PARIS, OCTOBER 9<sup>TH</sup> 2024

# Avio presentation 2024 Italian Excellences



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Market Update

**Business Update** 

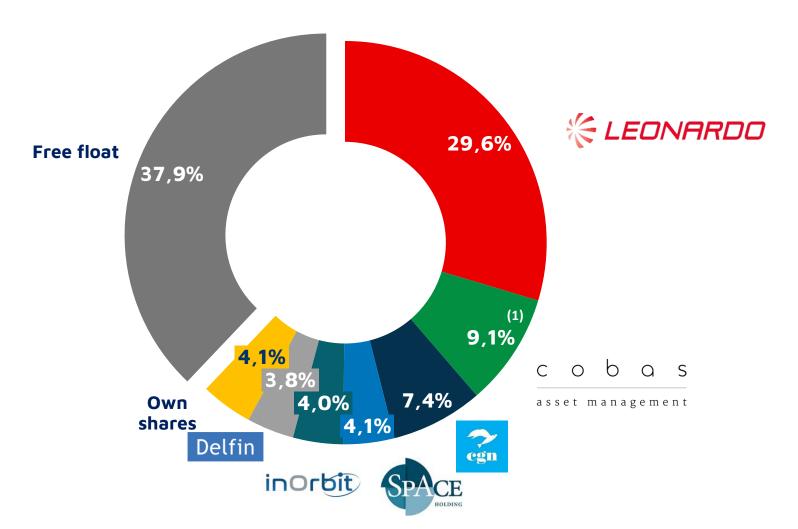
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## Avio: propulsion for Space and Defense





# A public company managed by a team of investors



- Public Company listed on Euronext STAR Milan
- Approx. ~€300m market capitalization
- ~4% Management share
- ~40% Free Float
- No Controlling Shareholder

## Global customers base for space launches

#### **NOT EXHAUSTIVE**







## 60 years track record in space technologies

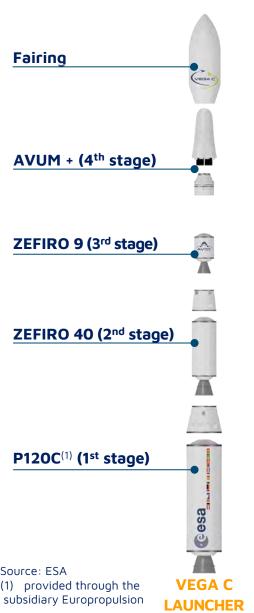
Ariane 1-3 Vega C Ariane 6 Ariane 5 Ariane 4 Vega 280 / 560 tons **Improved** 210 ton Launch **Separation** 240 ton performance boosters boosters boosters system motors 1968 1990 2012 1996 2022 2024



The European Space Agency



# Overview of Avio main products for Space





- Avio is the prime contractor for developing and manufacturing Vega family launchers. Avio is also responsible for Vega C commercial operations
- Avio is partner of the Ariane 6 program, providing the solid rocket boosters P120C<sup>(1)</sup>, and the liquid oxygen turbopumps for the core stage Vulcain 2.1 engine and the upper stage Vinci engine



## A robust roadmap for future space launch and services

Applications and services



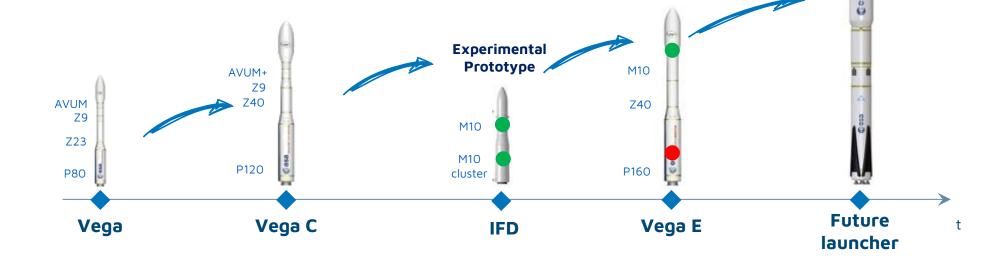




#### **Launcher Products**

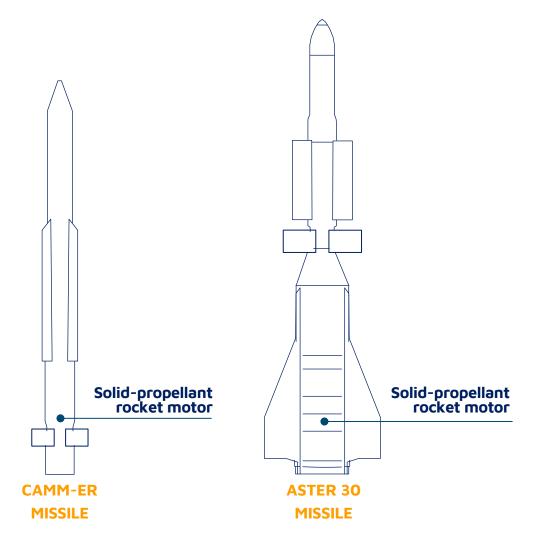








## Overview of Avio main products for Defense



- The CAMM-ER missile program gives to Avio, under MBDA contract, the role to design, develop, qualify and manufacture the solid-propellant rocket motor of the CAMM-ER air defense missile (including wings)
- The Aster 30 first-stage booster, fully designed and produced by Avio (including fins), is considered as one of today's most powerful and technologically advanced solid-propellant rocket motors

## Current industrial footprint









#### **Europropulsion**

(50% Avio and 50% AG)



Solid propulsion stage integration





Avio S.p.A. - Colleferro, Rome

The company's headquarters and production plants of solid and liquid propellant motors for LVs



#### Avio USA - Arlington, VA

Regulus

Kourou, French Guiana (60% Avio and 40% AG)









(70% Avio and 30% ASI) Vega Launcher







Avio Guyane Kourou, French Guiana

(100% Avio) Launch Complex





Sardinia

SPTF Test Facilities for Liquid Engines









## VEGA new facilities at CSG for cadence improvement





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

#### Global space value chain











Launch (1,2) \$ 7.0bn

**Satellites (MFT)** \$ 15.8bn

Ground<sup>(3)</sup> \$ 145bn Services<sup>(2,4)</sup> \$ 113bn

End users

#### Government \$ 103bn







**AIRBUS** 

BOEING

DEFENCE & SPACE



A MAXAR COMPANY

































Source: Satellite Industry Association (2023)

















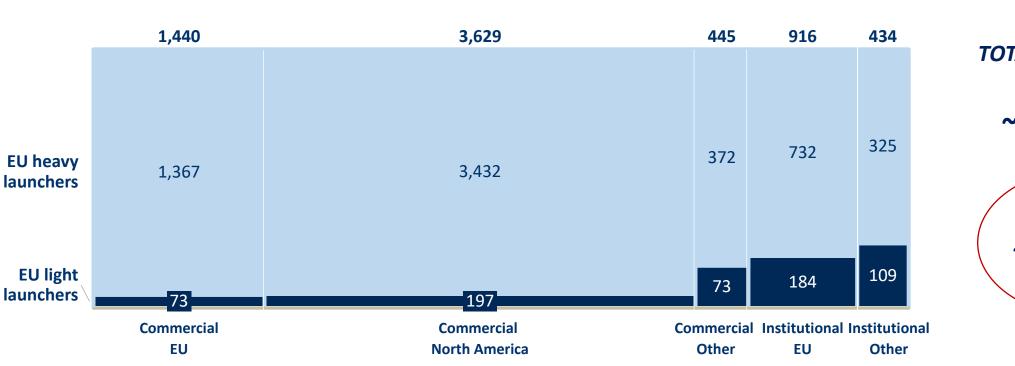




## EU launchers addressable markets are large and growing

- EU heavy launchers addressable market more than 10x compared to EU light launchers, 80% Commercial 20% Institutional in mass
- Light launchers addressable payloads are 100% addressable also by heavy launchers, light launchers performing better on the Institutional market (no Mega-constellations)

#### **Cumulated 2024-2033 EU launchers addressable market mass (tons)**











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## VEGA VV24 mission successfully completed

- On September 5<sup>th(1)</sup> VEGA launcher successfully deployed into sun-synchronous orbit Sentinel-2C, a
  Copernicus satellite for the European Commission. The mission marked the handover to the VEGA C
  launcher
- Starting from its inaugural flight in February 2012, VEGA has carried out a total of 22 launches:
  - ✓ more than 120 satellites deployed into orbit, with extreme orbital accuracy
  - ✓ approximately 18 tonnes of total launched mass (~800 Kg per launch).
  - √ 91% success rate overall







Sentinel 2-C in clean room | Sentinel 2-C encapsulated in VEGA fairing

VV24 lift-off

## VEGA launcher: a 12-year history of success and "first times"

#### Most notable launches (1)

#### Reliability during first 22 missions

#### VVO4 (IXV)

Launch of reentry demonstrator Intermediate experimental Vehicle, that showed Europe had the technology to launch a vehicle to space and return it safely to Earth. This demonstration mission was a precursor to the reuseable Space Rider spacecraft



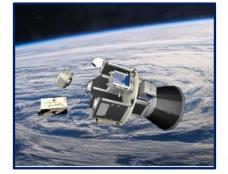
#### VV06 (LISA Pathfinder)

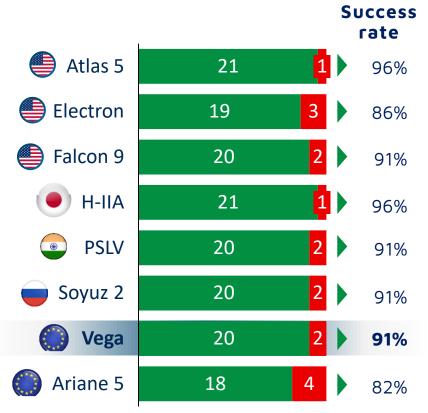
Successfully placing the LISA Pathfinder spacecraft on an elliptic low earth parking orbit, from where the satellite's own propulsion module took it on its operational orbit around the L1 Lagrange point (i.e. 1.5 million Km from Earth)



#### VV16 (Small Spacecraft Mission Service -SSMS-)

Launch of **53 satellites** on the Small Spacecraft Mission Service (SSMS) Proof of Concept (PoC) flight, performed **on behalf of 21 customers from 13 different countries** 





**AVERAGE: 90%** 



Dec 2, 2015 Sep 2, 2020





Gesa

## VEGA C return-to-flight operations underway

- After the first successful test performed last May, on October 3<sup>rd</sup> a redesigned Zefiro-40 solid rocket motor, the second stage of the Vega-C rocket, was successfully fired up for the second time
- Whereas the first test in May was performed under high operating pressure and with a short burning time, the second test was conducted at a low operating pressure and burnt for longer
- This concludes the qualification tests for the improved engine nozzle design of the Zefiro-40, allowing Vega-C to be launched by the end of 2024





QM4 moved to test bench



QM4 hot firing test



QM: Qualification Motor

## Success for Ariane 6 maiden flight

- On July 9<sup>th</sup>, Ariane 6 launcher successfully completed its maiden flight from the French Guiana Space Centre, placing into orbit multiple payloads
- Avio is partner of the Ariane 6 program providing the solid rocket boosters P120C and the liquid oxygen turbopumps for the core stage Vulcain 2.1 engine and the upper stage Vinci engine. The P120C motors had an optimal performance
- Avio is already working on a more powerful version of the booster (P160) which will increase the thrust
  of the launcher and its payload capacity. The P160 will be the world largest carbon fiber monolithic
  motor and will also be equipped on Vega C









Ariane 6 on launch pad

Ariane 6 lift-off

## 2024 shall mark the transition towards higher launch rates



SOURCE: ESA, Arianespace

flight backlog roll-out 20

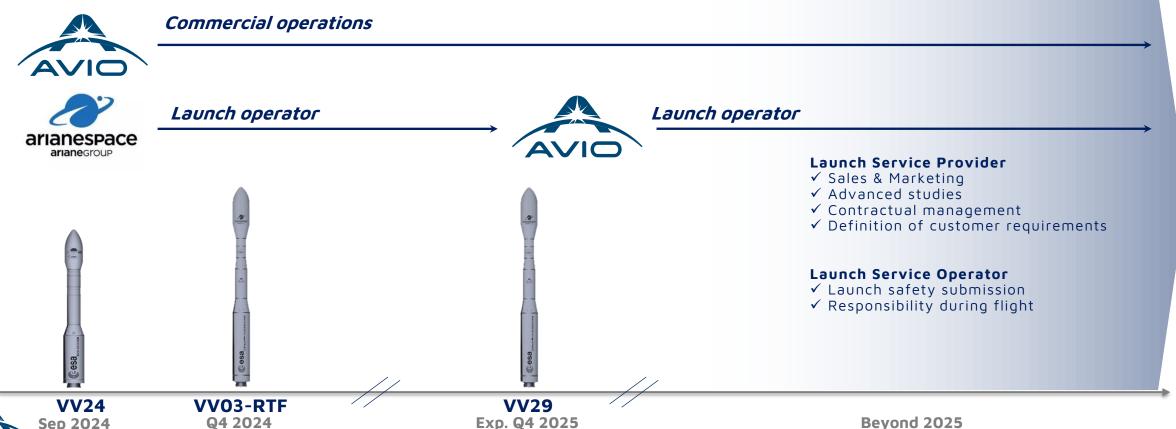
## Evolution of responsibilities on VEGA launcher activities







On July 5th ESA Council authorized Avio to conduct VEGA commercial operations and to be launch operator of VEGA following VV29 (Q4 2025), pending award of license from French authorities



## NextGen EU: next-gen launchers and applications progressing as expected



#### **Launcher Products acceleration** LOX-CH technology





#### Applications and services acceleration Orbital propulsion technology



#### **Space Transportation Systems**

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

Start of HWIL activities in apr-24

M10 firing test planned in October '24





M10: manufacturing on going, TCA and Nozzle Printed in house

#### **High Trust 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











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

**Multi-Purpose Green Engine** 

Manufacturing and integration of the first two engine models by Oct. 2024

#### In-Orbit Servicing module

Objective: Develop enabling technologies to fulfil in-orbitservicing mission objectives

System Reg. Review passed

Preliminary Design review ongoing











HWIL: Hardware in the Loop TCA: Thrust Chamber Assembly



## Avio USA to play a pivotal role in engaging the US market

 Avio established Avio USA, a wholly owned subsidiary headquartered in Arlington, Virginia, which is structured to operate in compliance with US security and export-control regulations and is governed by a US-led board of directors





#### Marty Bollinger - Chairman of Avio USA

- Ret. Senior Partner at Booz Allen Hamilton
- Extensive consulting experience in US Aerospace & Defense
- Lecturer for Navy Officers



#### James Syring - CEO of Avio USA

- Ret. US Navy Vice Admiral
- Former Director of the US Missile Defense Agency
- Former President, USAA Insurance Company



## New opportunities in the US defense propulsion market

As a result of the scouting and the engaging activities performed by Avio and Avio USA since its inception, on July 23<sup>rd</sup> Avio announced two important contracts with two different US counterparts, Raytheon and US Army, which mark a very important milestone for the future development of the defense propulsion business of the company



Avio signed a contract with Raytheon, an RTX (NYSE: RTX) business, leaders in defense solutions for the U.S. Government and Allied Demand, to initiate and progress the development of critical solid rocket motors for defense applications. The contract furthers the systems engineering work required to mature these solid rocket motors into a production-ready state

More info here



AVIO S.p.A. and U.S. Army Combat Capabilities Development Command Aviation & Missile Center partner for the development and fast-prototyping of a solid rocket motor for surface-to-air applications. The project leverages on both Parties' expertise to qualify the propulsion system in a design-to-manufacturing approach, offering possibility for a future rapid transition to Production

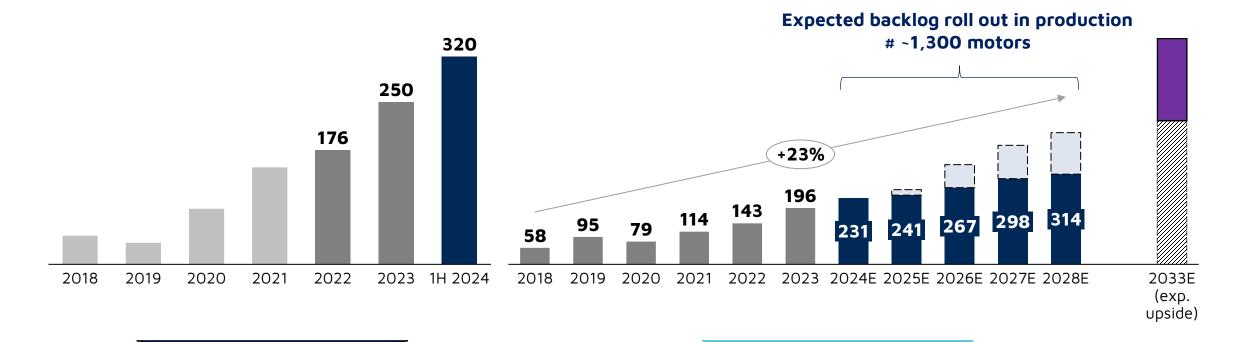
More info here



# These wins further extend growth prospects in defense business

#### Defense propulsion backlog (€m)

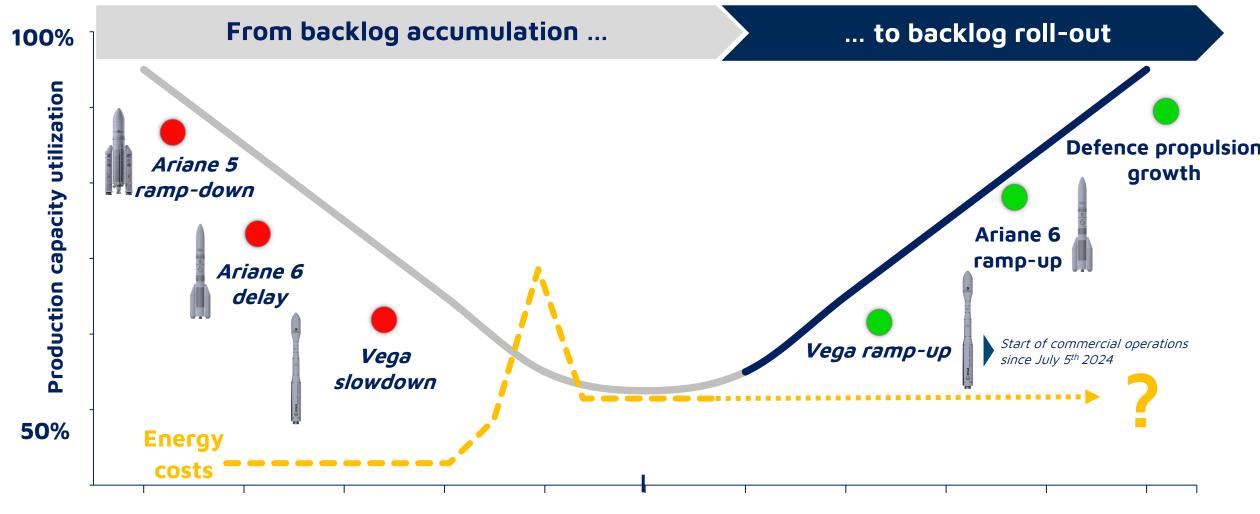
#### Defense propulsion production (volumes eq.)



- High level of defense propulsion orders in 1H 2024 (approx. €100m)
- Steep increase in Aster, CAMM-ER and MARTE production
- Includes expected rollout from new EU and US contracts



## Where is 2024 along the cycle



AVIO

## 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 defense 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 defense propulsion business



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





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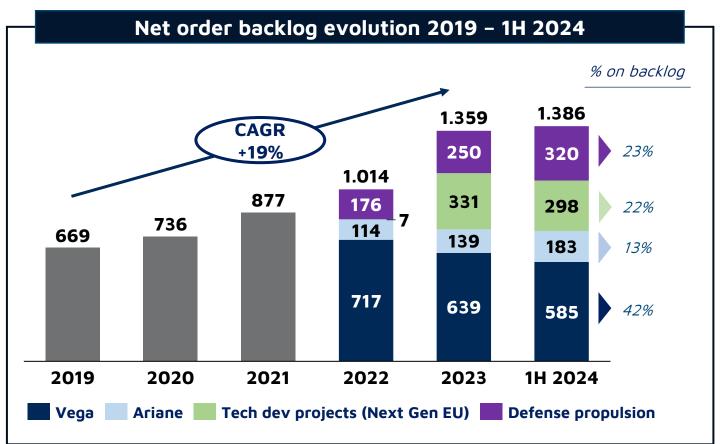
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# Defense propulsion and Ariane 6 intakes drive order backlog in 1H 2024

Figures in €m



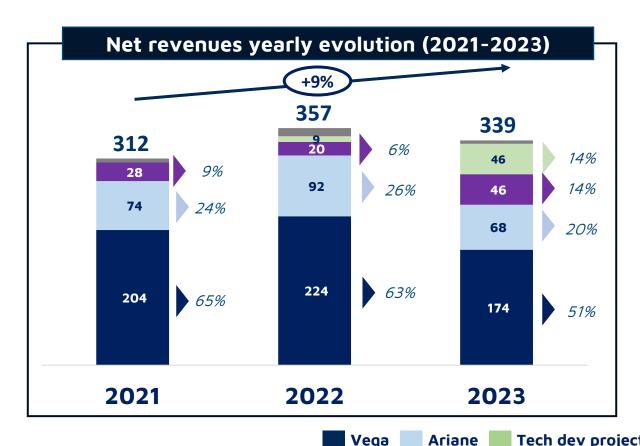
#### **Main comments**

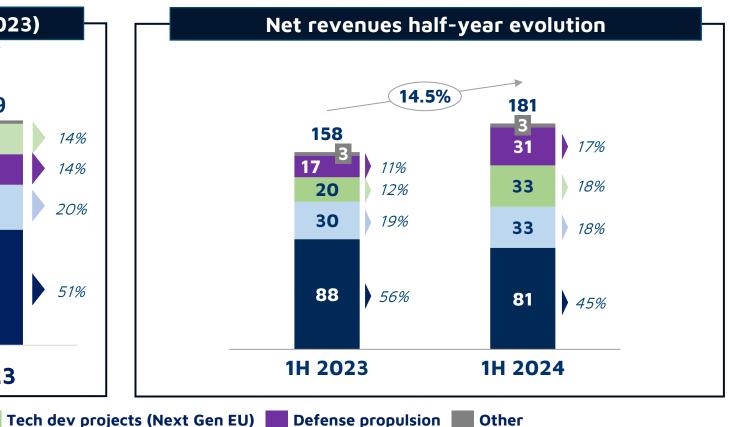
- In 1H 2024 order intakes were over €200m and related to:
  - ▶ Defense propulsion for about €100m, mainly for ASTER missile production
  - ➤ **Ariane** for about €80m, mainly for production of P120/P160 motors
  - Vega for about €30m, mainly for Vega E development
- Defense propulsion activities reached 23% of total backlog at the end of 1H 2024, more than half of Vega backlog
- At the end of 1H 2024 approx. 60% of backlog related to production activities and 40% to development activities



## Net revenues evolution by line of business

Figures in €m





■ In 1H 2024, revenues refer for 47% to Development and for 53% to Production activities



### 1H 2024 results vs 1H 2023

Avio Group   Main financials						
	1H 2023 Actual (€m)	1H 2024 Actual (€m)	Delta (€m)	Delta (%)		
NET REVENUES	157,7	180,6 1.	22,9	14,5%		
EBITDA REPORTED % on net revenues	5,2 3,3%	8,1 4,5%	2,9	56,8%		
EBITDA ADJUSTED % on net revenues	N/R 5,3 10,5 6,6%	10,0	0,1	1,2%		
EBIT REPORTED % on net revenues	(3, <b>9)</b> -2,5%	(0,4) <b>4.</b> -0,2%	3,5	n.m.		
EBIT ADJUSTED	1,4	2,1	0,7	n.m.		
% on net revenues  PROFIT BEFORE TAX	0,9%	1,2% (0,5)	3,2	-86,4%		
% on net revenues	-2,3%	-0,3%	-,-	22, 22		
NET RESULT % on net revenues	(3, <b>9)</b> -2,4%	(1,8) -1,0%	2,1	-53,8%		

#### **Main comments**

- 1. Significant increase in revenues mainly for defense propulsion production activities and technology development projects (NextGen EU)
- 2. EBITDA Adjusted in line with 1H 2023, driven by higher revenues compensated by a slowdown in Ariane 6 and Vega production activities
- 3. The reduction of non-recurring costs, mainly related to the return to flight of the Vega C, contributed to a significantly higher EBITDA Reported vs. 1H 2O23
- 4. **Positive** effect on **EBIT** driven by EBITDA and lower depreciations following the review, in the second half of 2023, 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)



## 1H 2024 results vs 2023 | Sources and uses

Avio Group   Sources and uses				
	31 DEC 2023 Actual	30 JUN 2024 Actual		
	<b>(€m)</b>	(€m)		
WORKING CAPITAL	(171)	(128) 1.		
DEFERRED TAX ASSETS	81,2	80,6		
PROVISIONS	(52,8)	(45,0) 2.		
GOODWILL AND OTHER INTANGIBLE	89,2	87,6		
FIXED ASSETS	285,6	284,7 3.		
FINANCIAL RECEIVABLES	2,0	2,0		
NET INVESTED CAPITAL	234,2	282,2		
NET CASH POSITION	76,1	21,5 4.		
EQUITY	(310,4)	(303,7)		
TOTAL SOURCES	(234,2)	(282,2)		

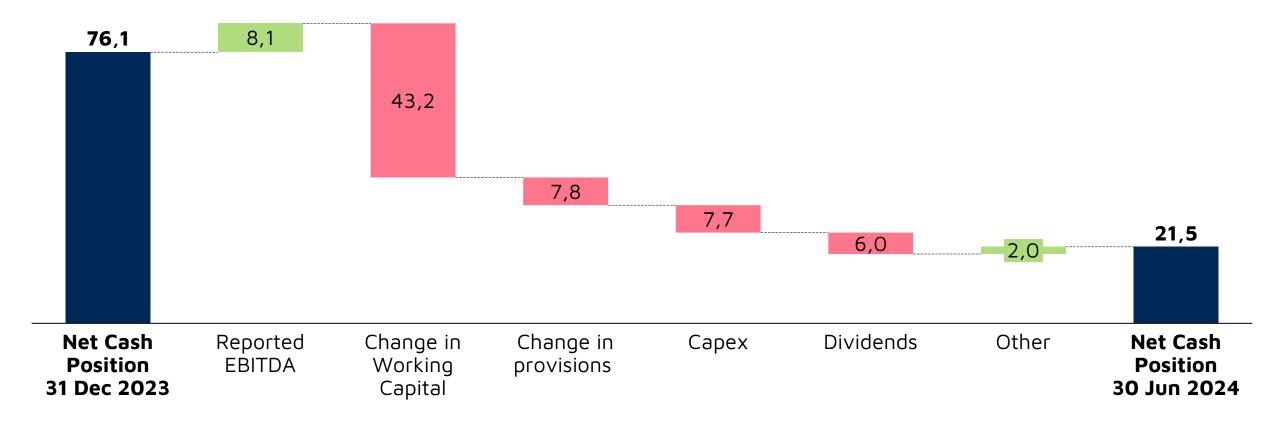
#### **Main comments**

- Structurally negative working capital thanks to cash advances from order intakes. Typical seasonal trend driven by cyclical flow down to subcontractors and procurement of certain strategic Long Lead Items of Vega C to sustain future production volumes
- Decrease in provisions mainly for use against Vega C return-to-flight costs incurred in the semester and previously provided for
- 3. Mainly for capex for technology development projects, Vega cadence increase and innovation projects (AI), net of depreciation
- 4. Typical seasonal trend of Net Financial Position mainly driven by working capital



## Net Cash Position bridge

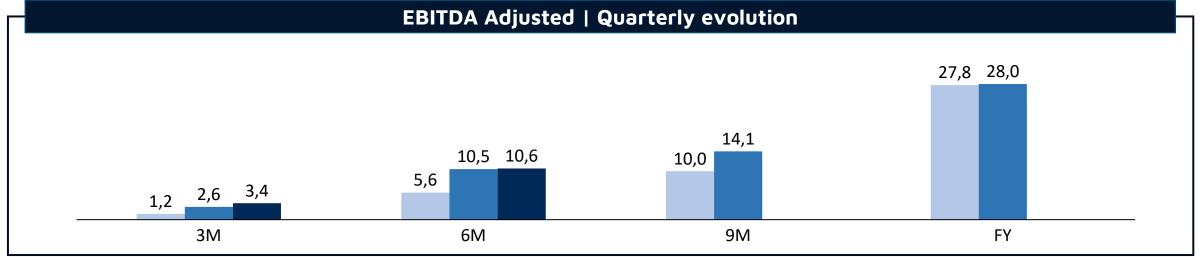
Figures in €m

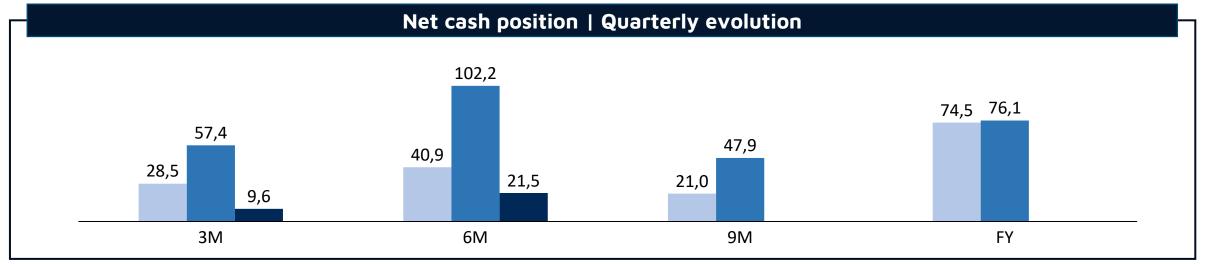




## Quarterly evolution of EBITDA and Net Cash Position

Figures in €m







## FY 2024 Guidance confirmed



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



- 10% growth vs 2023
- Growth in defense propulsion activities and Technology Development Projects



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



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



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## Avio technology portfolio



**Solid Propulsions** 



**Structures** 



Liquid Propulsion (upper stage)



**Avionics** 



Launch operations

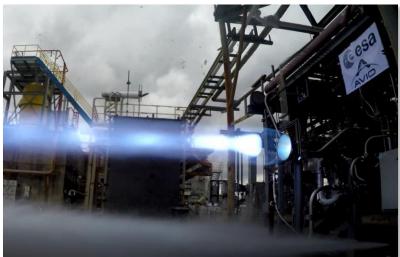


Composite materials



## Testing and launch operations in Europe







SRM testing (P120 and Z40)







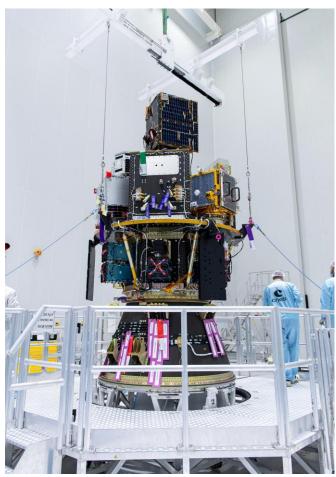


Vega integration



## Space launch capabilities today

Vega C 2,3ton Payload in LEO



Vega C - SSMS Piggyback/Rideshare





Ariane 6 20ton LEO, 11ton GEO







## **FY 2023 results vs 2022**

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

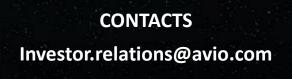
Figures in €m

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

#### **Main comments**

- 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
- 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







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