

MILAN, MARCH 19<sup>TH</sup>, 2024

# **Avio presentation**

## Euronext STAR Conference 2024



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# Agenda

## **1.** Avio Profile

2. Market Update

3. Business Update

4. Financials

5. Appendix

# Avio: propulsion for space and defence



- European heavy launcher
- Avio: partner and supplier for strap-on boosters



231M€ Market Cap <sup>(1)</sup>  
1.300 employees



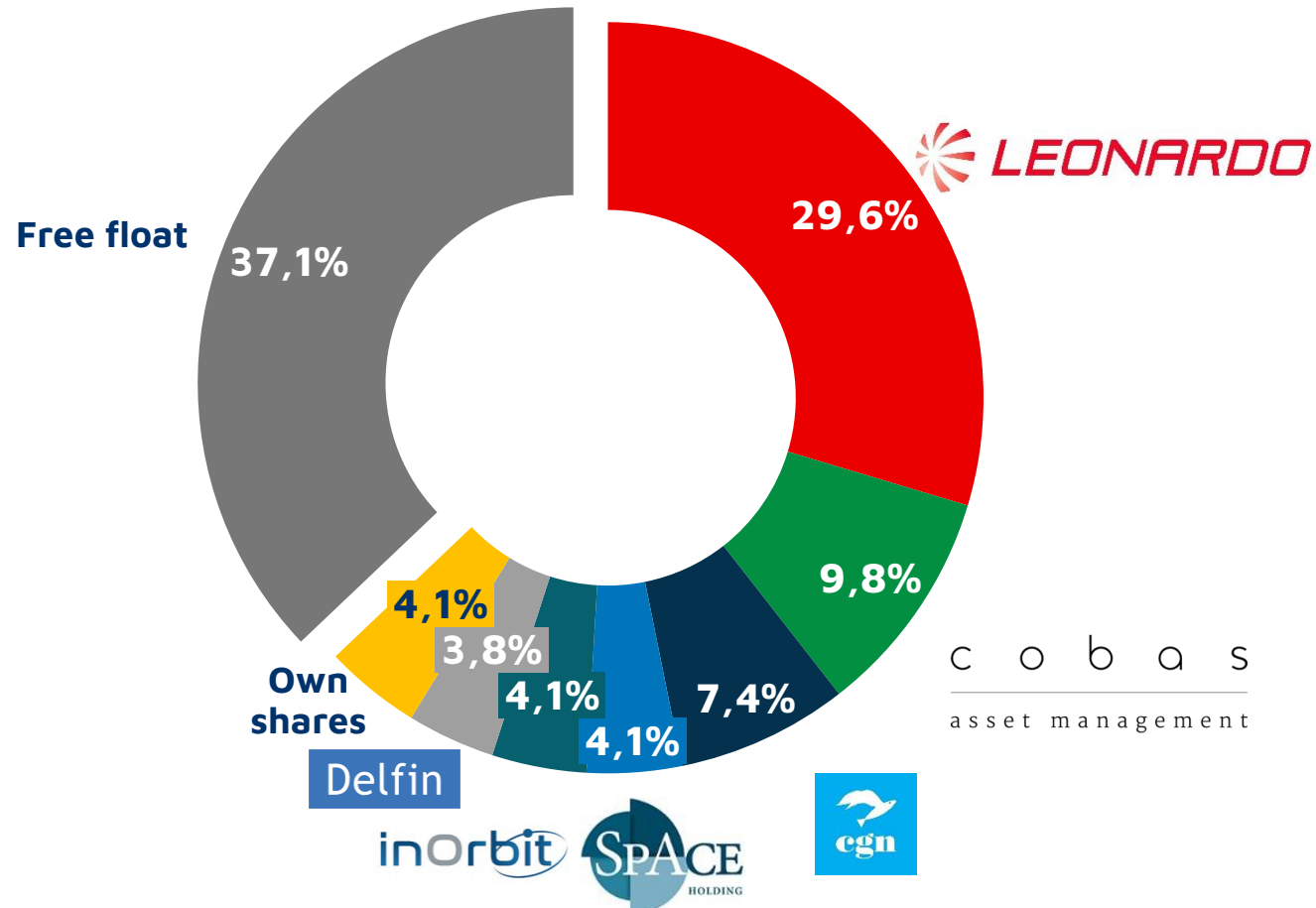
- Solid Rocket Motors for Defence Missiles



- European light launcher
- Avio: developer, manufacturer, launcher system integrator

# A public company managed by a team of investors

- Public Company (IT STAR Stock Exchange Segment)
- ~4% Management share
- ~40% Free Float
- No Controlling Shareholder



# The launch segment : the gateway to the Space economy worth almost 400 \$ Bn

## Global space value chain



# Global customers base for space launches

NOT EXHAUSTIVE



● = Ariane

● = Vega



**Ariane 6**

**Vega C**

**28 launches in backlog**

**14 launches in backlog**



# 60 years track record in space technologies

**Ariane 1-3**  
Separation  
motors



1968

**Ariane 4**  
9.5 ton  
boosters



1990

**Ariane 5**  
230 ton  
boosters



1996

**Vega**  
Launch  
system



2012

**Vega C**  
Improved  
performance



2022

**Ariane 6**



2024

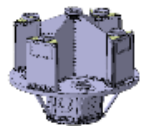


The European Space Agency



# A robust roadmap for future space launch and services

## Applications and services



**SSMS**  
Payload  
Adapter

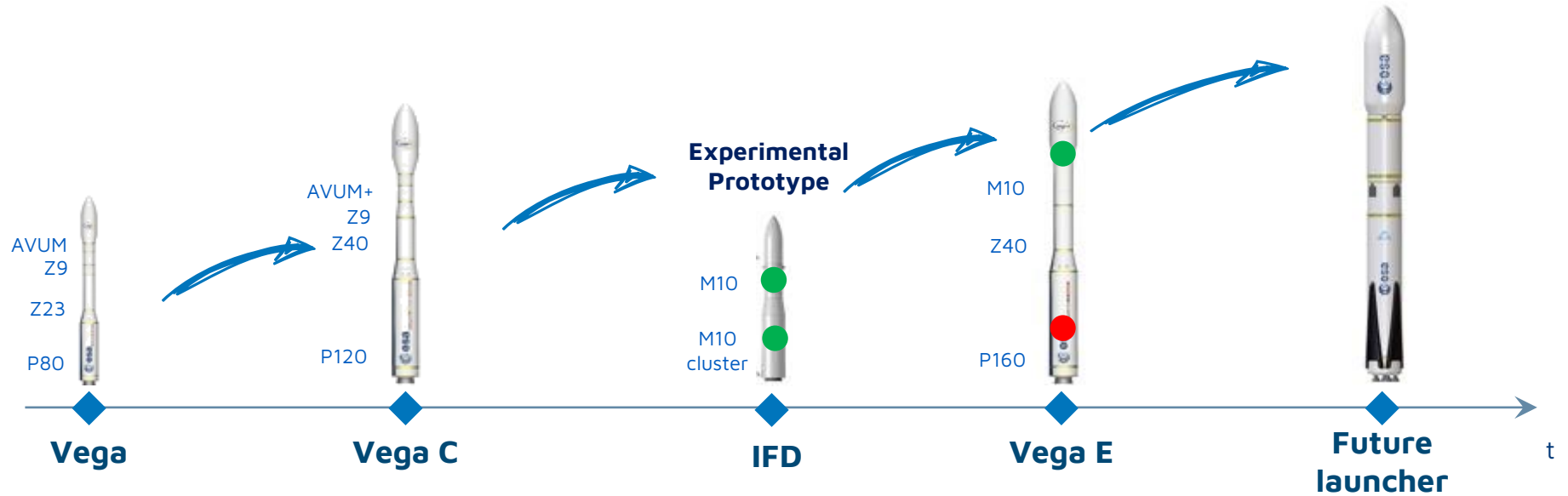


**Space Rider**  
Launch &  
Re-entry

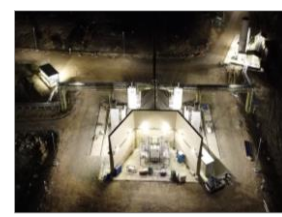
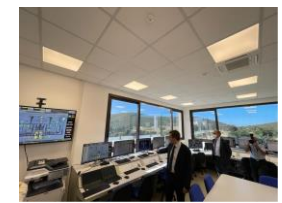


**In-Orbit Service**  
Module

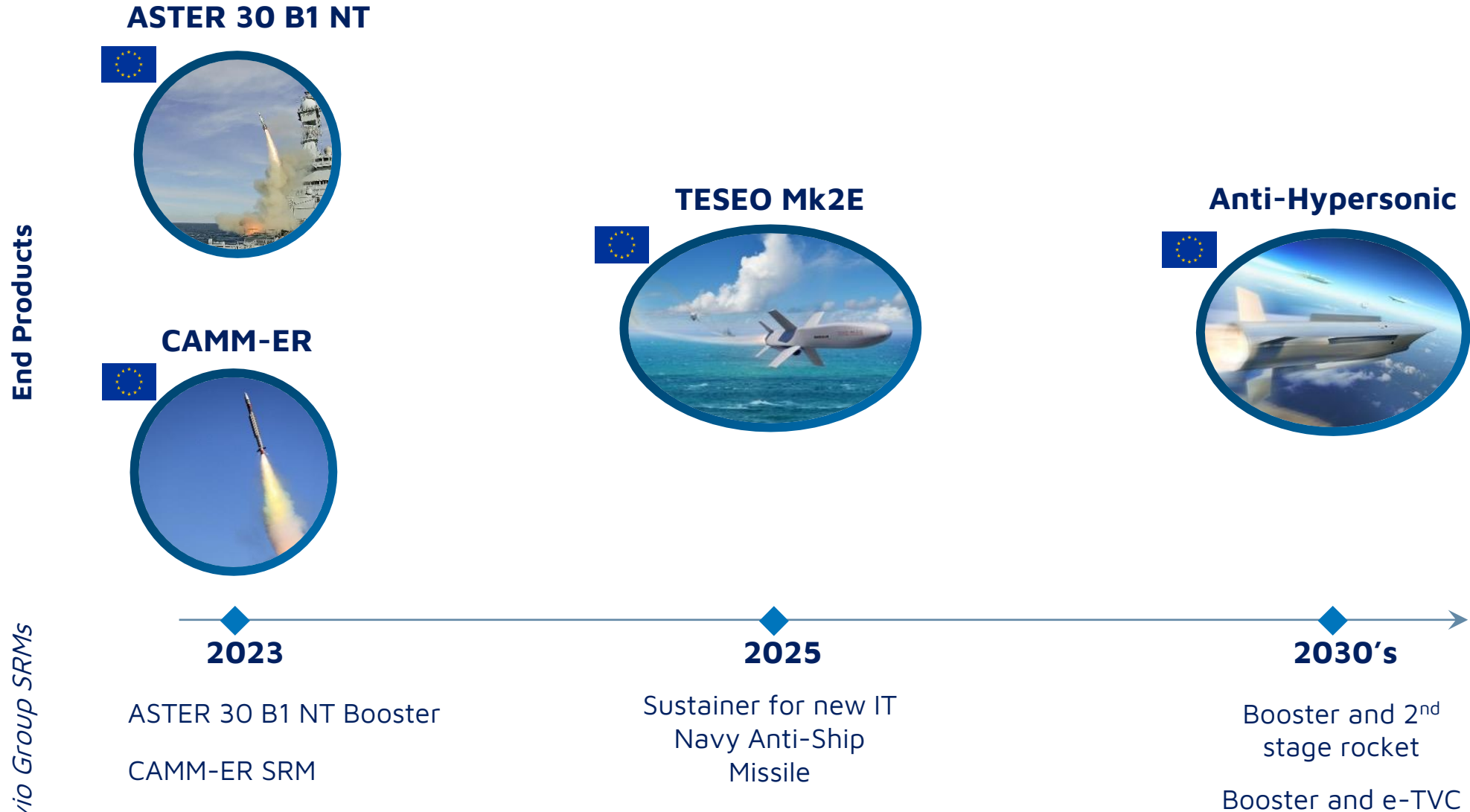
## Launcher Products



# Current industrial footprint



# Our Tactical Products Development Roadmap



AVIO Group SRMs

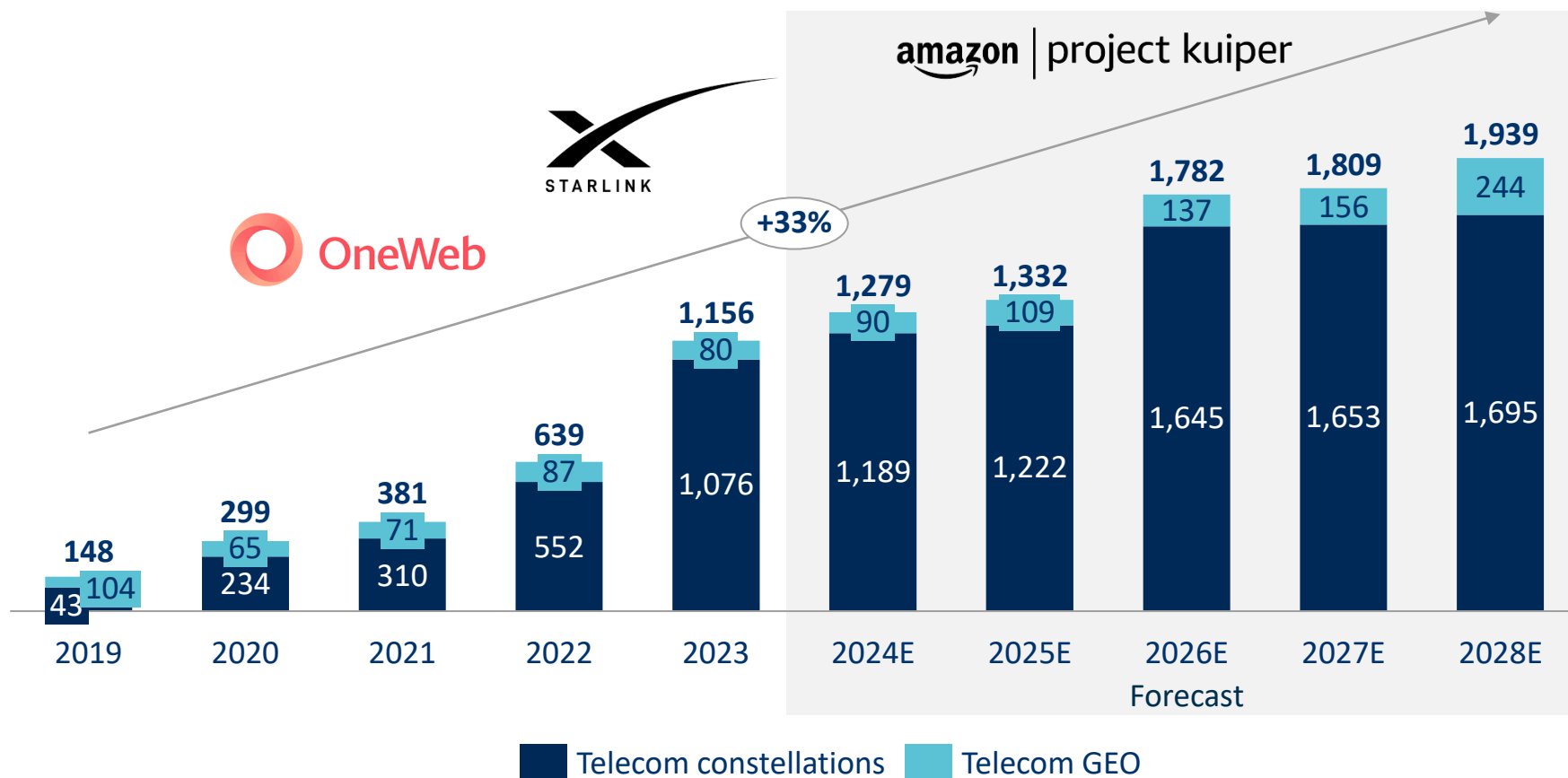
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# Double-digit growth in telco mass driven by constellations

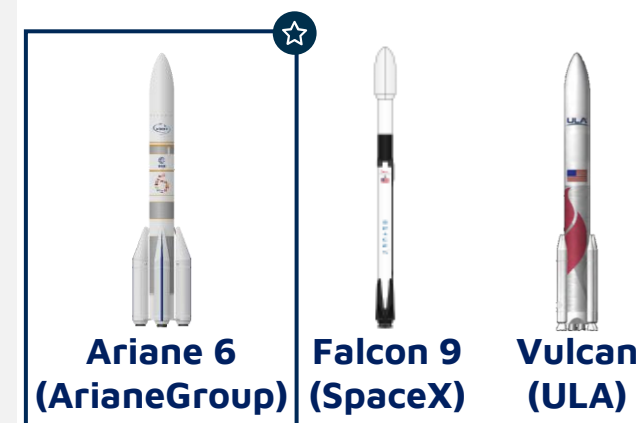
XX% = 2019-2028 CAGR

## Global Telecom launched mass (tons)



## Key players in launch segment

Not exhaustive

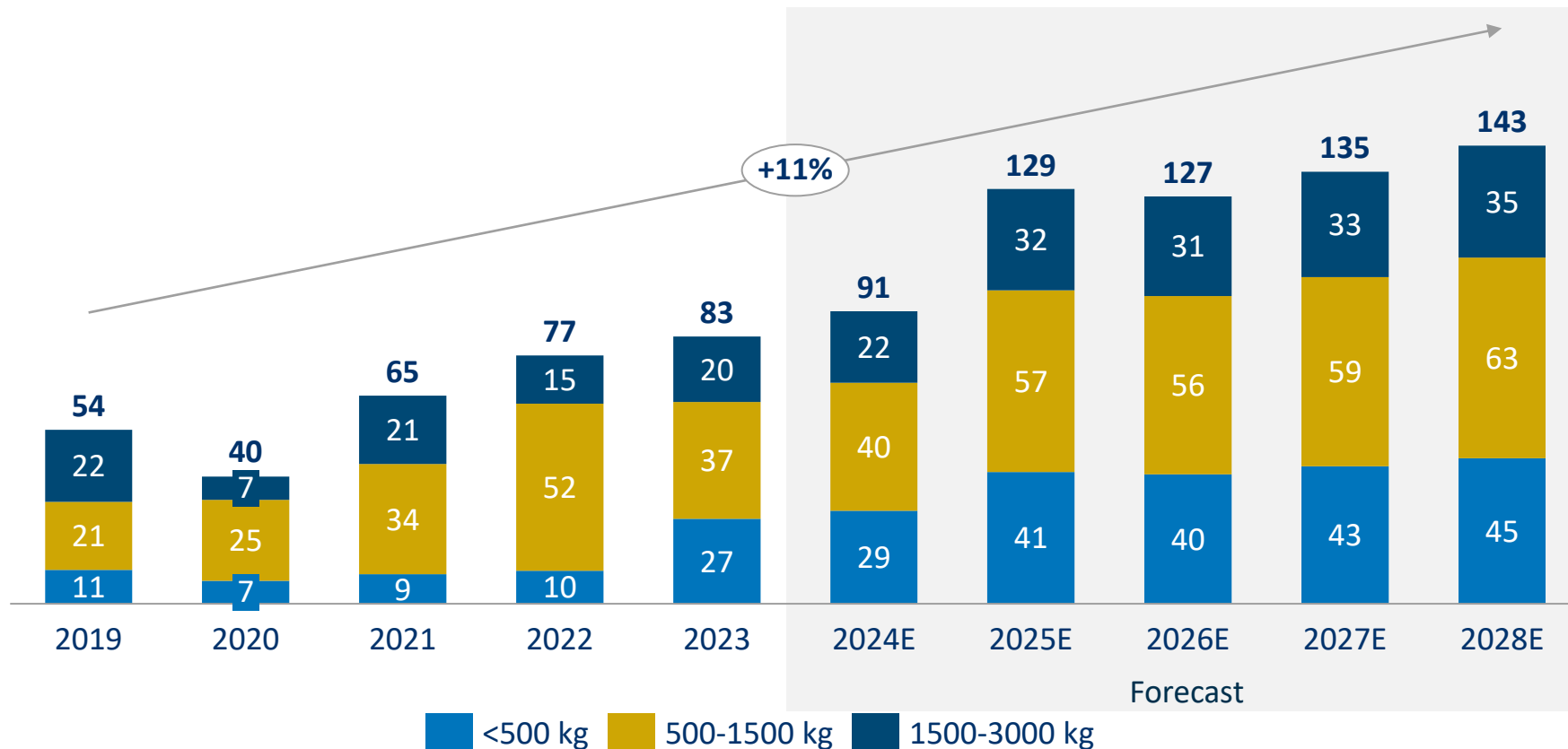


# Steady growth in Vega major addressable mkt (LEO EO + Science)

XX% = 2019-2028 CAGR

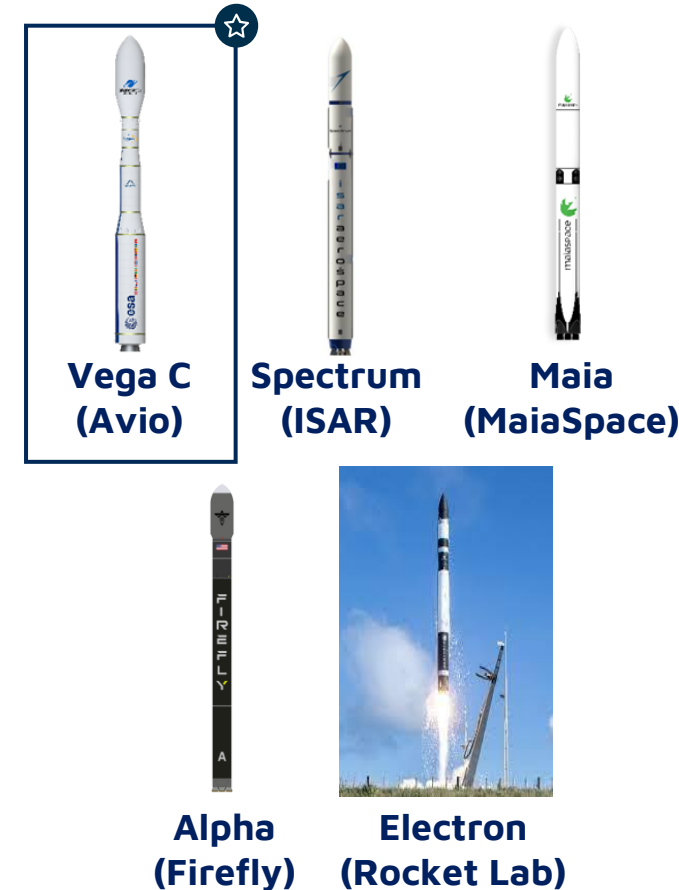
Not Exhaustive - Vega C addressable market includes other segments and applications not shown in the graph<sup>1</sup>

## Global LEO launched mass for Earth Observation and Science applications (tons)



## Key players in launch segment

Not exhaustive



Note: EO = Earth Observation; 1. E.g., small telco constellations, navigation, military, technology  
 Source: Avio Analysis on Gunter's Space Page data; Euroconsult

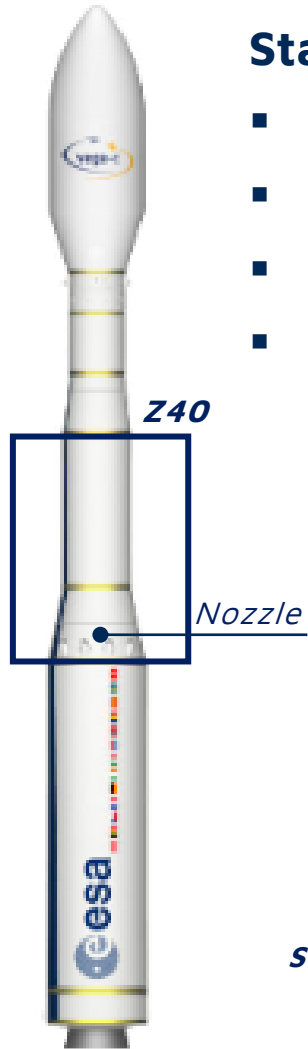
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# VEGA-C Return-to-flight on track for Q4 2024

## Status update and next steps

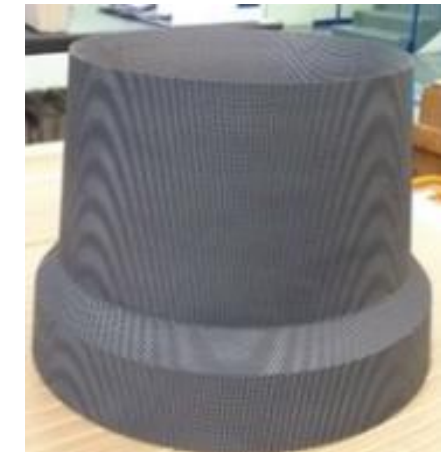
- January 2024: Z40 Nozzle Critical Design Review and Technological Validation key point
- February 2024: Z40 Solid Rocket Motor Performance Key Point
- **Q2 / Q3 2024: QM3 and QM4 Firing Tests**
- **Return-to-flight expected for Q4 2024**



*Sardinia Test Facility refurbished after Z40 QM2 failure*



*Nozzle Lower cone*



*Carbon-Carbon nozzle throat insert (AGS)*



*Nozzle Upper cone*



# Ariane 6 maiden flight expected for June / July 2024

- On November, 23 2023 Ariane 6 **successfully completed the long-duration hot-fire** of the entire flight phase of the core stage
- The main stage and the upper stage of the launcher are in the Launcher Assembly Building (BAL) at the ELA4 launch complex in French Guiana
- ESA, CNES and ArianeGroup **targeting the first launch of Ariane 6 between 15 June and 31 July 2024**



*Vulcan 2.1 hot firing test on launch pad in French Guiana*



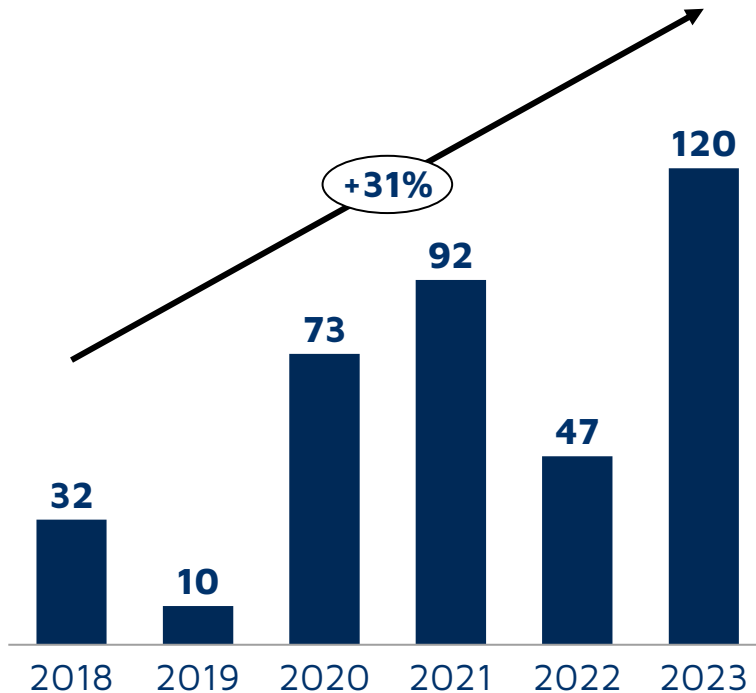
*The first Ariane 6 maiden flight launcher arriving in French Guiana*



*Ariane 6 stages currently in the Launcher Assembly Building in Guiana*

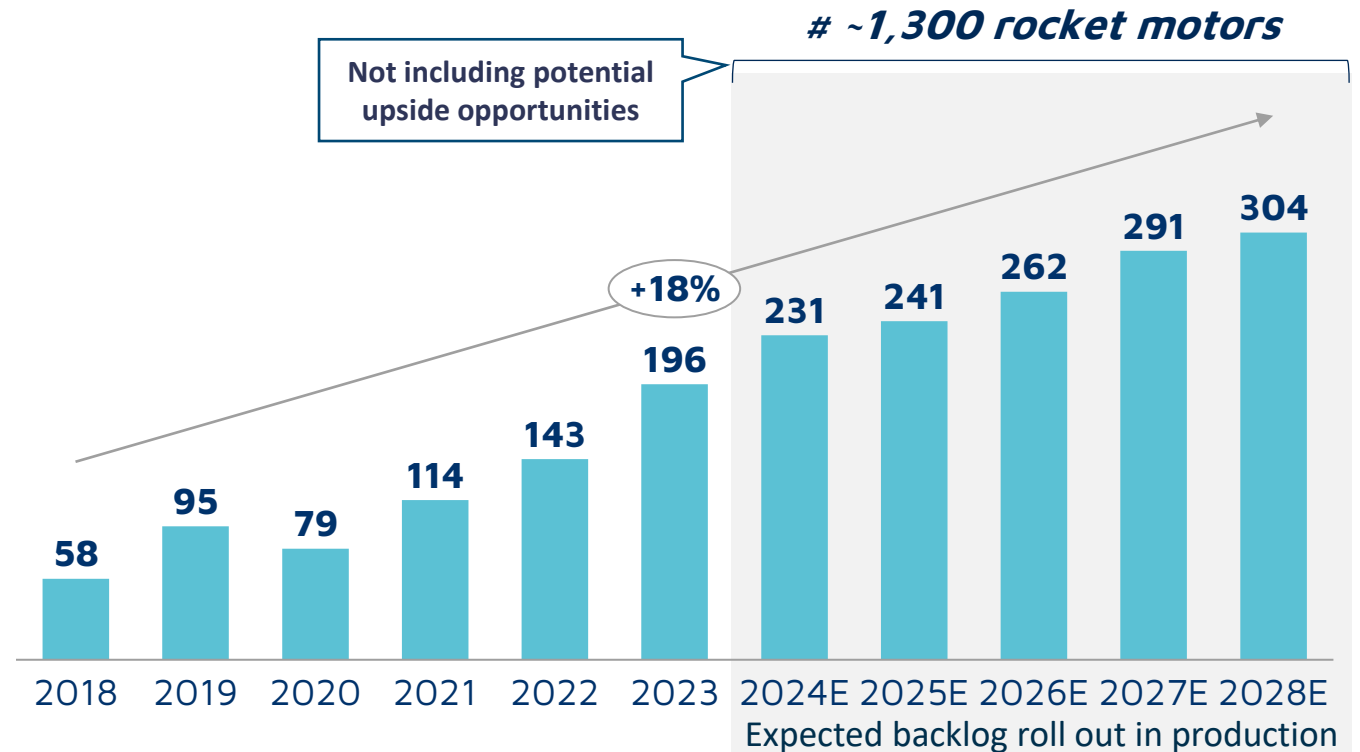
# Defence propulsion: consolidating growth in both backlog and production volumes – now becoming an important profit

Defence propulsion orders (€m)



- **2023 record year for defence propulsion orders**
- Current backlog beyond €300m providing visibility for 5+ years

Defence propulsion production (volumes eq.)



- Steep increase in Aster, CAMM-ER and MARTE production
- Excludes development contracts (e.g., NAREW) and other potential upside opportunities under discussion

# 2024 shall mark the transition towards higher launch rates

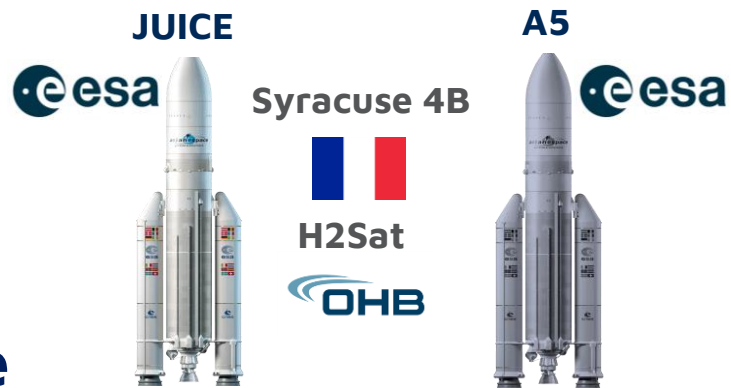


**2023**

**2024**

**2025 <sup>(1)</sup>**

**Ariane**



**6**  
**(Ariane 6)**

**VA260**  
**April**

**VA261**  
**July**

**A6 MF**

**Vega**



**4**  
**(Vega C)**

**Z40 Firing test**  
**June**

**VV23**  
**October**

**Z40 Firing test VV24**  
**Q2 2024**

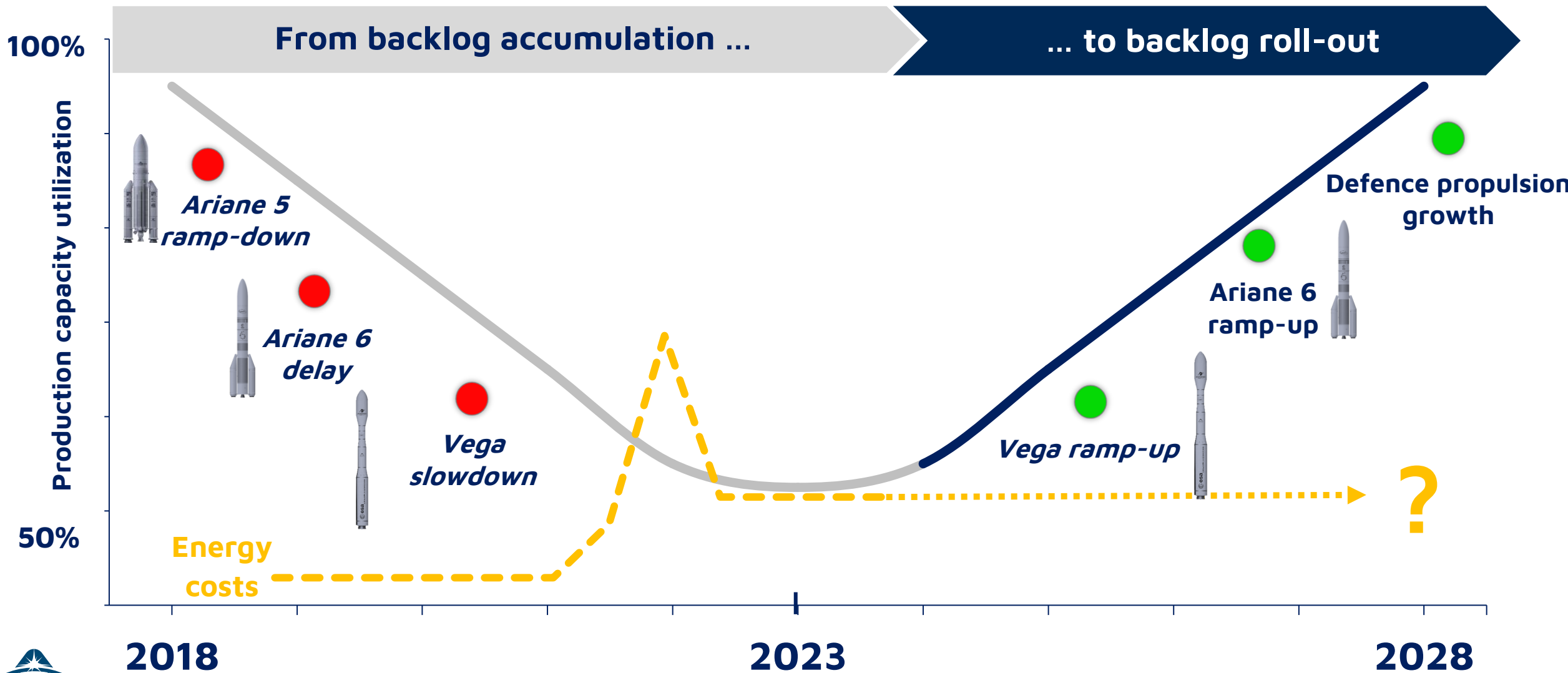
**Z40 firing test**  
**Q3 2024**

**VC03-RTF**  
**Q4 2024**

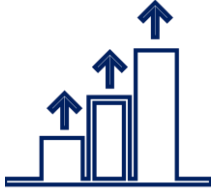
(1) Avio current assumption of contracted flight backlog roll-out



# Where is 2024 along the cycle



# Beyond 2024



- Net Order backlog to remain high and stable in spite of growing annual revenues
- Potential new product lines possible to enable orbital services businesses



- Sustained growth both in space launch and defence propulsion
- Growing volumes in P120/P160 production to sustain Ariane 6 / Vega C ramp-up
- Completion of technology innovation projects to expand future product range



- Margin expansion objectives linked to three main drivers:
  - Progressively higher utilization of installed production capacity
  - Insourcing of «Launch service provider» and «Launch operator» activities
  - Higher contribution from the defence propulsion business



- Upside opportunities in the defence propulsion activities
  - New product developments for existing customers
  - New markets/customers for additional production activities

# Exploring upside potential opportunities in the US defence market

- The defence propulsion business **is experiencing an accelerating growth globally**
- Avio has received an increase in orders for Aster / CAMM-ER and new sub-system developments
- The **US market** is facing a production capacity gap due to the substantial acceleration in demand
- **Avio has started to explore the US market for medium-term opportunities:**
  - ✓ Established 100%-owned subsidiary (Avio USA) with USD 3 million capital to start operations
  - ✓ Hired a US team with deep sector competencies and relevant experience
  - ✓ Started to map opportunities with a view to engage in discussions with prospective customers
- **Avio is continuing on this effort in the course of 2024**

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# 2023 results in line with guidance, Backlog and Net Income beyond expectations

Figures in €m

	2022 Actual	2023 Actual		2023 Guidance
<b>Backlog</b>	<b>1.014</b>	<b>1.359</b>	●	<b>1.150 - 1.250</b>
<b>Revenues</b>	<b>357,3</b>	<b>338,7</b>	●	<b>330 - 350</b>
<b>EBITDA Reported</b>	<b>21,4</b>	<b>20,5</b>	●	<b>19 - 25</b>
<b>EBITDA Adjusted</b>	<b>27,8</b>	<b>28,0</b>	●	<b>25 - 31 *</b>
<b>Net Income</b>	<b>1,3</b>	<b>6,6</b>	●	<b>2 - 6</b>
<b>Net Financial Position</b>	<b>74,4</b>	<b>76,1</b>	●	<b>45 - 66 **</b>

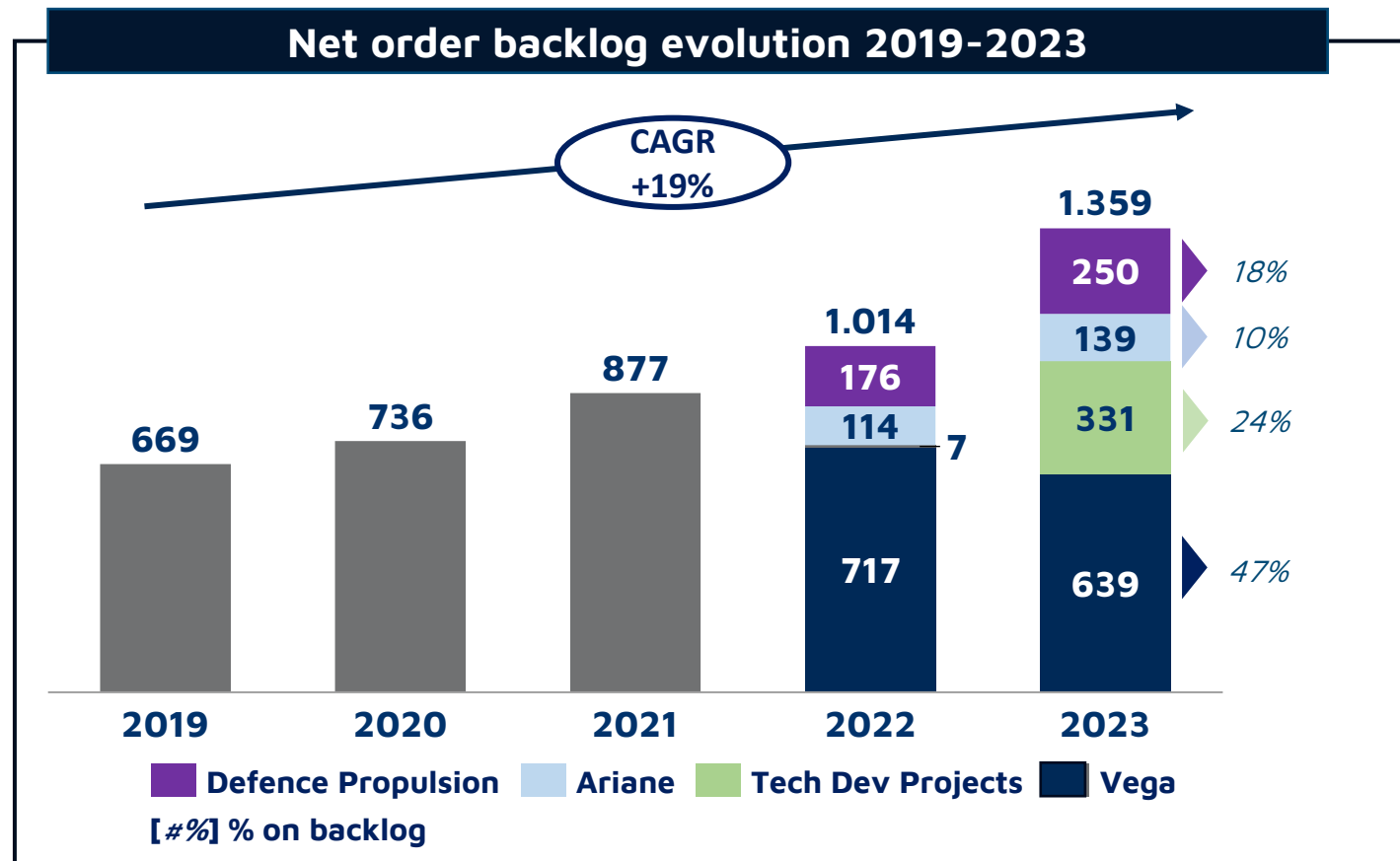
\*Projected on the EBITDA Reported Guidance plus the indication of €5 M of Non-recurring costs given in September 2022

\*\*Min & Max values of consensus



# 2023 record in terms of orders intakes and backlog

Figures in €m



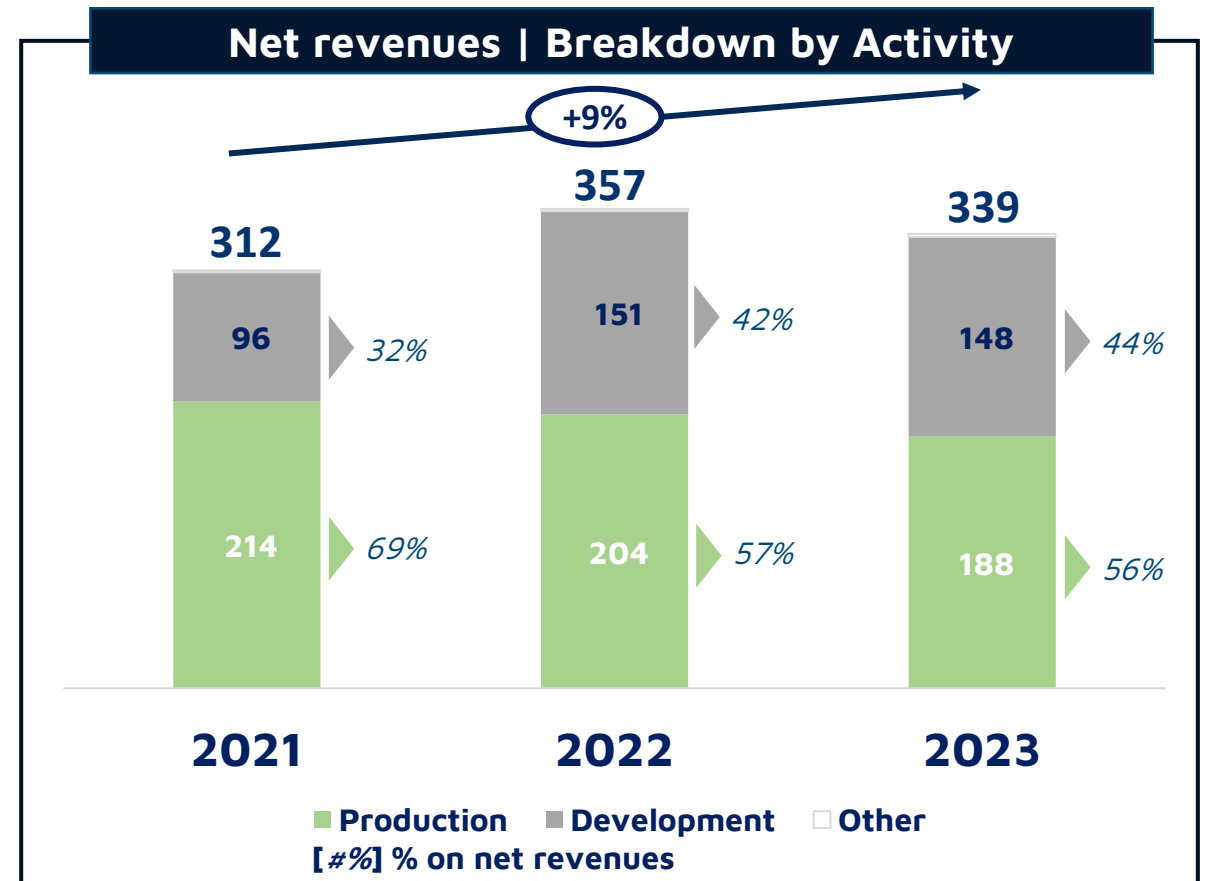
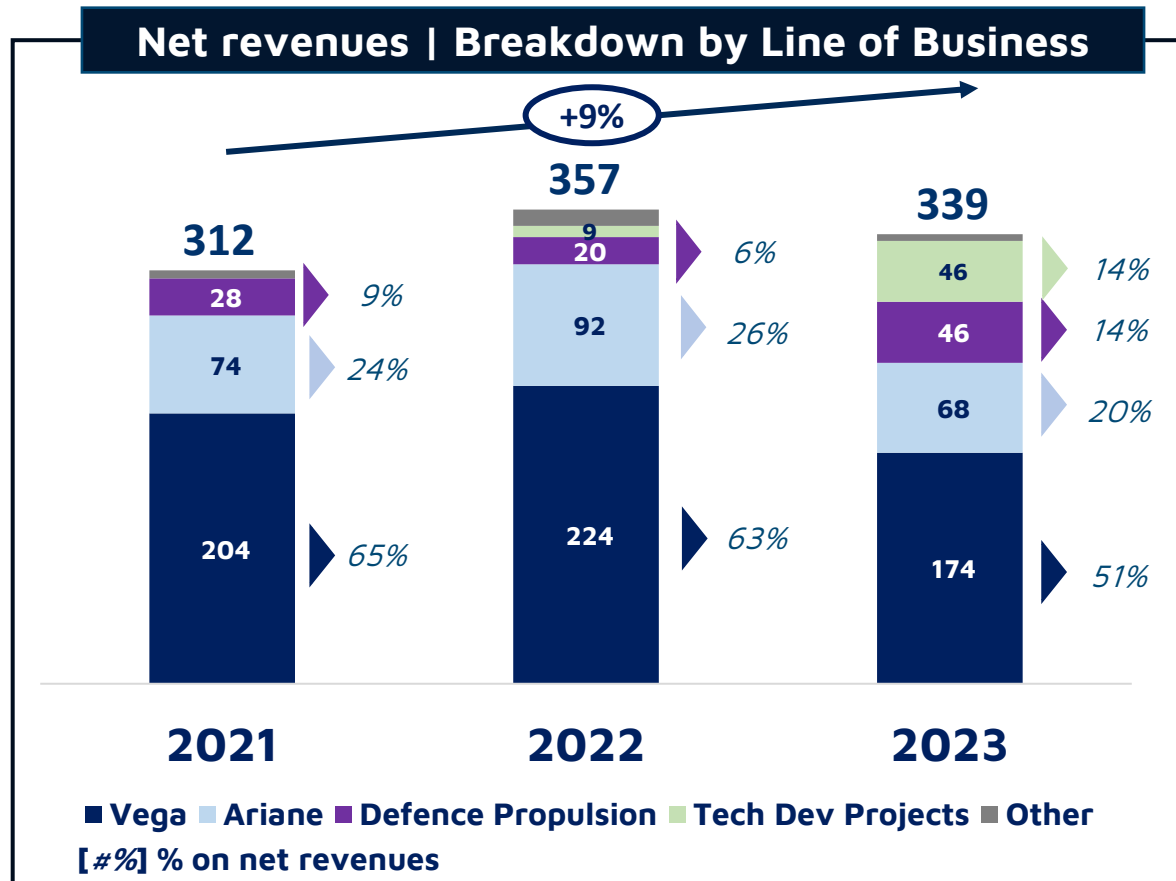
## Main comments

- **Record-breaking backlog scoring €1.4bn** (+34% vs. 2022)
- New contracts signed in 2023 for **~€0.7bn** (~+40% vs. 2022) mainly referred to:
  - **Technology Development projects for ~€370m** (e.g. in-flight demonstrator, High Trust Engine, Multi-Purpose Green Engine)
  - **Defence propulsion** production (i.e. ASTER, CAMM-ER) **for €120m**
  - **P120C** development and production activities **for ~€100m**
  - **Vega C / Space Rider** production and development activities **~€100m**
- Growth in order backlog associated with growth in cash advances

**Vega** and **Defence propulsion** accounts for 50% and 20% of 2023 year-end backlog. 60% of backlog is for production and 40% for development activities

# Net revenues evolution 2021-2023

Figures in €m



In 2023 production revenues lower than 2022 for P120 and Vega C (due to return to flight activities) partially offset by increase in Technology Development projects and defence propulsion activities

# FY 2023 results vs 2022

## AVIO Group | Main financials

	2022 Actual (€m)	2023 Actual (€m)	2023 vs. 2022 (€m)
<b>NET REVENUES</b>	357	339 <b>1.</b>	(18,6)
<b>EBITDA REPORTED</b>	21,4	20,5	(0,9)
% on net revenues	N/R 6,0%	N/R 6,1%	
<b>EBITDA ADJUSTED</b>	27,8	28,0 <b>2.</b>	0,2
% on net revenues	6,4 7,8%	7,5 <b>3.</b> 8,3%	
<b>EBIT REPORTED</b>	2,2	5,2	3,0
% on net revenues	0,6%	1,5%	
<b>EBIT ADJUSTED</b>	8,6	12,7 <b>4.</b>	4,1
% on net revenues	2,4%	3,8%	
<b>PROFIT BEFORE TAX</b>	1,4	6,6	5,3
% on net revenues	0,4%	2,0%	
<b>NET INCOME</b>	1,3	6,6 <b>5.</b>	5,3
% on net revenues	0,4%	2,0%	

## Main comments

- 1.** Slightly lower revenues (-5%) as a result of lower Vega C (due to return to flight) and P120 production activities partially offset by **boost in technology development projects and defence propulsion**
- 2.** **EBITDA adjusted in line with previous year** for the combined effect of lower energy costs and lower utilization rate of production facilities for slow-down of launchers production activities
- 3.** **Non-recurring** costs mainly related to **Vega C return-to-flight** and exploration of new potential business
- 4.** **Positive** effect on **EBIT** also driven by lower depreciations following the review of economic useful lives of certain production assets in connection with the **phase-out/phase-in** of both **Ariane** (A5>A6) and **Vega** (Vega>Vega C)
- 5.** **Net result at ~€7m** also benefited from positive **financial incomes** (also thanks to cash advances) and **neutral tax** burden

# Cash from new contracts contributes to a structurally negative working capital

Figures in €m

## AVIO Group | Sources and uses

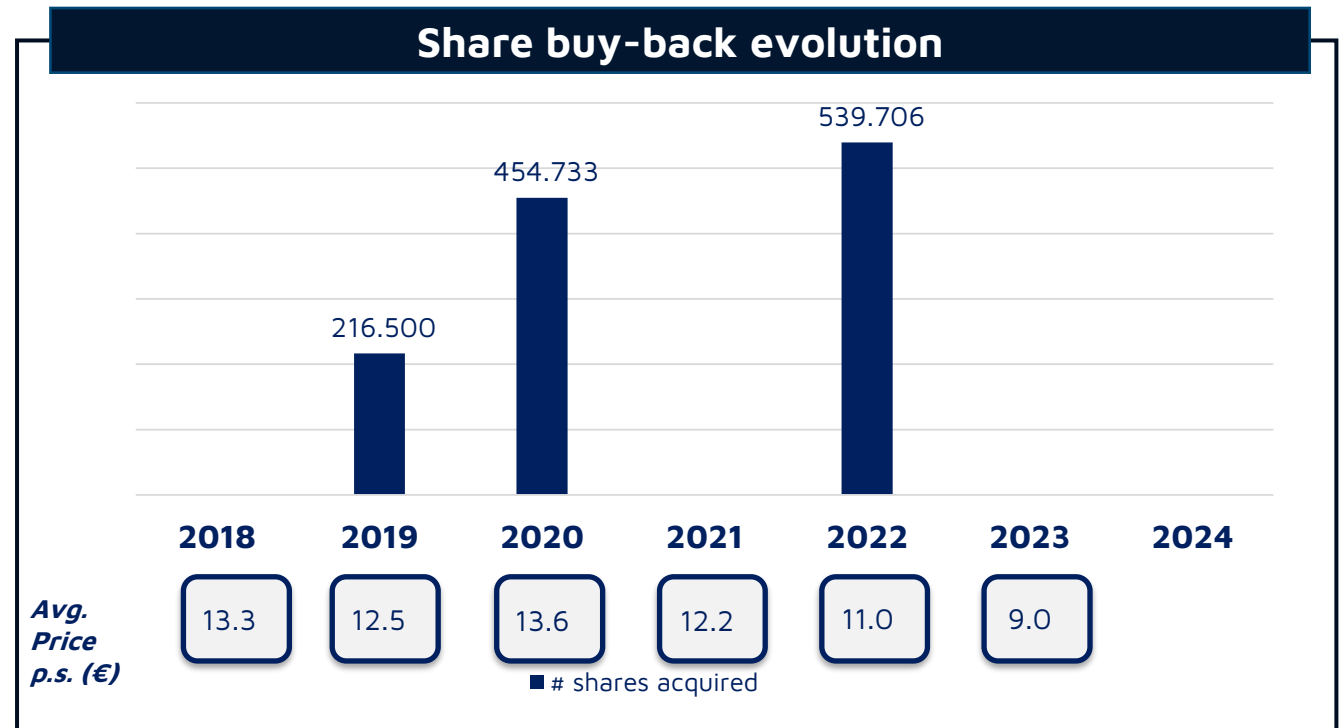
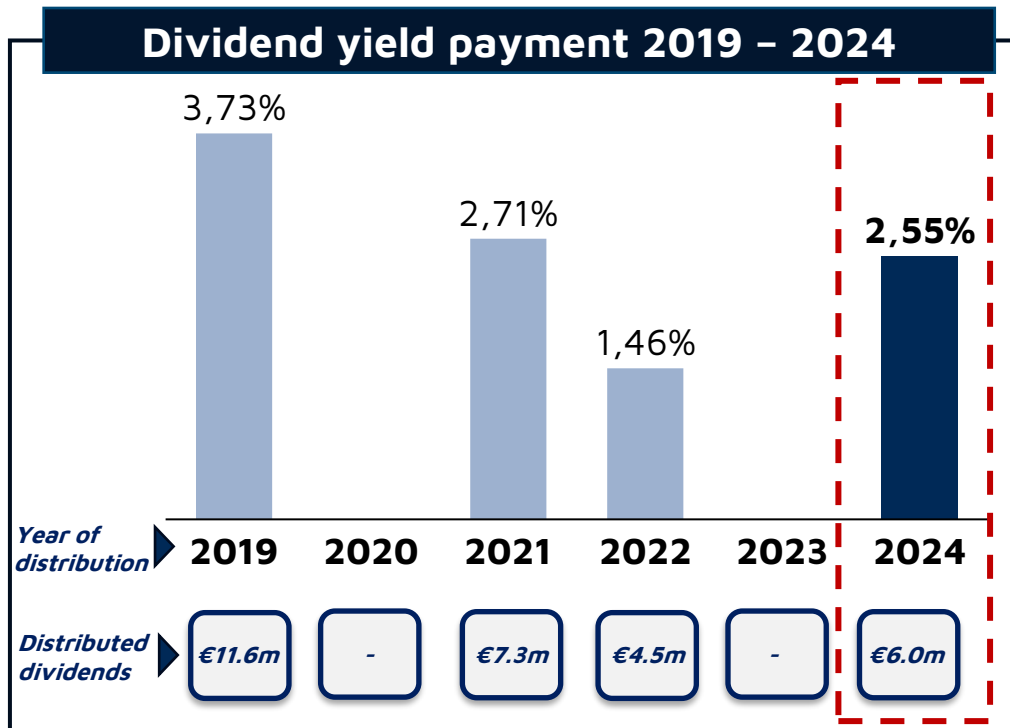
	2022 Actual (€m)	2023 Actual (€m)	
<b>WORKING CAPITAL</b>	<b>(140,9)</b>	<b>(171,0)</b>	<b>1.</b>
<b>DEFERRED TAX ASSETS</b>	<b>81,5</b>	<b>81,2</b>	
<b>PROVISIONS</b>	<b>(62,9)</b>	<b>(52,8)</b>	<b>2.</b>
<b>GOODWILL</b>	<b>91,8</b>	<b>89,2</b>	
<b>FIXED ASSETS</b>	<b>257,4</b>	<b>285,6</b>	<b>3.</b>
<b>FINANCIAL RECEIVABLES</b>	<b>2,0</b>	<b>2,0</b>	
<b>NET INVESTED CAPITAL</b>	<b>228,8</b>	<b>234,2</b>	
<b>NET CASH POSITION</b>	<b>74,4</b>	<b>76,1</b>	<b>4.</b>
<b>EQUITY</b>	<b>(303,3)</b>	<b>(310,4)</b>	<b>5.</b>
<b>TOTAL SOURCES</b>	<b>(228,8)</b>	<b>(234,2)</b>	

## Main comments

1. Working capital structurally negative thanks to cash advances from order intakes
2. Decrease in provisions mainly related to extraordinary costs for Vega C Return to Flight activities (net of ESA compensations) and for the execution of future programs provided for in previous year
3. Mainly for capex for Vega cadence increase, technological innovation projects, A.I. and development of new launchers of Vega family, net of depreciation
4. Net cash position in line with 2022
5. Increase in equity mainly for net income 2023

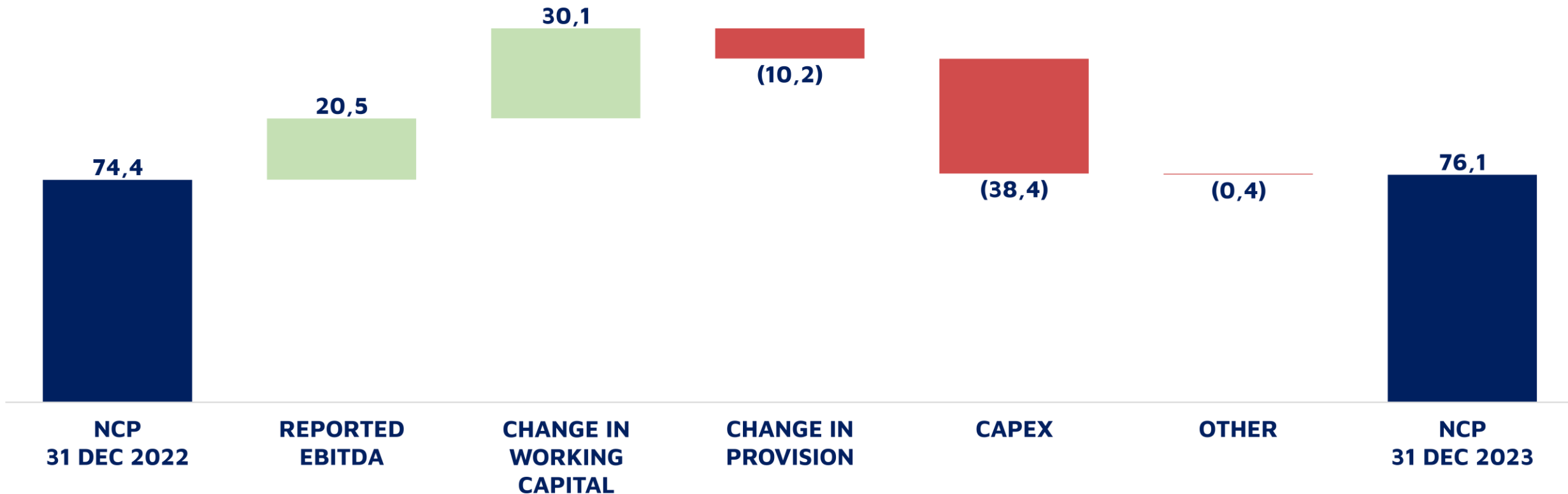
# Proposed dividend distribution in 2024 and shares buy-back

- **Robust 2023 net income drives proposal for return to dividend distribution in 2024**
- **Board of Directors has proposed** to the Annual Shareholder's meeting on 23<sup>rd</sup> April:
  - **dividends distribution for €6.0m<sup>(1)</sup>** with dividend yield of 2.55%
  - **shares buy-back program** for an amount of €4.9m



# 2022 – 2023 Net Cash Position bridge

Figures in €m



# FY2024 Guidance



## BACKLOG

€m	€m
1.500	1.600

- *10%-15% growth vs 2023*
- *New orders from defence propulsion business*
- *Backlog expected to start roll-out*



## REVENUES

€m	€m
370	390

- *10% growth vs 2023*
- *Growth on defence propulsion activities and Technological Development Projects*



## EBITDA REPORTED <sup>(1)</sup>

€m	€m
21	26

- *10% growth vs 2023*
- *Backlog roll-out to "unlock" production and economies of scale*



## NET INCOME

€m	€m
6	10

- *10%-20% growth vs 2023*
- *Marginal effect of financial charges and taxation*

(1) Implying an EBITDA Adjusted ranging from €28m to €33m considering €7m as non recurring costs

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# Avio profile

# Avio technology portfolio



**Solid Propulsions**



**Structures**



**Liquid Propulsion (upper stage)**



**Avionics**



**Launch operations**

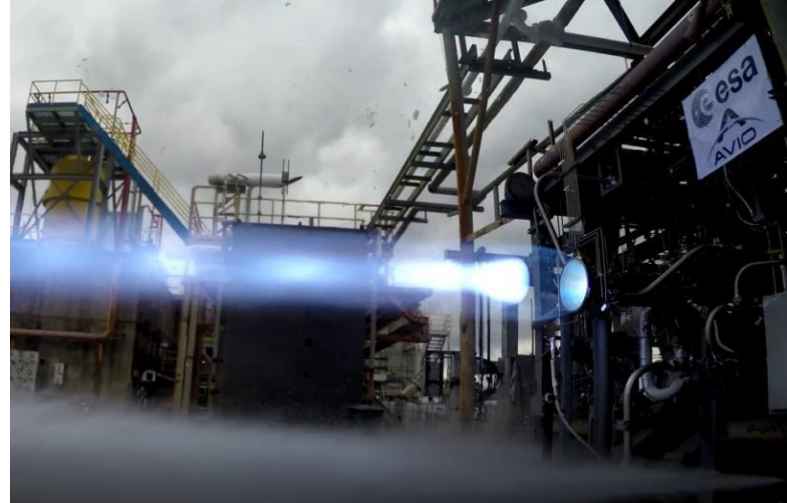


**Composite materials**

# Testing and launch operations in Europe



**SRM testing (Z40 and P120)**



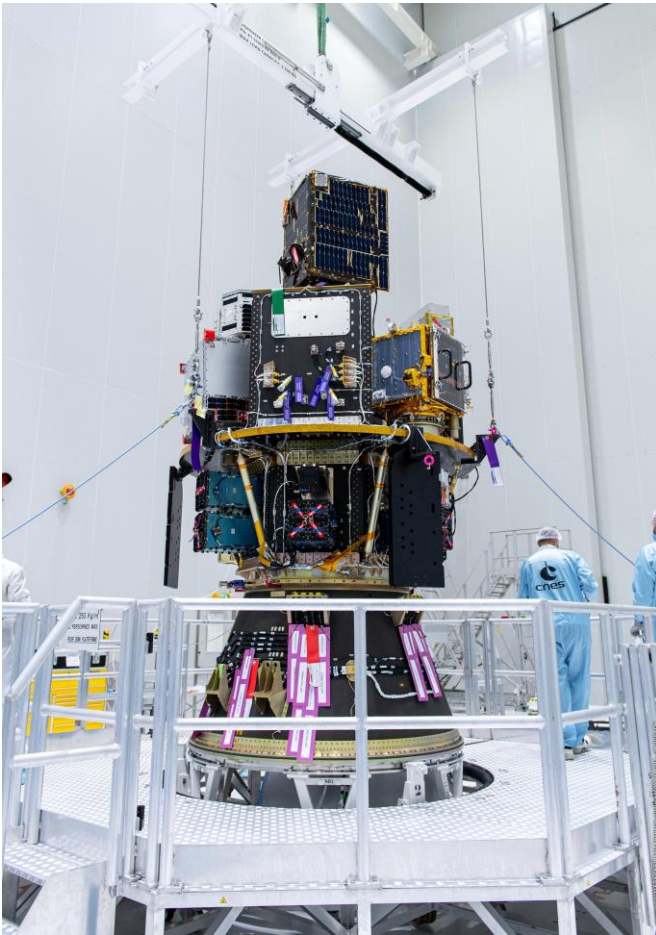
**Liquid engines testing (M10)**



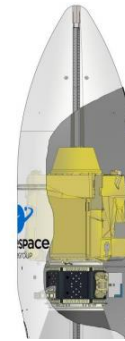
**Vega integration**

# Space launch capabilities today

**Vega C**  
**2,3ton Payload in LEO**



**Vega C - SSMS**  
**Piggyback/Rideshare**



**Ariane 6**  
**20ton LEO, 11ton GEO**

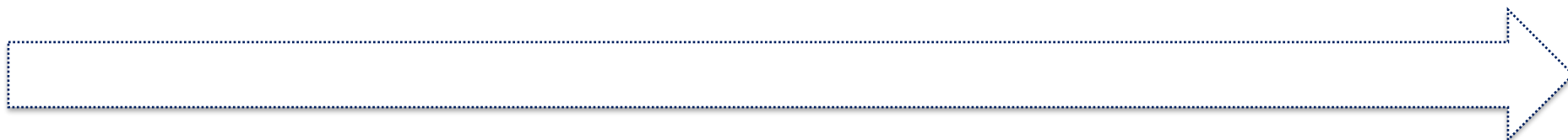


# Major shift in Avio responsibilities for Vega operations by 24/25



## Changes in Vega business perimeter to be implemented in 2024 :

- **Worldwide Sales & Marketing** with end customers (transfer from Arianespace)
- **New launch pad for Vega E (ELA 3)** – transfer from ESA
- **New launcher integration facility BIL** (higher flight rate from 4/y to 6/y) – from ESA
- **Flight operations** FSOA<sup>(1)</sup> responsibility (transfer from Arianespace)



• Responsibility for the **delivery of launcher up to 4th stage** (before prop load)

• **Visibility on commercial activities** via VESC committee through review of 3 year Business Plan

• Responsibility of **launcher up to lift-off (HO)**

• **AE Vega Business Unit Manager** appointment by Avio&AE  
• **Allocation of payloads** between Avio & Vega

• Vega C **exploitation protocol** agreed. Responsibility for upper part design and integration. **Allocation policy** defined

• Responsibility for **Launch Pad complex** and associated facilities and subcontracts

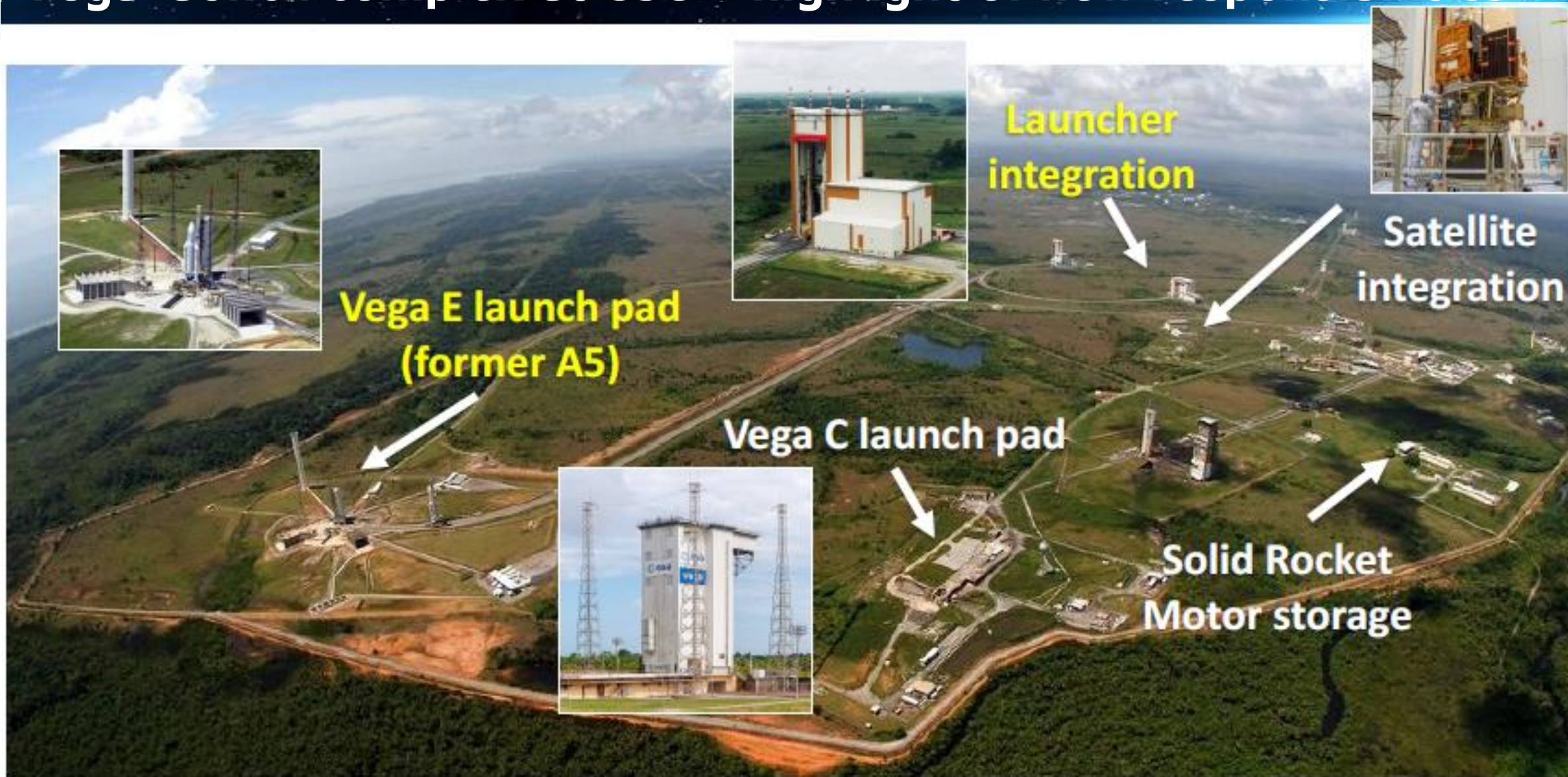
• Responsibility for **satellite integration** with launcher

• Start process to become **Launch Service Provider** (commercial activities) and **Launch Operator** (in-flight responsibilities)



(1) French Space Operations Act

# Vega launch complex at CSG – highlight of new responsibilities





# Market update

# Future launch market value concentrated on Government LEO Sats

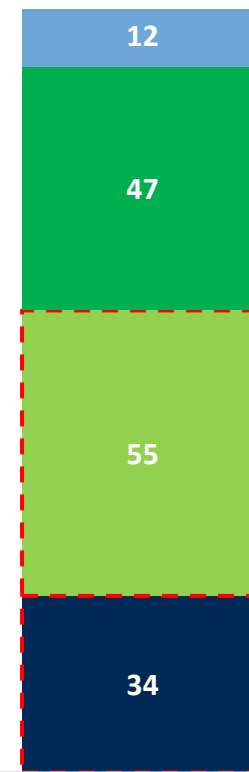
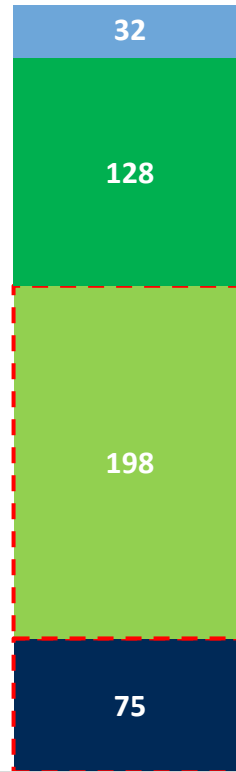
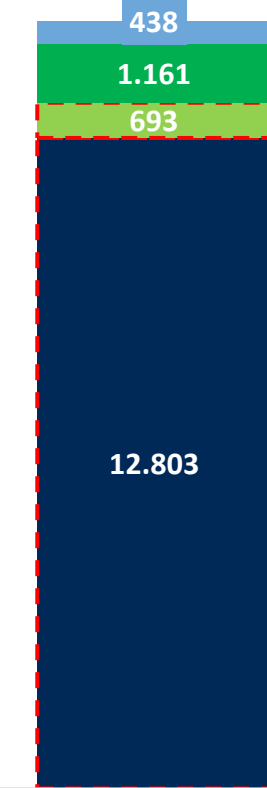
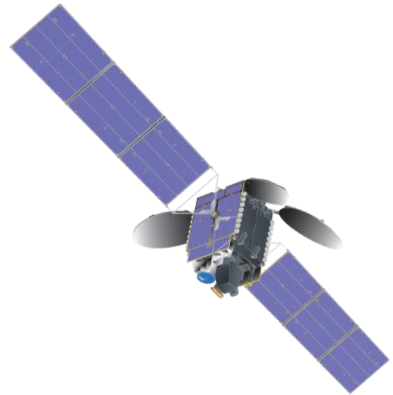
2023-2032 expected satellite and launch markets by operator type

100% = 15 095 tons

100% = \$433 B

100% = \$148 B

  = Vega C/E target market



Mass (tons)

Sat value (\$B)

Launch value (\$B)

■ Commercial LEO  
 ■ Institutional LEO  
 ■ Institutional non-LEO  
 ■ Commercial non-LEO

Excludes Academic and niche markets. Source: Euroconsult





# Business update

# P160C booster upgrade for Ariane 6 and Vega C well on track

## PROGRESS STATUS

PRELIMINARY DESIGN REVIEW

CRITICAL DESIGN REVIEW

IMC SHIPMENT

LMC CASTING

LMC DELIVERY

QUALIFICATION TEST ON QM3

GROUND QUALIFICATION REVIEW

FULL OPERATIONAL CAPABILITY DEMONSTRATION

**Customer:** European Space Agency

**Objective:** P160C Solid Rocket Motor ("SRM") is the evolution of Qualified P120C SRM. P160C will be devoted to Ariane 6 Block 2 and VEGA-E Launch Vehicles (LV)

### Status update:

SRM Critical Design Review: completed in March 2024

Qualification Model #3 (QM3): Insulated Motor Case (IMC) Manufacturing ongoing (Inspections before IMC Acceptance Tests), IMC shipment scheduled in June 2024



*IMC, Thermal Protection after machining*



*IMC, Composite case during winding (initial phase)*



*IMC, Composite Case winding*



*IMC, Composite case after thermal curing*

# VEGA-E Program progressing well on both flight and ground segments

## PROGRESS STATUS

PRELIMINARY DESIGN REVIEW

SUB-SYSTEMS PRELIMINARY DESIGN REVIEW

CRITICAL DESIGN REVIEW

GROUND QUALIFICATION REVIEW

QUALIFICATION FLIGHT

FLIGHT QUALIFICATION REVIEW

**Customer:** European Space Agency

**Objective:** VEGA-E Launcher aims to increase the Payload launch capability by 25% with respect to VEGA-C, leveraging the "M10" Liquid Oxygen and Liquid Methane engine for the upper stage

## Status update:

Wind Tunnel tests completed in 2023 (as part of the Launch Vehicle Design Review process)

M10 Engine Firing Tests successfully performed in AVIO SPTF in Sardinia

ZL3 launch complex assigned to Vega E



*Wind Tunnel tests completed in 2023 (as part of the Launch Vehicle Design Review process)*



*DM1 (2022) and DM2 (2023) M10 Engine Firing Tests*



*"ZL3" launch complex*

# Space Rider: the innovative spaceplane now in the ground testing phase

## PROGRESS STATUS

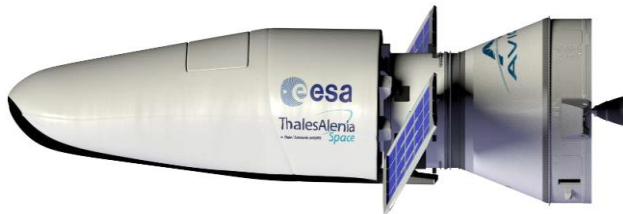
PRELIMINARY DESIGN REVIEW CRITICAL DESIGN REVIEW HWIL STEP #1 **UCMEC TEST** HWIL STEP #2 HWIL STEP #3 HWIL STEP #4 AOM-RM JOINT TEST QUALIFICATION REVIEW LAUNCH READINESS REVIEW

**Customer:** European Space Agency

**Objective:** Development of a reusable orbital and re-entry system aimed to manage multiple commercial and institutional applications (e.g. microgravity, IOV/IOD, Earth and Space Observation applications, etc.)

**Status update:**

HWIL campaign started in December 2023 First test tranche successfully completed



### UCMEC TEST

### Availability of Avionic items for HWIL Test campaign



PSIU EM (Temis)



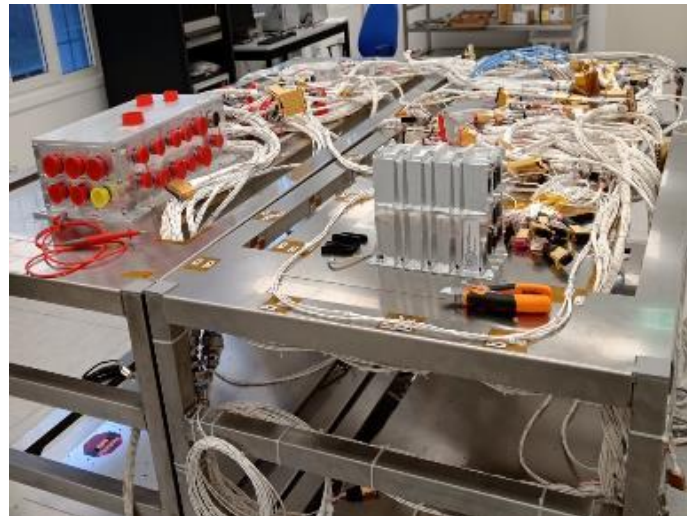
Magneto Meter EM (Lusospace)



PCDU EM (LDO)



ALEK cylinder (BG) manufacturing completed



HWIL Test Setup (AVUM+ALEK)



HWIL campaign step1 successfully completed

# Technological Development Projects to prepare next-gen launchers and applications progressing as expected



Launcher Products acceleration



Applications and services acceleration



## Space Transportation Systems

**Objective:** Accelerate development and know-how with 2 small Flight Demonstrators (design, mfg. & launch)

*Start of HWIL activities in apr-24*

## High Thrust Engine

**Objective:** Achieve full-scale hot firing demonstration of a 60ton LOX-Methane engine by 2026

*Pre-burner firing test by end of March  
Assembly line operative by end of '24*

## Multi-Purpose Green Engine

**Objective:** Create a highly versatile "Green" engine for orbital propulsion and in-orbit services and logistics

*Manufacturing and integration of the first two engine models by June 2024*

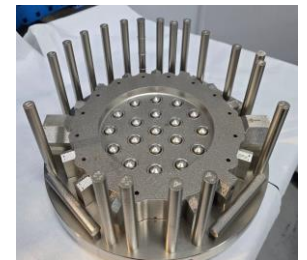
## In-Orbit Servicing module

**Objective:** Develop enabling technologies to fulfill in-orbit-servicing mission objectives<sup>1</sup>

*Concept design architecture established  
System Req. Review passed*



← Thrust chamber



Injector section →

**M10 for IFD1 Flight: manufacturing on going, TCA and Nozzle Printed in house**

ThalesAlenia partnership  
a Thales / Leonardo company Space



## CONTACTS

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