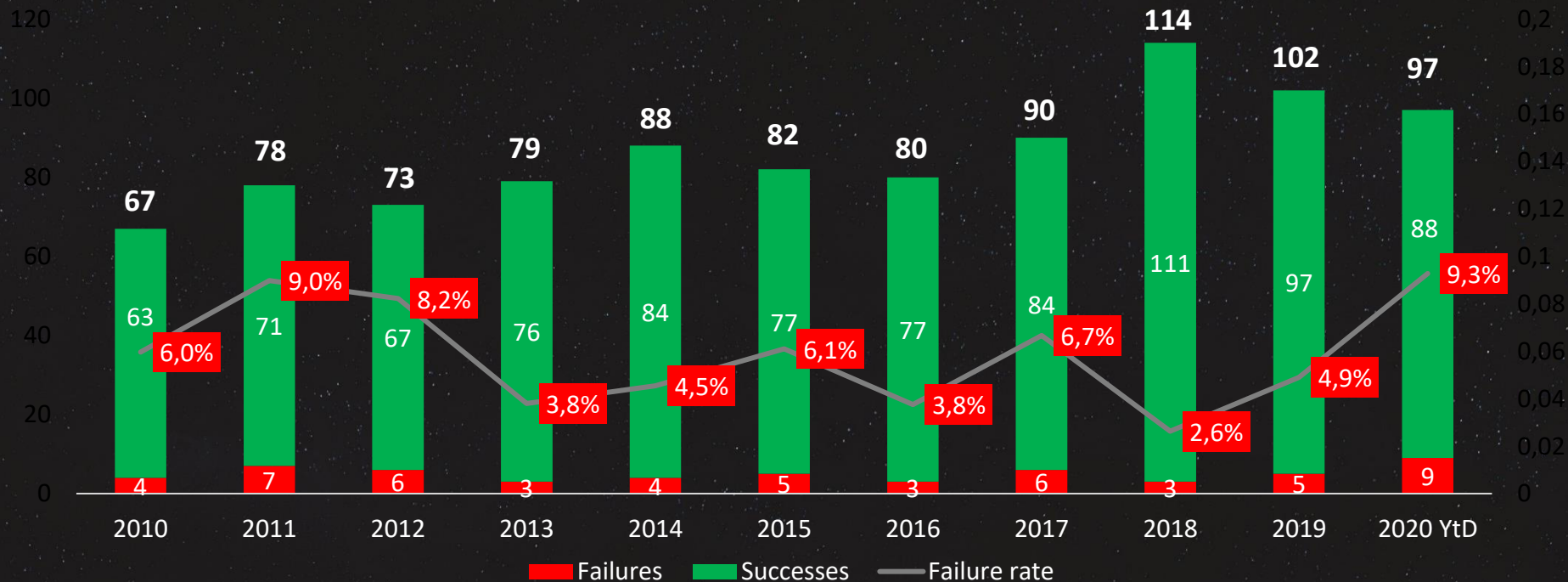
Failure rate*



Space launchers worldwide show an average 6% failure rate



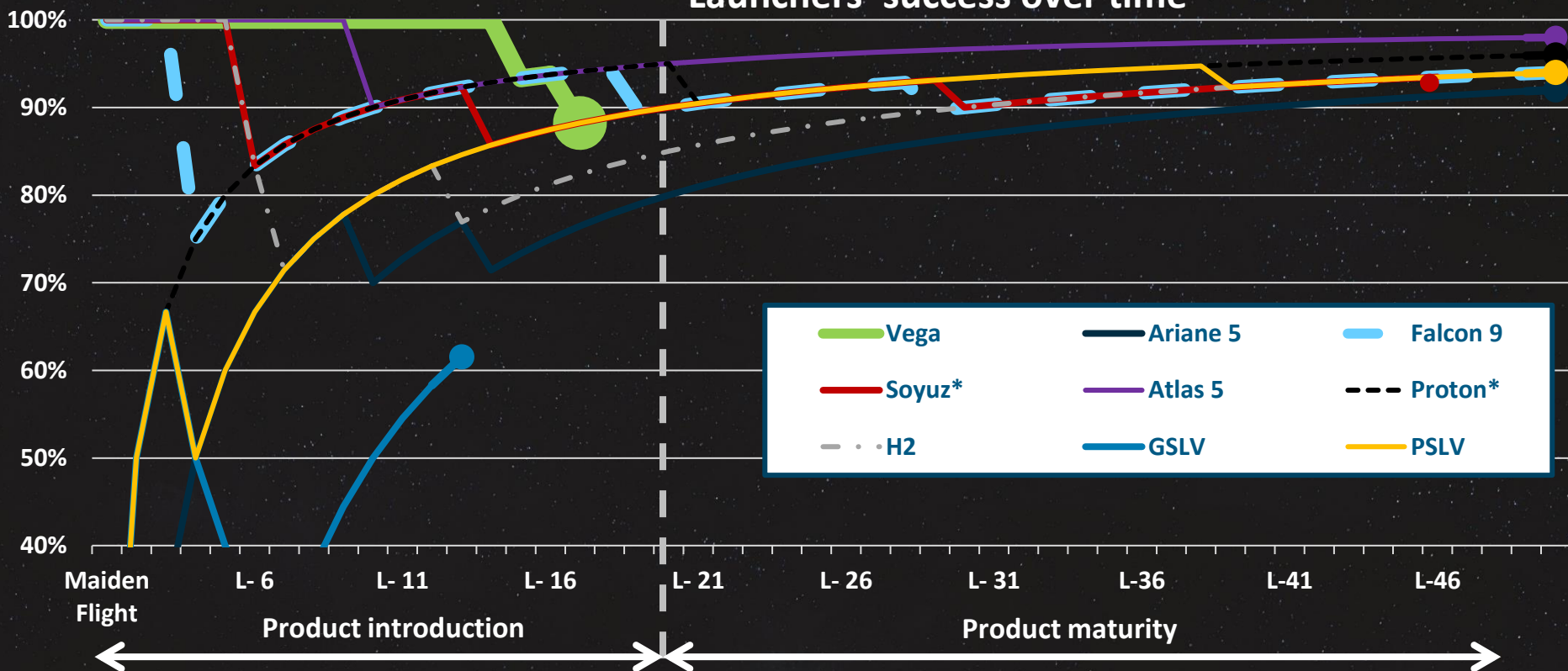
Space launches worldwide 2010-20 YtD



Growing Earnings and Cash supporting dividends and capex

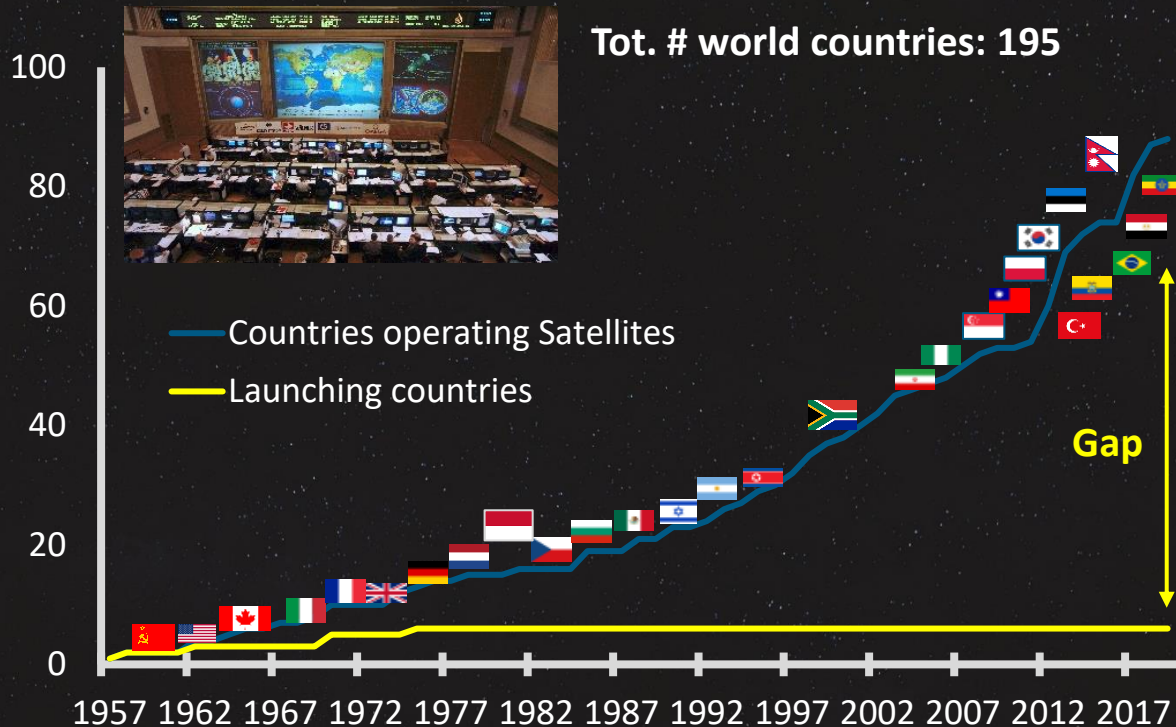


Launchers' success over time



Increasing gap between launch demand and supply

of Countries



Source: Web Search; United Nations