



# Company Presentation 1H24

## Osai Group

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## Company Overview

MIRELLA FERRERO



**PRESIDENT**

**1992 - date:** Osai A.S. S.p.A. SB Co-Founder, Company Representative and Chair of the Board of Directors.  
**2005 - 2020:** Banca Generali  
**1980 - 2005:** Previous experience in Unicredit Banca, Banca Fideuram  
**40+ years of experience in the Banking sector**

MARCO MOLINO



**CEO**

**Feb2025 – date:** Osai A.S. S.p.A. SB Chief Executive Officer  
**2023 - 2025:** PT WEEO Solution Frontier, CEO  
**2015 - 2022:** Boni S.p.A., CEO and President  
**2013 - 2015:** Carl Zeiss S.p.A., General Manager Measuring Division - Sales & Marketing  
**2004 - 2013:** Carl Zeiss Quality Service S.r.l., CEO  
**1992 - 2004:** Quality S.r.l., Founding Partner & CEO  
**1985 - 1991:** Poli S.p.A., Senior Technical and Application Engineer

FABIO BENETTI



**EX. BOARD MEMBER**

**June2024 – date:** Osai A.S. S.p.A. SB Executive Board Member  
**2016 - 2024:** Osai A.S. S.p.A. SB HR Director, General Manager  
**2008 - 2015:** RSGS, RSPP, General Services Manager with ICT mandate  
**2007:** Osai A.S. – Business Organisation Manager  
**Master's Degree in Engineering Management – Univ. of Torino**

CARLO FRIGATO



**DEPUTY CFO – EX. BOARD MEMBER**

**Apr2023 - date:** Osai A.S. S.p.A. SB Executive Board Member  
**2020 - 2023:** Osai A.S.'s temporary CFO  
**2018 – 2020:** Giglio Group S.p.A. - CFO  
**2014 - 2018:** Docomo Digital Ltd – CFO & Board Member  
**2000 - 2014:** Bu ogniorno S.p.A. - CFO  
**1999 - 2000:** E&Y  
**1996 - 1999:** EDS S.p.A. – Account Manager  
**1989 - 1996:** Accenture S.p.A. - Senior Manager  
**Master's Degree in Electronic Engineering**

MARCO GUOLO



**CTO – EX. BOARD MEMBER**

**Apr2023 - date:** Osai A.S. S.p.A. SB Executive Board Member  
**2011 - date:** CTO (Chief Technology Officer) - Technical & Sales Manager Semiconductor & Laser Technologies Division  
**2001 - 2011:** Osai A.S. Laser Division Manager  
**1999 - 2000:** Osai A.S. Software Analyst  
**1992 - 1998:** RTM – design and production of laser machines  
**28+ years of experience**

DONATELLA BUSO



**IND. BOARD MEMBER**

Professor of Financial Accounting (University of Torino – ESCP Business School), Chartered Accountant and Statutory Auditor

PAOLA MARINI



**IND. BOARD MEMBER**

Affiliate Professor of Raw Material Engineering (Politecnico Torino)

## STEFANO GIORZA



### CMO

**June 2024 – date:** Osai A.S. S.p.A. SB - Chief Manufacturing Officer

**2020 - 2024:** Osai A.S. S.p.A. SB - COO - Chief Operations Officer

**2010 - 2020:** Osai A.S. CPO - Technical Director

**2005 - 2010:** Osai A.S. R&D Manager

**2005 - 2015:** Osai A.S. Mechanical Purchasing Manager, Head of General Planning

**1999 - 2010:** Osai A.S. Mechanical Design Manager

**1999 - 2005:** Osai A.S. Project Manager / Technical leader

**1992 - 2004:** Osai A.S. Mechanical Designer

## MARCO CARNIATO



### CCO

**2023 - date:** Osai A.S. S.p.A. SB - CCO - Chief Commercial Officer

**2021 - 2023:** Arol S.p.A. – Key Account Manager

**2016 - 2021:** Gefit S.p.A. – Global Sales Manager

**2014 - 2015:** Gefit S.p.A. – Asia Pacific Sales Director

**2010 - 2013:** Gefit S.p.A. – Business Development Manager

**2008 - 2010:** Gefit S.p.A. – Sales & Marketing Technical Engineering

**2006 - 2008:** Ansaldo Energia S.p.A. – Plant & Start Up Engineering

## SIMONE FERRARO



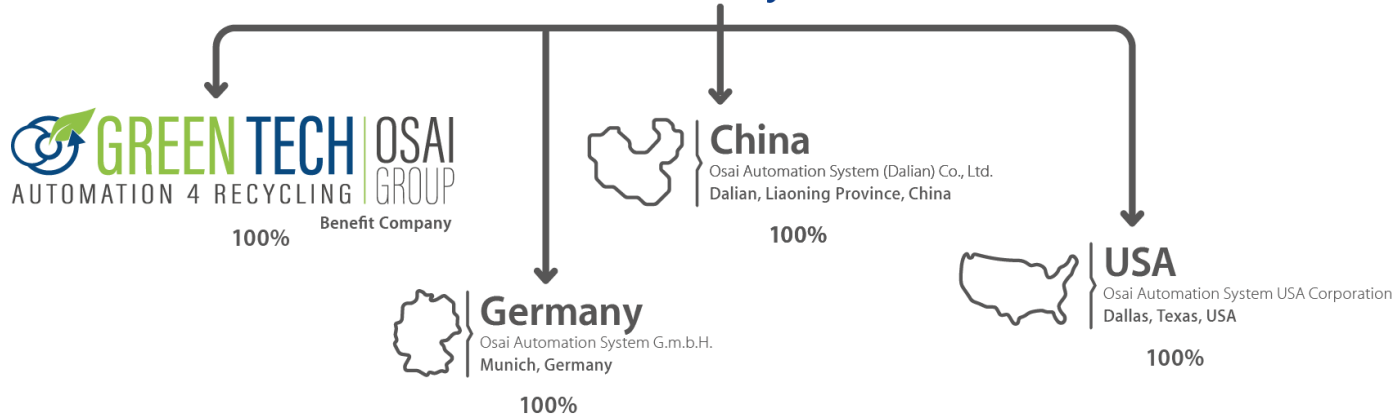
### SALES MANAGER

**2018 - date:** Osai A.S. S.p.A. SB Technical & Sales Manager Electronic, Automation & Robotics Solutions

**2016 - 2017:** Osai A.S. Key Account Manager and Sales Support

**2008 - 2015:** Osai A.S. Key Account Manager

**2002 - 2008:** Osai A.S. Manager of laser applications







**1991**

Osai A.S., company operating in **sector of industrial automation**, was founded by **Carlo Ferrero**.



**2015**

Participation in the **ADIR project** for the recovery of precious metals in **collaboration with Fraunhofer Institute**.



**2019**

The **RE4M** project is born, an innovative system for the **extraction and sorting of electronic components** for the recovery of critical and precious metals.



**2022**

**Osai Green Tech SB S.r.l.** is established with the aim of actively contributing to the spread of **automation in the recycling world**, bringing efficiency, speed and sustainability.



**2024**

After **obtaining permits** for the installation of **RE4M**, in February **Iren announced the plant for the treatment of WEEE**, which was launched both at the headquarters of the Tuscany region, in Florence, and in Terranuova Bracciolini, Valdarno.



**1991**  
Osai founded by **Carlo Ferrero**, in the industrial automation sector



**1994**  
Introduction of **Laser technology** and subsequent collaboration with a world leader in the field of laser sources



**2011**  
Delivery of the first machine for the **semiconductor** sector

**Oct 2015**  
Upon the untimely death of the founder, his sister **Mirella** takes over the company, relying on the commitment and motivation of management



**2018**  
First burn-in system delivered  
  
Osai enters the Borsa Italiana Elite programme



**2020**  
Continuity and development of activity maintained, despite the pandemic shock  
  
**Listing on EGM Italia**

**2022**  
In October, Osai established, **Osai Green Tech SB S.r.l.**, its first Società Benefit and construction work started on the new **Samone** plant.



**1992**  
Acquisition of the first order for a **copier roller assembly machine**

**2001**  
Creation of the **Neo** platform and realisation of standard machine projects for the electronics sector



**2015**  
Start of the **ADIR** project for the recovery of precious metals - **circular economy**, in collaboration with the Fraunhofer Institute



**Dec 2016**  
The company lists its first **Minibond** on the Borsa Italiana ExtraMot PRO



**2019**  
**OPEN INNOVATIVE PMI 2019** award, conferred by Grant Thornton in collaboration with CNEL

**2021**  
Osai takes part to the "**Ecomondo**" fair, a major event in Europe for Ecological transition and new model of circular and regenerative Economy



**2023**  
**RE4M is nearing completion.** Osai GreenTech family's expanding its products in battery, HD and photovoltaic market sector.



**3 fully owned commercial branches in strategic markets**

- 2009 - Munich**
- 2011 - Dailan**
- 2015 - Dallas**

**A global presence, with the ability to respond quickly to clients. More than 40 distributors all over the world in key markets, with more than 50 local employees**



### Production site

The production plant is located in the municipality of **Parella** (close to Turin) and covers an area of more than 6.500 mq, over three buildings.

The company has **200 employees, highly qualified** in the following sectors:

- R&D
- Project management
- Sales engineering
- Supply chain



### Papermill Area

Total area: ca. 3.500 mq

### Plant M7 - 2017

Total area: ca. 1.200 mq

### Plant M6 - 2016

Total area: 800 mq

## Business Overview: Introduction\*



### New plant in Samone - 2024

Total area: 4.000 mq



### C1 Area - 2022

Total area: 900 mq



### AUTOMATION

Automatic assembly lines and systems for small and medium-sized components with high strategic value, made as per specific customer needs through the development of ad hoc solutions.



### ELECTRONICS

A wide catalogue of solutions that allow operations on electronic boards through laser marking processes, laser or mechanical depanelling and micro-assembly systems for electronic components.



### APPLIED LASER

With more than 500 solutions sold all over the world for industrial applications such as laser cutting, welding, and marking for plastic and metal components, these systems provide solutions in various markets, such as fashion, jewellery, and, with particular focus, medical.






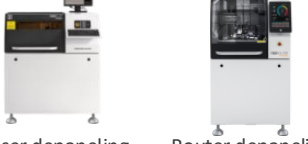


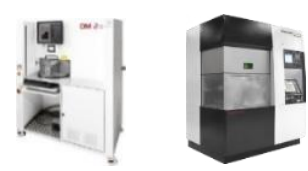


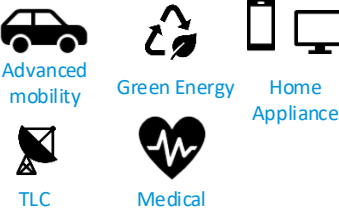
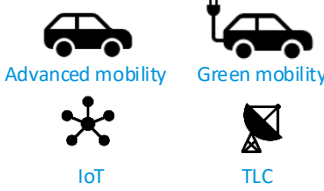
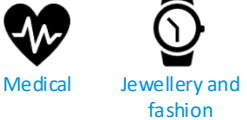
### SEMICONDUCTOR

































The semiconductor business is Osai's main business line, following its entry into the sector in 2011. The systems are used in semiconductor testing, assembly and automation processes, and are destined for global markets, notably the USA, China and South East Asia.



### AFTER SALES

Service has been a new line of business for Osai since 2019. Its main activities are technical assistance and consultancy for maintenance, upgrade and repowering, and the supply of spare parts.

Divisions	AUTOMATION	ELECTRONICS	SEMICONDUCTOR	INDUSTRIAL LASER
<p>Standard and customised products</p>	 <p>Workstations      Rotary tables</p>  <p>Complete assembly lines</p>	 <p>PCB Laser marking      Assembly Systems</p>  <p>Laser depaneling      Router depaneling</p>	 <p>Test handlers for MEMS sensors      Burn-in test Automation</p>  <p>Power device packaging      Tests handlers for power modules</p>	 <p>General Purpose Laser marking      Laser welding</p>  <p>Laser cutting</p>
<p>Target Clients</p>	<p>Manufacturers of high-tech components, principally for the mobility sector</p>	<p>Manufacturers of electronic boards and integrated circuits (standalone) or integrated (proprietary solutions)</p>	<p>Semiconductor companies</p>	<p>Manufacturers of mechanical micro-machining with a need for high levels of precision, also for small components</p>
<p>Principal market sectors</p>	 <p>Advanced mobility      Medical      Green mobility</p>	 <p>Advanced mobility      Green Energy      Home Appliance</p> <p>TLC      Medical</p>	 <p>Advanced mobility      Green mobility</p> <p>IoT      TLC</p>	 <p>Medical      Jewellery and fashion</p>

Divisions	<b>AUTOMATION</b>	<b>ELECTRONICS</b>	<b>SEMICONDUCTOR</b>	<b>INDUSTRIAL LASER</b>				
Order range	500K - 7M	70K - 300K	500K - 1.2M	200K - 700K				
Delivery time	6 - 18 months	3 - 12 months	8 - 12 months	8 - 12 months				
Competitors	       	   	 	 				
%CAGR 2021-2028 For main market sectors	 <p>Advanced mobility</p> 	 <p>Medical</p> 	 <p>Green mobility</p> 	 <p>TLC</p> 	 <p>Green Energy</p> 	 <p>Home Appliance</p> 	 <p>IoT</p> 	 <p>Jewellery and fashion</p> 

1. Data Bridge Market Research: <https://www.databridgemarketresearch.com/reports/global-shared-mobility-market>
2. Data Bridge Market Research: <https://www.databridgemarketresearch.com/reports/global-medical-automation-market>
3. PR Newswire: <https://www.prnewswire.com/news-releases/global-electric-vehicle-market-to-hit-10-million-growing-at-19.8-cagr-from-2021-to-2028-exclusive-report-243-pages-by-researchhive-30362602.html>
4. Business Wire: <https://www.businesswire.com/news/home/2022/08/4/0566470/global-telecom-services-market-analysis-report-2021-2028-forecast-by-region-market-analysis-data-services-machine-to-machine-services-researchmarkets.com>
5. Market Watch: <https://www.reportlinker.com/press-release/renewable-energy-market-trends-and-forecast-2028-2021-07-29?siteid=bigcharts&title=slay>
6. Report Linker: <https://www.reportlinker.com/p06127590/global-smart-appliances-market-analysis-trends-industry-forecast-to.html>
7. Market Watch: <https://www.marketwatch.com/press-release/internet-of-things-market-size-industry-share-to-bi-revenue-growth-rate-by-key-players-forecast-till-2028-2021-09-21>
8. Grand View Research: <https://www.grandviewresearch.com/press-release/global-jewelry-market>



TAYLOR MADE SOLUTIONS WITH  
TURNKEY PROJECTS



HIGH-TECH ITALIAN PRODUCTION



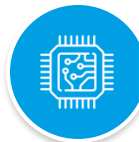
STRONG PRESENCE INSIDE LOCAL  
AREA



FOCUS ON STAFF'S WELLBEING AND  
WELFARE



HIGH INTERNATIONAL EXPORT LEVEL



LEADERSHIP IN MANUFACTURING  
MEMS TESTING MACHINES



SOCIETÀ BENEFIT



IMPACT REPORT



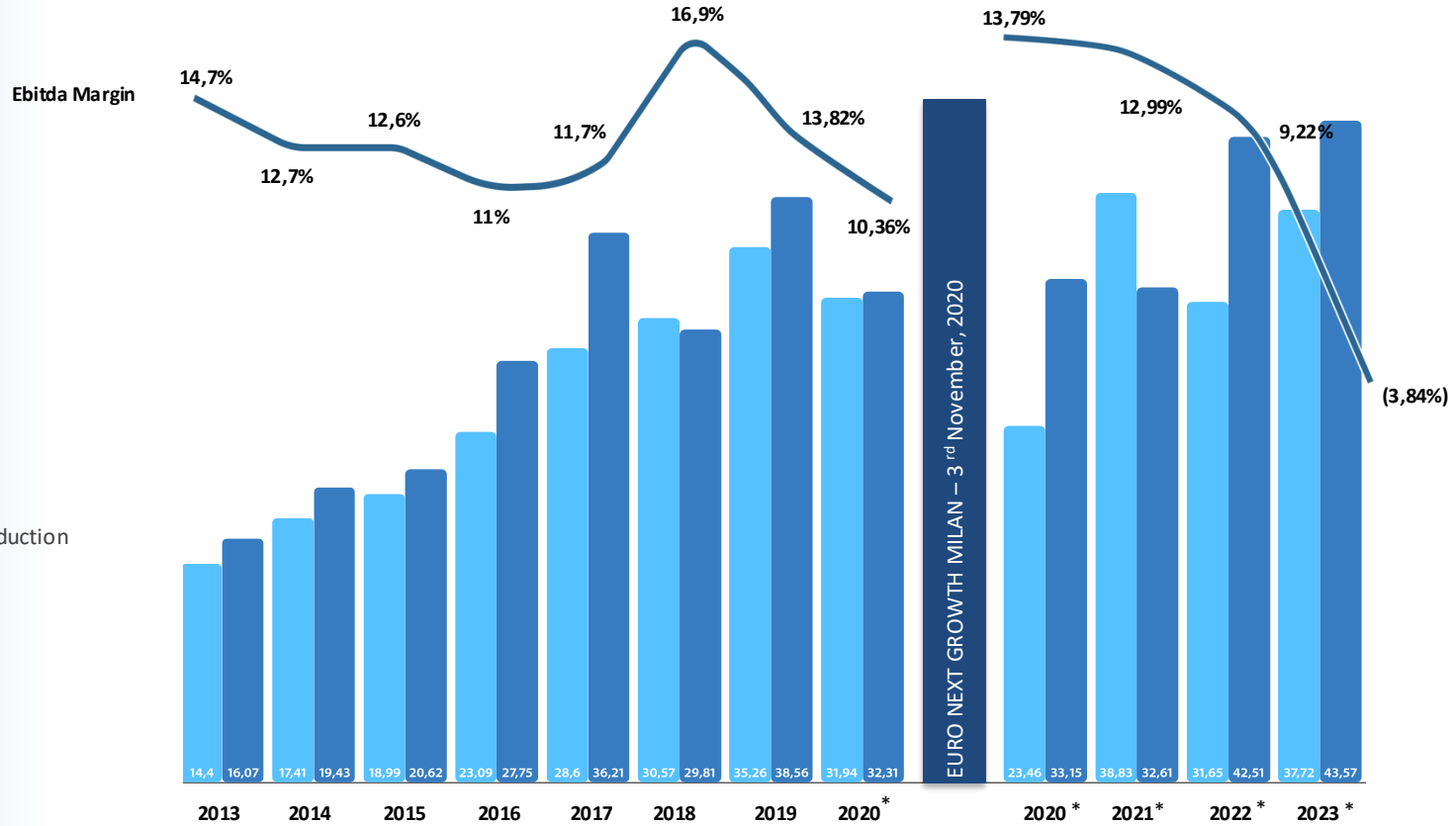
AMONG THE FIRST INNOVATIVE SMEs  
TO DRAW UP THE 3<sup>rd</sup> SUSTAINABILITY  
REPORT REVIEWED BY BDO



LEGALITY RATING<sup>\*\*\*</sup>



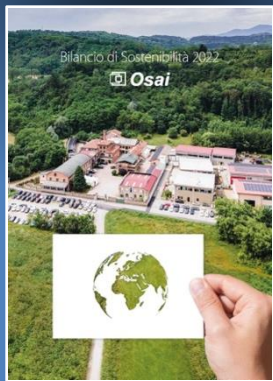
# Business Overview: Turnover and Value of Production
















A Società Benefit is a company which combines the goal of profit with the purpose of creating a **positive impact for society** and the **environment** and which **operates in a transparent, responsible and sustainable way.**

Reference documents:

- Sustainability report
- Impact Report



## Our sustainability approach

	LONG TERM GOALS	2023 GOALS	RATING
<b>13 CLIMATE ACTION</b> 	<b>DECARBONIZATION PLAN</b>  -42% CO <sub>2</sub> emissions (Scope 1 and 2) <b>TARGET 2030</b>	 Company Carboon Footprint <b>GOAL ACHIEVED</b>	<b>ESG</b> 
	<b>INVESTMENT ON GREEN MOBILITY</b>  Transition to EV car fleet <b>TARGET 2028</b>	 Carpooling and Green Car policy <b>GOAL ACHIEVED</b>	
<b>7 AFFORDABLE AND CLEAN ENERGY</b> 	<b>INVESTMENT ON FACILITIES</b>  Increase to 500 KWp the capacity of the Corporate PV park <b>TARGET 2024</b>	 EV charging infrastructure <b>GOAL ACHIEVED</b>	
<b>4 QUALITY EDUCATION</b> 	<b>INVESTMENT ON PEOPLE AND COMMUNITY</b>  Welfare, Healthcare Plan and Smartworking <b>GOAL ACHIEVED</b>	 Donations and Charity Works <b>GOAL ACHIEVED</b>	<b>LEGALITY</b>  ★★★



OSAI AWARDS



Leader della Sostenibilità 2023  
Il Sole 24 Ore



## Overview 1H24

## Comments about the year

- Value of Production decreased (-8% on 1H23) despite Revenues (+2% on 1H23) remaining stable
- The slowdown in the automotive market, the critical issues in the e-mobility sector and the crisis in semiconductor industry significantly reduce the collection of orders (-42% on 1H23): in particular, there was a decrease of 64% for the Automation division and a decrease of 52% for the Semiconductor division. The industrial margin was reduced by 29% due to the negative effect of the 2023 backlog. Strong pressure on the EBITDA margin, which settled at -11% of the value of production.
- The containment of fixed costs, a streamlining of the apical functions of the organizational chart, the assumption of the position of Chief Executive Officer by Mirella Ferrero and technical guidance to Chief Technology Officer Marco Guolo are the measures implemented for a more organic and functional restructuring of decision-making processes.
- From 20 May, and until 2 November 2024, the Ordinary Redundancy Fund (CIGO) has been adopted as a wage integration tool, used for temporary market criticalities due to transitory events. Actions have also been implemented to limit hiring and review expectations, in order to accommodate the change and start the trend towards recovery.



## Main Consolidated Results 1H24

### Production value

of group as of 30 June 2024

**21.67** mln Euro

23.60 mln Euro at 1H23

### Revenues

of group as of 30 June 2024

**17.08** mln Euro

16.76 mln Euro at 1H23

### EBITDA / EBITDA%

of group as of 30 June 2024

**(2.40)** mln Euro / (11.08%)

0.99 mln Euro / 4,22% at 1H23

### EBIT

of group as of 30 June 2024

**(3.96)** mln Euro

(0.78) mln Euro at 1H23

### Net result

of group as of 30 June 2024

**(5.12)** mln Euro

(1.26) mln Euro at 1H23

### NFP

of group as of 30 June 2024

**(37.51)** mln Euro

(37.50) mln Euro as at 31.12.23

# Consolidated Income Statement

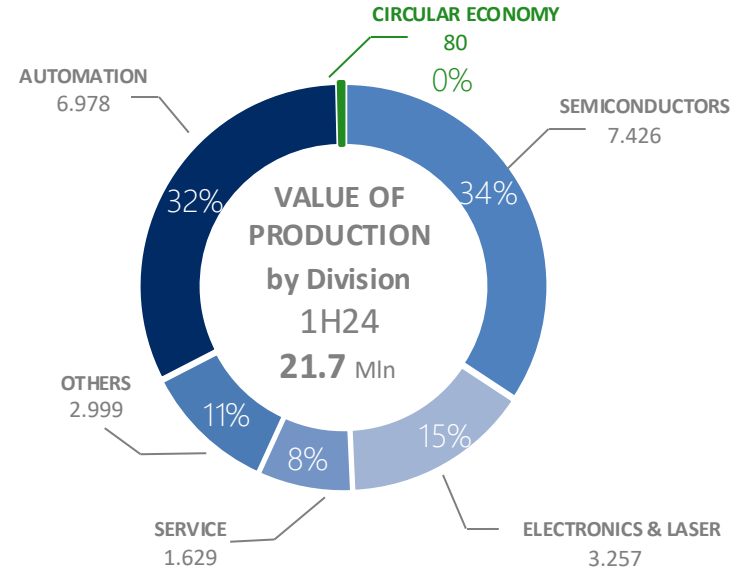
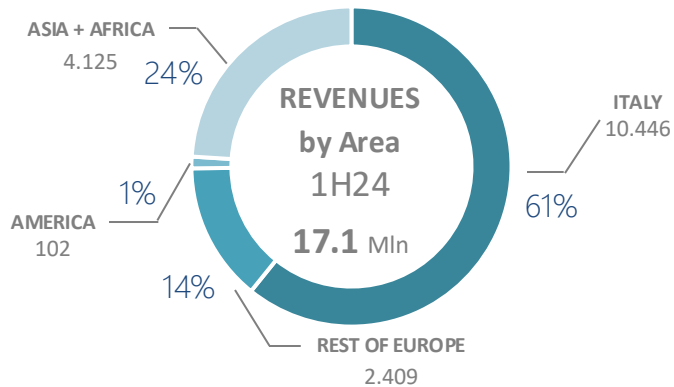
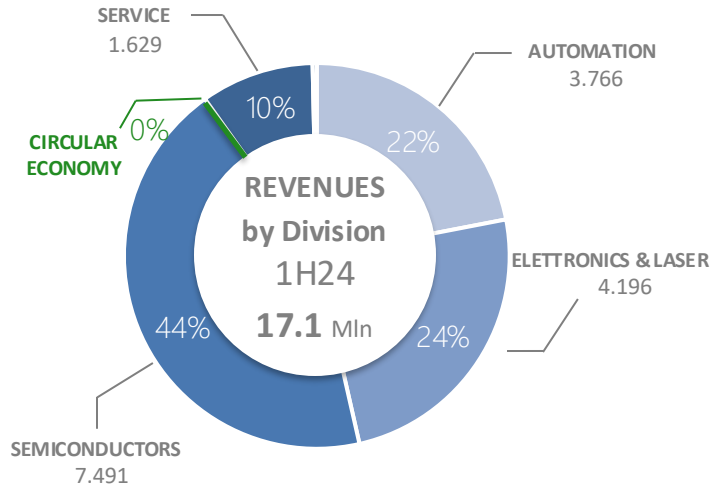
	(Euro/000)	June 30, 2024	June 30, 2023	Δ
<b>TOTAL SALES</b>		<b>17.082</b>	<b>16.759</b>	<b>323</b>
Change in finished goods and W.I.P. stock		1.896	4.875	(2.979)
Other operating revenues		2.691	1.970	721
<b>VALUE OF PRODUCTION</b>		<b>21.669</b>	<b>23.604</b>	<b>(1.935)</b>
Product cost (raw materials and outsourcing)		(12.572)	(10.874)	(1.698)
<b>GROSS MARGIN</b>		<b>9.097</b>	<b>12.730</b>	<b>(3.633)</b>
Personnel expenses		(8.145)	(8.427)	282
Other operating costs		(3.354)	(3.306)	(48)
<b>EBITDA</b>		<b>(2.402)</b>	<b>997</b>	<b>(3.399)</b>
Writedowns, depreciation and amortisation		(1.515)	(1.332)	(183)
<b>OPERATING INCOME OF ORDINARY OPERATIONS</b>		<b>(3.917)</b>	<b>335</b>	<b>(3.582)</b>
Non-recurring expenses/(charges)		(40)	(445)	405
<b>EBIT</b>		<b>(3.957)</b>	<b>(780)</b>	<b>(3.177)</b>
Financial Income/(Expenses)		(917)	(851)	(66)
<b>EBT</b>		<b>(4.874)</b>	<b>(1.631)</b>	<b>(3.243)</b>
Income taxes		242	371	(613)
<b>Net profit/(loss) for the period</b>		<b>(5.116)</b>	<b>(1.260)</b>	<b>(3.856)</b>
<b>EBITDA MARGIN</b>		<b>(11,08%)</b>	<b>4,22%</b>	<b>(15,31%)</b>

## ASSETS

(Euro/1000)	June 30, 2024	December 31, 2023	Δ
<b>ASSETS</b>			
<b>NON-CURRENT ASSETS</b>			
Property, plant and equipment	22.289	20.344	1.945
Intangible Assets	8.353	7.265	1.088
Shareholdings	126	126	0
Non current financial assets	800	1.075	(275)
Other non-current receivables	357	531	(174)
Deffered tax assets	488	776	(288)
<b>TOTAL NON-CURRENT ASSETS</b>	<b>32.413</b>	<b>30.117</b>	<b>2.296</b>
<b>CURRENT ASSETS</b>			
Inventory	35.458	33.613	1.845
Trade receivables	14.791	14.943	(152)
Current tax receivables	448	1.095	(647)
Other short-term receivables	1.363	2.824	(1.461)
Current financial assets	329	298	31
Cash and cash equivalents	519	1.586	(1.067)
<b>TOTAL CURRENT ASSETS</b>	<b>52.908</b>	<b>54.359</b>	<b>(1.451)</b>
<b>TOTAL ASSETS</b>	<b>85.321</b>	<b>84.476</b>	<b>845</b>

## LIABILITIES

(Euro/1000)	June 30, 2024	December 31, 2023	Δ
<b>SHAREHOLDERS EQUITY</b>			
Share capital	1.613	1.613	0
Share premium reserve	8.681	8.681	0
Legal reserve	299	299	0
FTA reserve	(1.683)	(1.683)	0
Other components of shareholder's equity	356	218	138
Conversion reserve	14	(30)	44
Retained earnings/(loss) carried forward	2.214	8.401	(6.187)
Profit/(loss) for the period	(5.116)	(6.157)	1.041
<b>TOTAL SHAREHOLDERS EQUITY</b>	<b>6.378</b>	<b>11.342</b>	<b>(4.964)</b>
<i>Shareholders' Equity of parent company shareholders</i>	6.378	11.342	(4.964)
<i>Shareholders' Equity of non-controlling interests</i>	-	-	-
<b>NON CURRENT LIABILITIES</b>			
Long-term borrowings	12.719	14.526	(1.807)
Employee benefits	3.542	3.468	74
Other non-current payables	180	193	(13)
Deffered tax liabilities	14	9	5
Other non-current financial liabilities	3.467	3.955	(488)
Payables non current under IFRS16	1.378	1.660	(282)
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>21.300</b>	<b>23.811</b>	<b>(2.511)</b>
<b>CURRENT LIABILITIES</b>			
Short-term borrowings	19.843	18.460	1.383
Other current financial liabilities	978	979	(1)
Trade payables	11.677	8.602	3.075
Current taxes payable	780	462	318
Other current payables	23.327	19.038	4.289
Provision for risks and charges	269	945	(676)
Payables current under IFRS16	769	837	(68)
<b>TOTAL CURRENT LIABILITIES</b>	<b>57.643</b>	<b>49.323</b>	<b>8.320</b>
<b>TOTAL LIABILITIES</b>	<b>85.321</b>	<b>84.476</b>	<b>845</b>

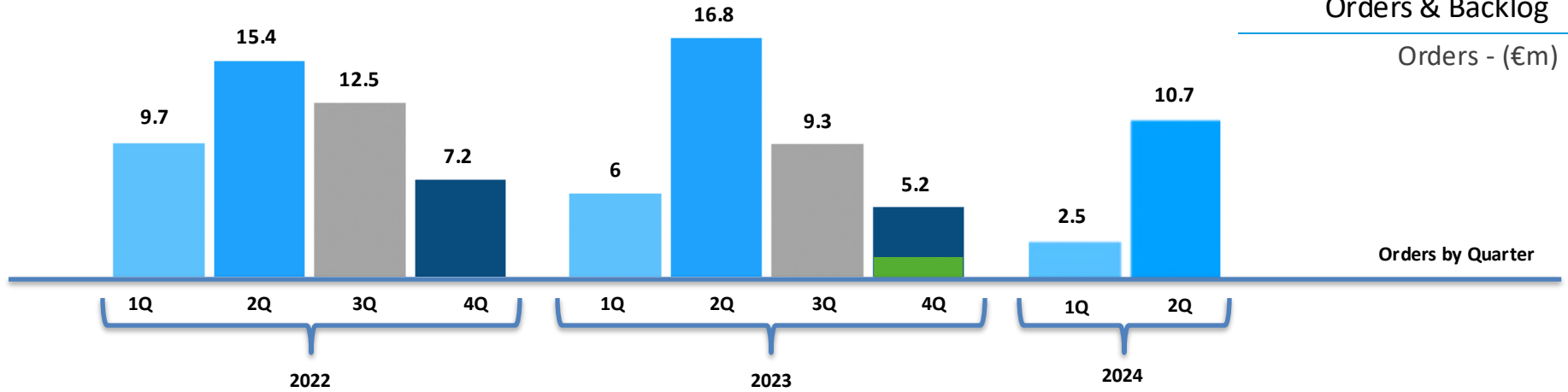


export 39%



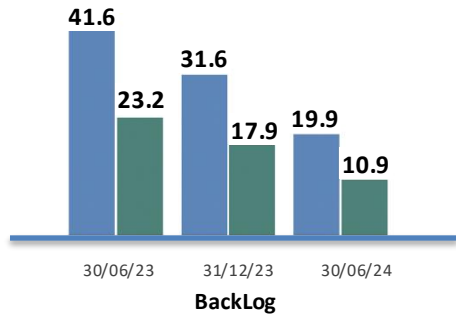
# Orders & Backlog

Orders - (€m)

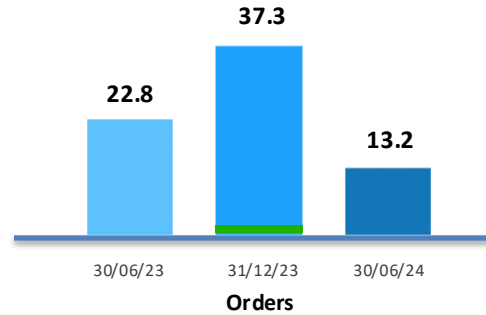


Orders by Quarter

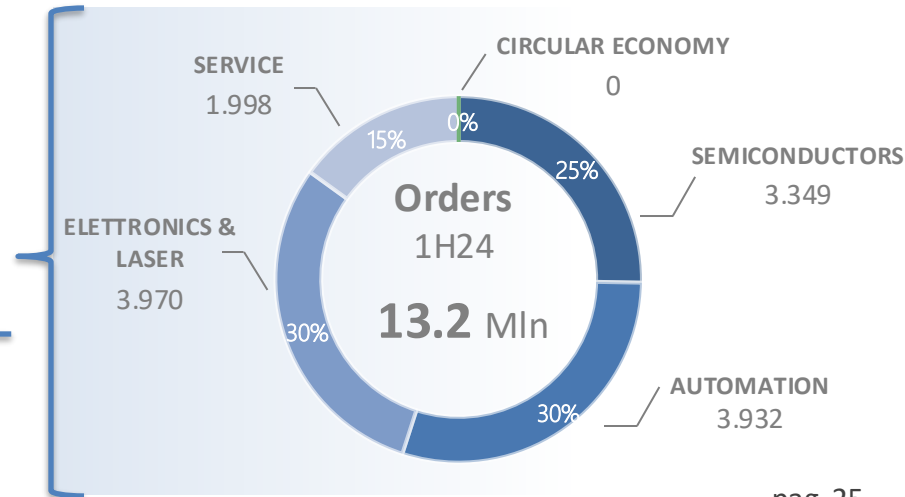
Commercial Backlog  
Operative Backlog








Backlog

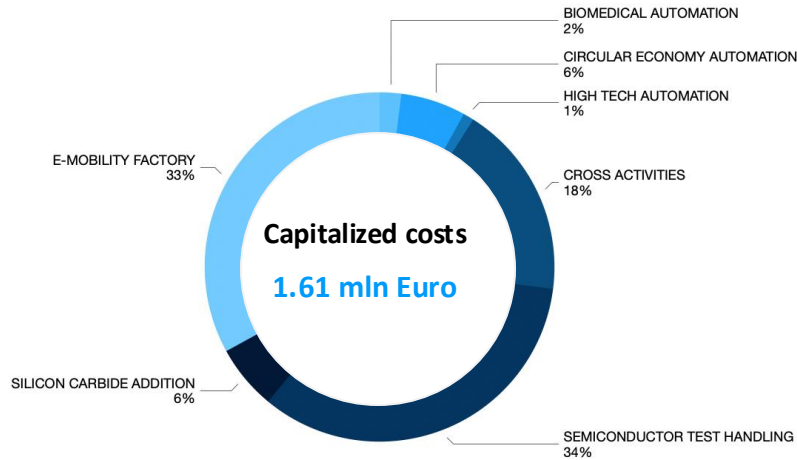


Orders



## Operative Profit & Loss by Division 30/06/2024

		Total Sales (Euro/000)	Operative Value of Production <sup>(1)</sup> (Euro/000)	MOL 3 <sup>rd</sup> Level <sup>(1)</sup> (Euro/000)	MOL 3 <sup>rd</sup> Margin %
	AUTOMATION — 22%	3.766	6.978	(524)	(8)
	ELECTRONICS & LASER — 24%	4.196	3.257	881	27
	SEMICONDUCTORS — 44%	7.491	7.426	1.607	22
	SERVICE — 10%	1.629	1.629	(1)	0
	CIRCULAR ECONOMY — 0%	0	80	(45)	(56)
	OTHERS —	-	2.299	(4.320)	-
<b>TOTAL</b>		<b>17.082</b>	<b>21.669</b>	<b>(2.402)</b>	<b>(11)</b>



## R&D 1H24

1.82 Mln

### Capitalized costs

1.614 KEuro

### R&D Bonus amount

139 KEuro

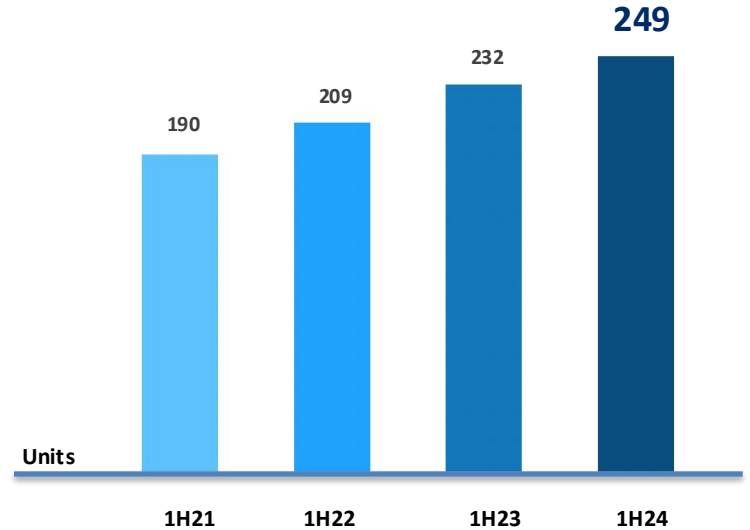
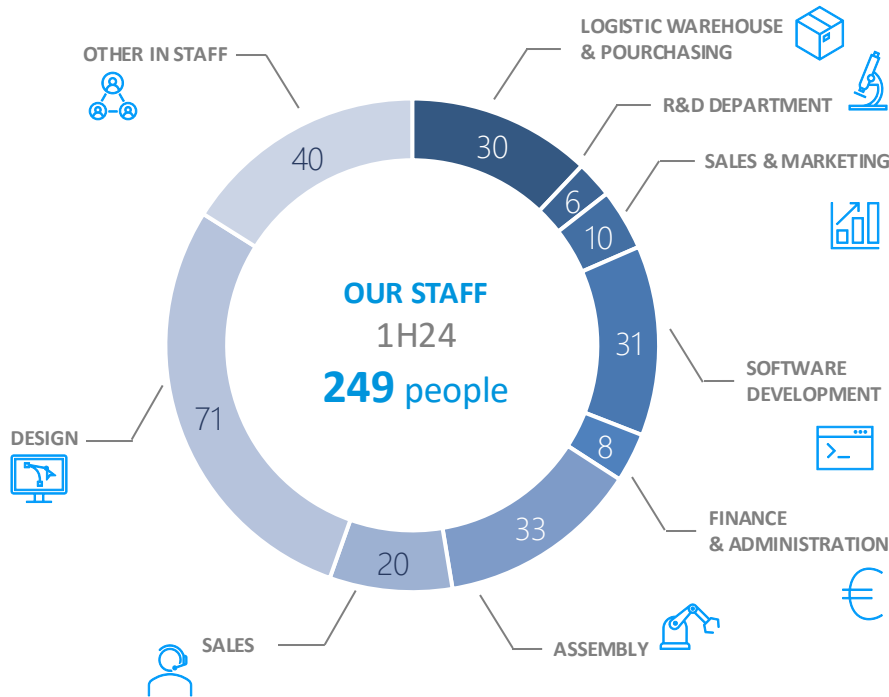
### European Grants

69 KEuro

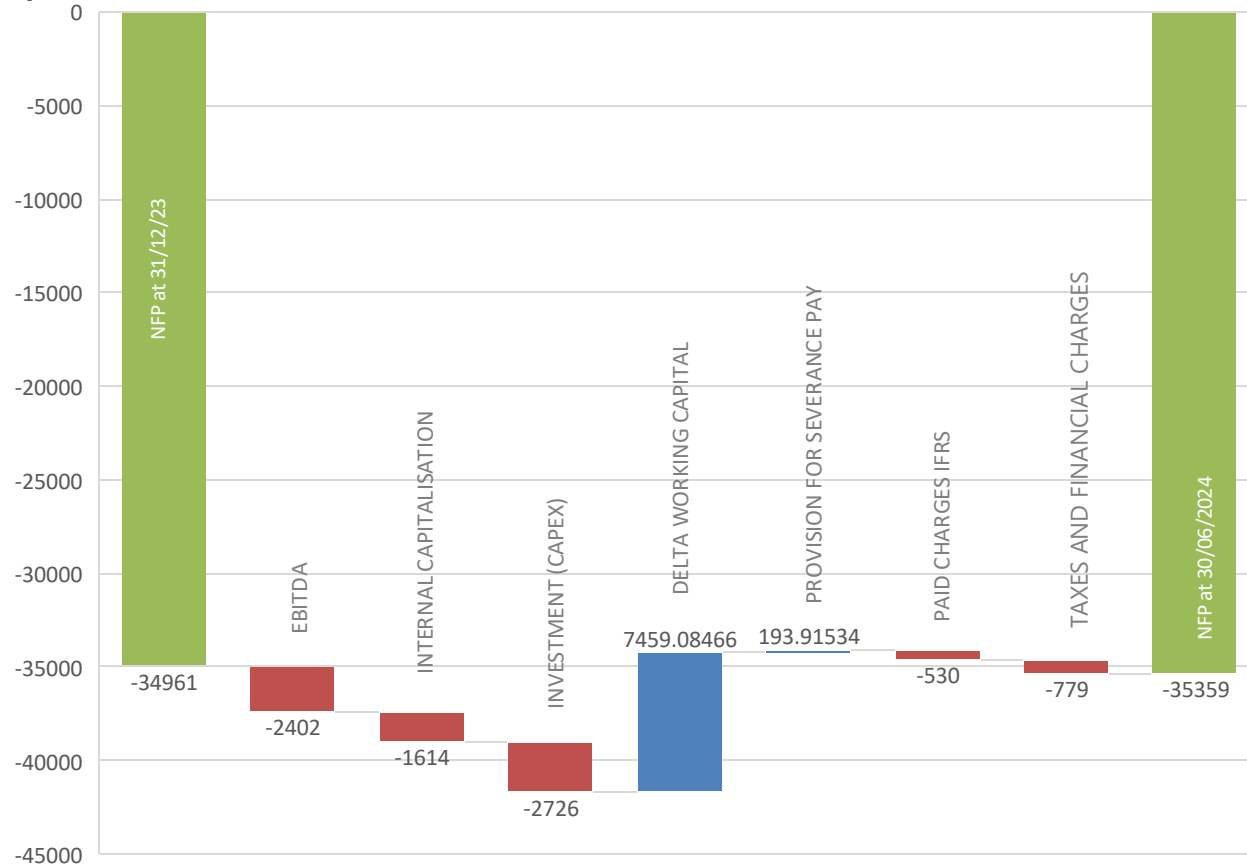
R&D 1H24

<b>Semiconductor Test Handling</b>	<b>SEMICONDUCTORS</b> - New processes or applications for MEMS stimulation and test systems for the semiconductor market
<b>Silicon Carbide Addition</b>	<b>SEMICONDUCTORS</b> - Automating and making reliable the surface enrichment process on large wafers
<b>E -Mobility Factory</b>	<b>AUTOMATION, LASER, SEMICONDUCTORS</b> - Design and prototyping of demonstration systems suited to the needs of 'gigafactories' for e-Mobility applications
<b>Biomedical Automation</b>	<b>AUTOMATION, APPLIED LASER</b> - Conception, design and implementation of automation system solutions for medical applications
<b>Circular Economy Automation</b>	<b>AUTOMATION</b> - Conception, design and realisation of solutions for automation systems for applications in the recycling and circular economy sector
<b>High Tech Automation</b>	<b>AUTOMATION, LASER, ELECTRONICS</b> - Design and prototyping of demonstration systems suited to the needs of 'gigafactories' for e-Mobility applications
<b>Cross Activities</b>	<b>ALL DIVISIONS</b> - Conception, design and implementation of automation system solutions with cross-divisional application; Transversal activities across different project clusters with spin-offs in different divisions

# 1H24 People in STAFF



# Operative NFP – without IFRS16



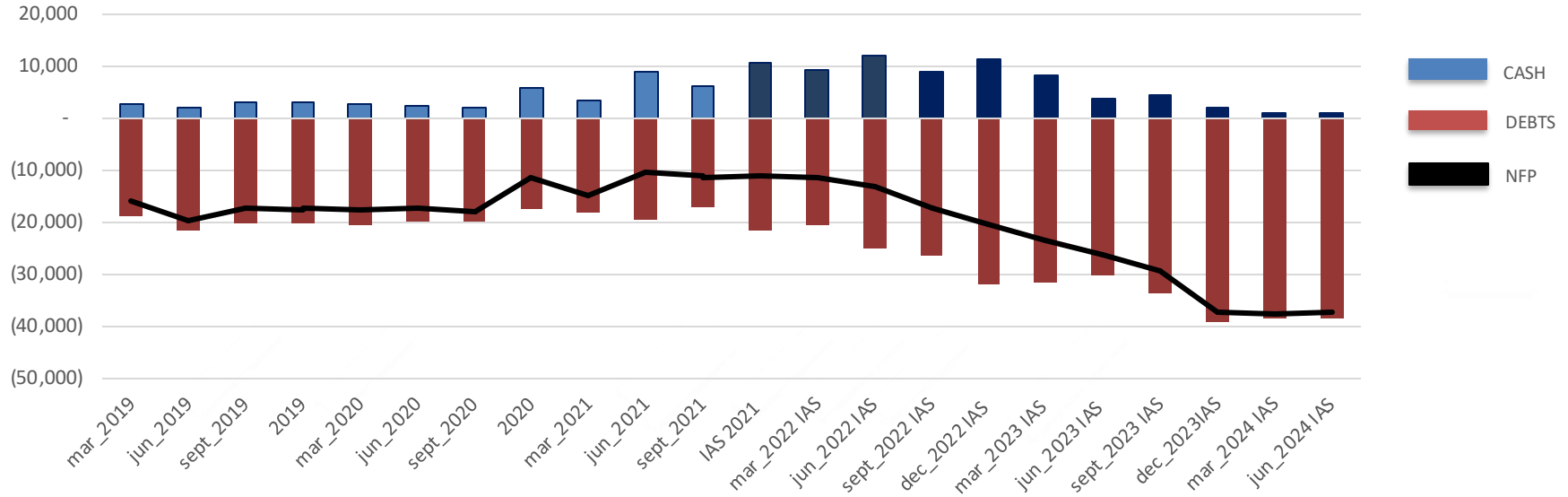
## Net Financial Position

(€m)

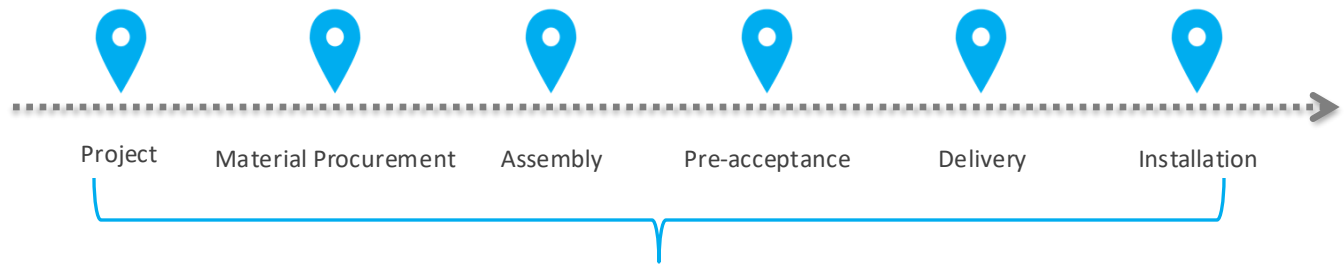
NFP	euro
NFP at 31/12/2022	(34.961)
EBITDA	(2.402)
Internal capitalisations	(1.614)
Investment (CAPEX)	(2.726)
Delta Working Capital	7.459
Provision for severance pay	194
Paid charges IFRS	(530)
Taxes and financial charges	(779)
NFP at 30/06/2024	(35.359)

# NFP (€m)

## Activities Description

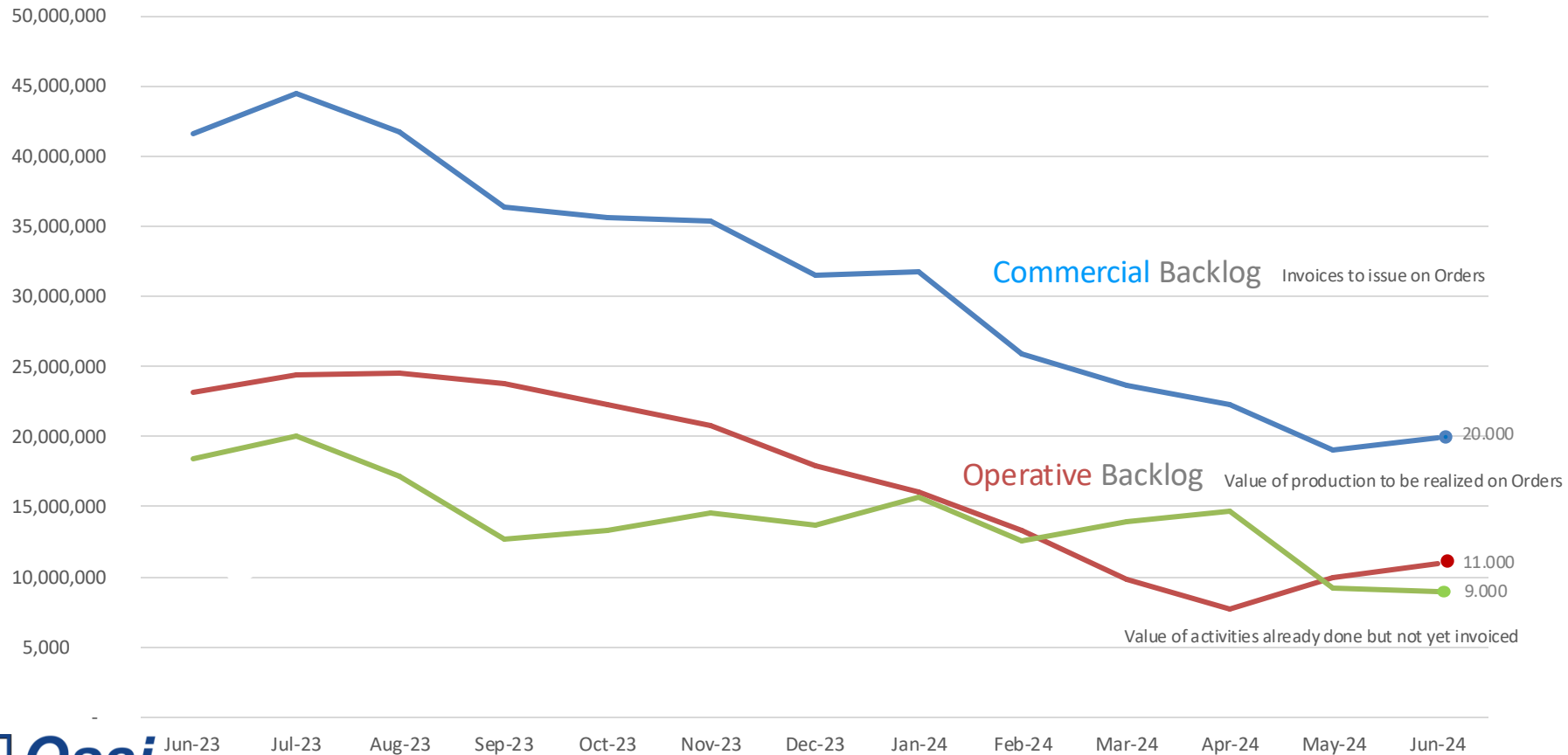


Order



Payment

# Operative and Commercial Backlog (€m)





# Osai Next Products

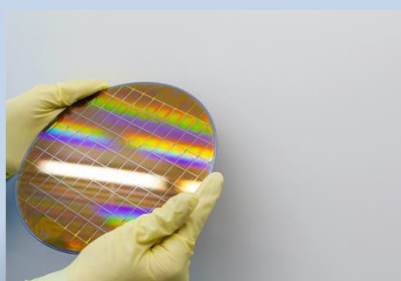




### SEMICONDUCTOR TEST HANDLING

Expansion of the product range with test handling in silicon devices. Development of **new systems for Power Module and Discretes Test Handlers**, the perfect standard solutions for the mass production.

**2**  
New  
Products  
2024



### SILICON CARBIDE ADDITION

Series of systems that can offer **accuracy, efficiency, repeatability** and can handle high volumes, from the preliminary stage to the **handling of ingots**, to obtain wafers for electronic applications.

✓  
**SiC Family  
COMPLETED**



### E-MOBILITY FACTORY

Conception, design and prototyping of high-tech solutions for **assembly, laser welding and testing of battery packs**.

**2024**



### BIOMEDICAL & LIFE SCIENCE AUTOMATION

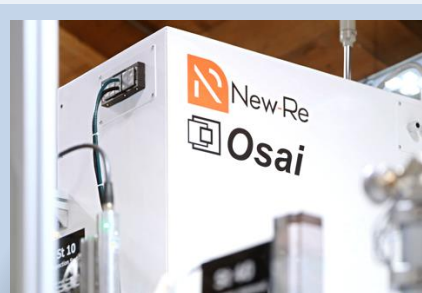
Conception, design and **implementation of automation system solutions for Medical & Life Science applications**.

**2024**



## PCB

The **RE4M – Recycling for Manufacturing** plant, born from the experience gained by OSAI within the European project ADIR, is an **innovative system for the automated extraction and selection of electronic components** for the recovery of precious metals and critical raw materials.



## HARD DISK

Innovative project designed to automate the process of **extracting, separating and sorting** valuable components from disused hard disks.

*«In September 2024, the first pilot plant capable of treating 20 tons per year of permanent magnets was inaugurated at the Ceccano plant in Italy»*



## PHOTOVOLTAIC

By 2050, it is estimated that there will be more than 78 million tonnes of old **photovoltaic panels** to deal with in terms of **recycling and recovery** of secondary raw materials.



## BATTERY

We are witnessing the E-mobility explosion, with exponential growth of electric vehicles strongly linked to the production capacity of the **battery industry**. By 2030, demand is estimated to be 3,500 Gwh.

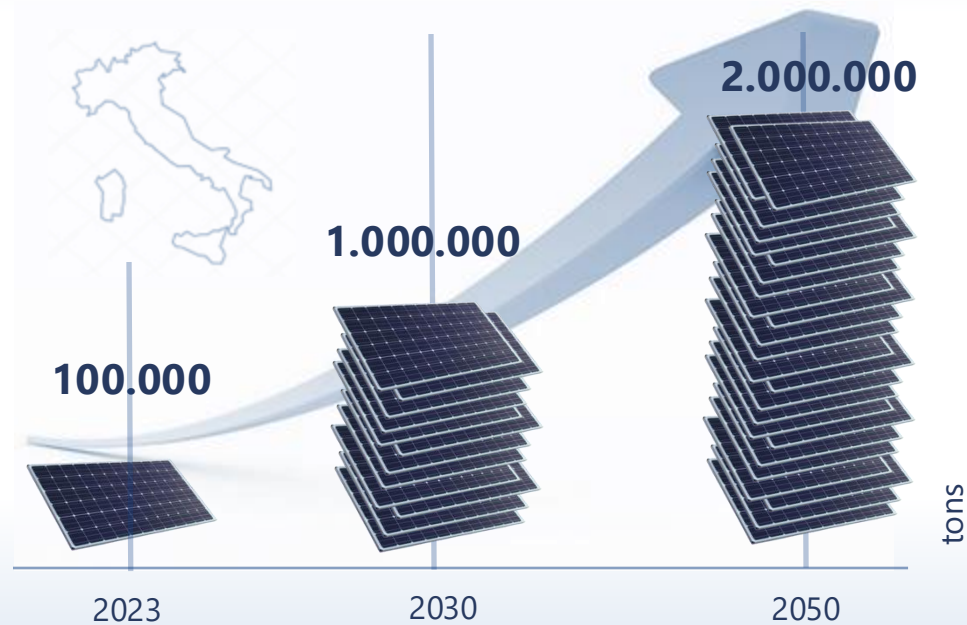


# PV EoL

Photovoltaic End of Life



## Growth trend of PV EoL in Italy<sup>1</sup>



1- source: Rystad Energy

2- source: IEA PHOTOVOLTAIC POWER SYSTEM PROGRAMME

2050  
global turnover  
PV recycling<sup>1</sup>  
**80** Billion \$  
vs 2,7 Bil. \$ 2030

**78**  
Million of  
2050

**7,8**  
Million of  
2030

Global<sup>2</sup> growth  
trend of PV EoL

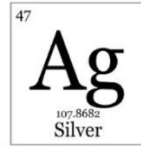
# PV EoL

Photovoltaic End of Life



**Value of materials**  
after PV recycling<sup>1</sup>

**9,5**  
Euro



**47% of value**  
of **secondary raw materials**  
is characterized by **Silver**



0,1 kg - PCB



0,2 kg - Various Metals



1,7 kg - Plastics



2,8 kg - Silicon



2,9 kg - Aluminium



13,8 kg - Glass

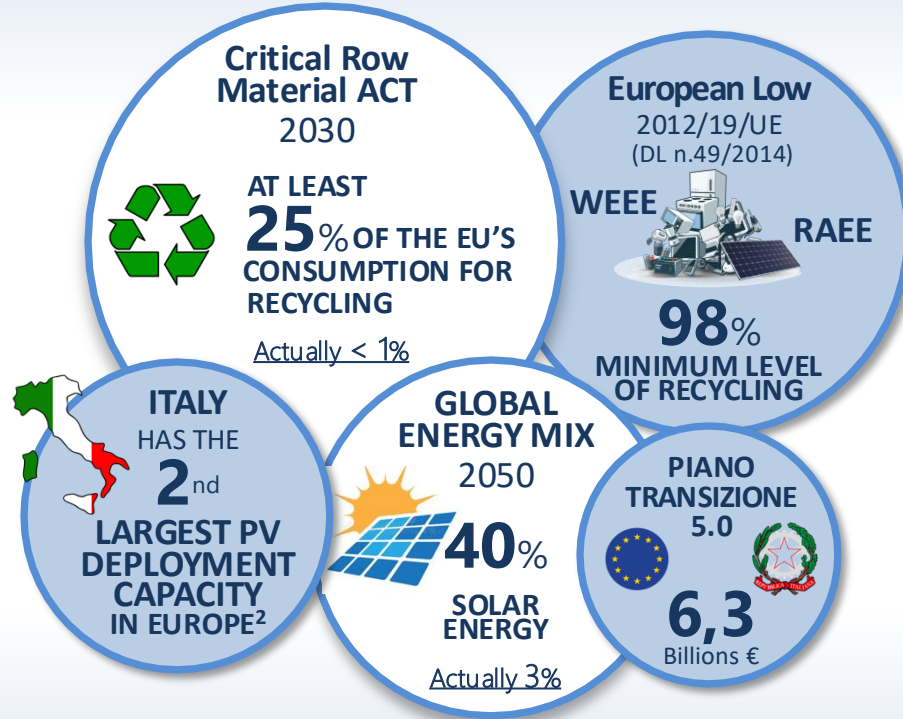
1. Source: estimated value by research of a market player in Italy

# PV EoL

Photovoltaic End of Life



## OPPORTUNITY SCENARIO



1. Source: Rystad Energy

2. Source: Science Direct - End-of-life solar photovoltaic waste management

## PV EoL

Photovoltaic End of Life



### STRENGTHS OF OUR SOLUTION

**1<sup>st</sup>**

POINT

**Innovative, sustainable and scalable** solution to guarantee high **volumes and efficiency** in the extraction of **secondary raw materials**;

**2<sup>nd</sup>**

POINT

**Automated and integrated "turnkey" solution** capable of starting from the PV EoL and arriving at the secondary raw materials including **the refining of silver** from silicon powder;

**3<sup>rd</sup>**

POINT

Solution with **low energy consumption** compared to the technologies on the market and **compliant with the «Piano Transizione 5.0»**;

## PV EoL

Photovoltaic End of Life



### POINTS OF INTEREST



**High treatment capacity**  
more than **10,000 tons of PV/Y**



Presentation of the **«concept»** at the  
***Ecomondo – The Green Technology Expo***  
5-8 November 2024, Rimini



**First system** on the market in **2025**

# The new era of recycling continues...

San Francisco

Novi

Porto

Frankfurt  
Stuttgart  
Paris  
Grenoble

Odense  
Berlin  
Nuremberg  
Munich  
Brno  
Bergamo  
Rimini

Istanbul

Delhi

Shanghai

Zhubei

Tokyo





CONTACT US  
Let's have a discussion



## HEADQUARTER

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Head Quarter