

# Growth through innovation

Annual General Meeting  
of Shareholders 2023

Benjamin Loh, President and CEO

May 15, 2023



# Cautionary note regarding forward-looking statements:

All matters discussed in this presentation, except for any historical data, are forward-looking statements. Forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those in the forward-looking statements. These include, but are not limited to, economic conditions and trends in the semiconductor industry generally and the timing of the industry cycles specifically, currency fluctuations, corporate transactions, financing and liquidity matters, the success of restructurings, the timing of significant orders, market acceptance of new products, competitive factors, litigation involving intellectual property, shareholders or other issues, commercial and economic disruption due to natural disasters, terrorist activity, armed conflict or political instability, changes in import/export regulations, epidemics and other risks indicated in the Company's reports and financial statements. The Company assumes no obligation nor intends to update or revise any forward-looking statements to reflect future developments or circumstances.



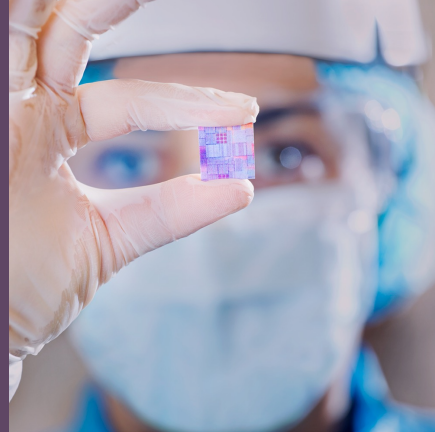


# Agenda



**Business and results review 2022**

**Key takeaways**



**Outlook 2023**

**Environment, social and governance (ESG)**



**Mid-term outlook and priorities**



# Key takeaways

**1** 2022 was another record-breaking year, marked sixth consecutive year of double-digit growth, and grew more than three times as fast as WFE.

**2** In 2022, headcount increased by 33% and since 2020, it has nearly doubled. Focus on attracting the best talent.

**3** Employee Value Proposition incorporates DEI and intends to foster an inclusive culture focused on developing people.

**4** Continued focus on sustainability and aiming for ambitious Net Zero 2035 target (all scopes) with submission to SBTi completed.

**5** Continue to be confident of meeting 2025 mid-term targets of €2.8 – 3.4 billion revenue, operating margin of 26 – 31%. (2022 achievements at €2.4 billion and 26.6% respectively).

**6** Although 2023 will be a year of correction for the entire industry, we expect to grow single digit and outgrow WFE.

**7** We continue to increase investments in people, processes, R&D and infrastructure in preparation for significant growth in the coming years.



# Agenda



## Business and results review 2022





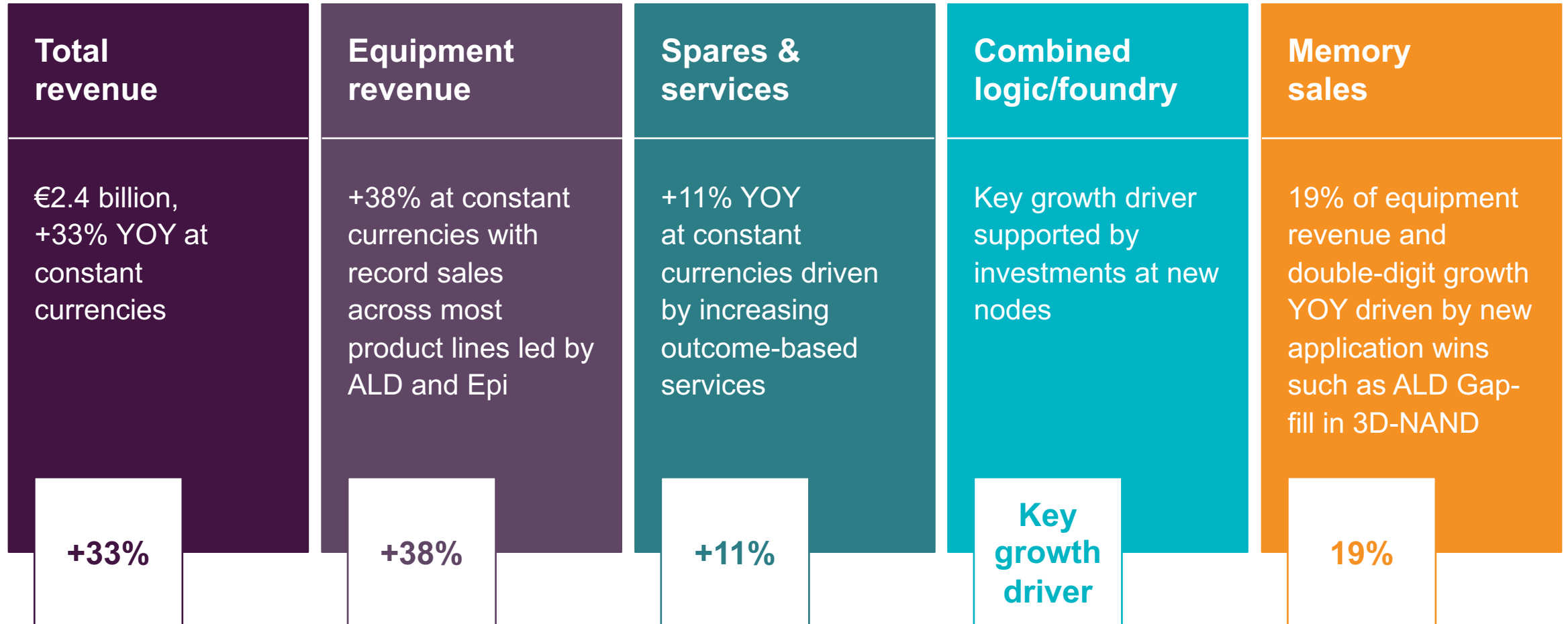
# 2022 in review



- Semiconductor demand slowed in 2H due to geopolitical instability, higher inflation, tightening monetary conditions and lower demand as the pandemic ended resulting in overall growth of 0.2% for 2022 (Gartner).
- Outlook for 2022 growth of the Wafer Fab Equipment market gradually reduced during the year, from a low-twenties to a high single digit percentage.
- ASM completed its first acquisitions in 18 years for both product and market expansion.
- Supply chain constraints continued and worsened in 1H, improved near the end of the year but challenges still remain in 2023.
- Rapid growth necessitated investments in our infrastructure for offices, R&D and manufacturing in many countries including Singapore, Japan, Korea, and the US.
- ASM's renewable electricity usage was at 76% in 2022 and we are on target to achieve 100% by 2024.
- We continue to work towards our ambitious target of Net Zero by 2023 (all scopes) with measurements and plans submitted to SBTi for validation and awaiting results.
- ASM continued to invest in our people, promoting and driving diversity and continuing to build a unique culture focused on our values, core behaviors, underpinned by our mission and purpose.



# A record-breaking year

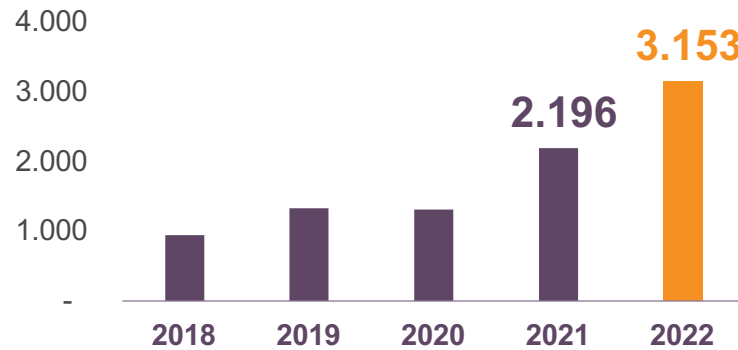




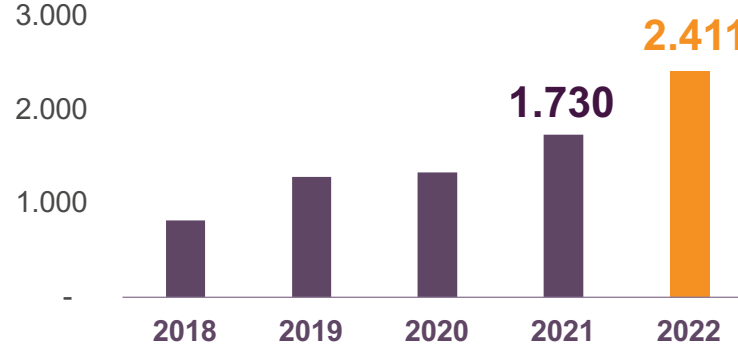
# Financial performance

ASM is building its future on strong growth figures and a consistently solid financial performance

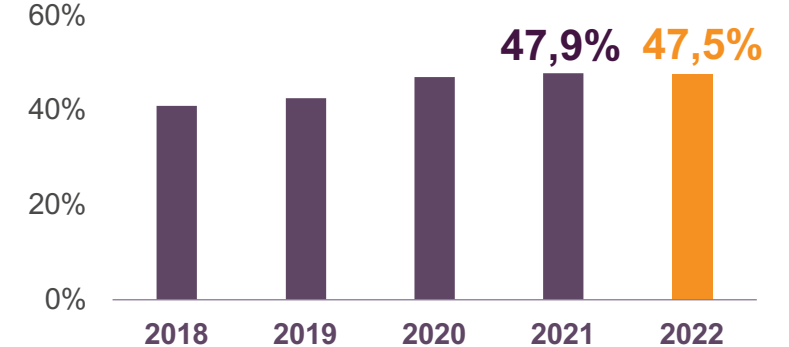
## Bookings



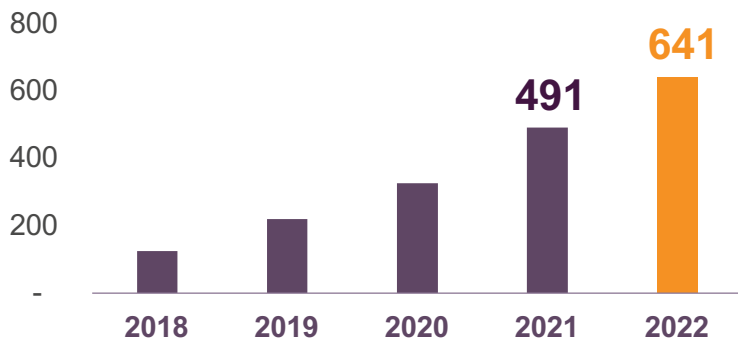
## Revenue<sup>(1)</sup>



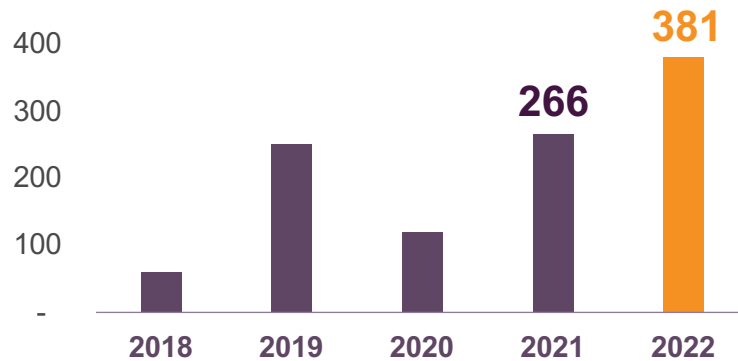
## Normalized gross margin<sup>(2)</sup>



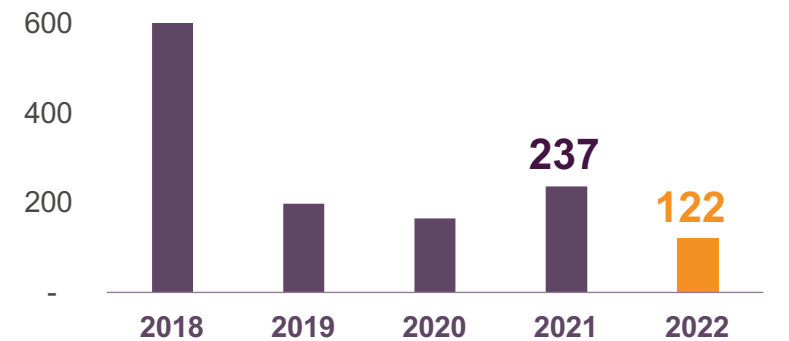
## Normalized operating profit<sup>(2)</sup>



## Free cash flow<sup>(3)</sup>



## Cash returned to shareholders



<sup>1</sup> Excluding the impact of patent litigation and arbitration settlement in 2019.

<sup>2</sup> Excluding amortization of fair value adjustments from respective purchase price allocations (before tax) in 2022.

Excluding the impact of patent litigation and arbitration settlement in 2019.

<sup>3</sup> Excluding cash spent on acquisitions in 2019.





# Acquisitions in 2022 - LPE and Reno

## → LPE - Silicon Carbide epitaxy systems

- SiC epitaxy is an attractive, high growth market, highly synergistic with ASM's silicon epitaxy business.
- Transportation has highest reliance on fossil fuels<sup>1</sup> → Consumers/governments driving EV adoption.
- Strong demand for SiC in power electronics for electric vehicles (EV), given that it offers higher efficiency, and so extended range or smaller battery size.
- We expect to drive growth in LPE's business by leveraging our strong customer base in power electronics.



## → Reno - RF matching subsystems

- High-performance RF matching networks and RF generators will enhance our plasma products.
- Advanced devices require precise control over the RF power delivered to the plasma reaction chamber, especially when depositing material on atomic scale.
- Reno's EVC (Electronically Variable Capacitor) technology provides sub-msec control over RF power delivery, improving film quality and throughput.



<sup>1</sup> 37% share of CO<sub>2</sub> emissions from end use sectors in 2021: Source: IEA



# New products 2022

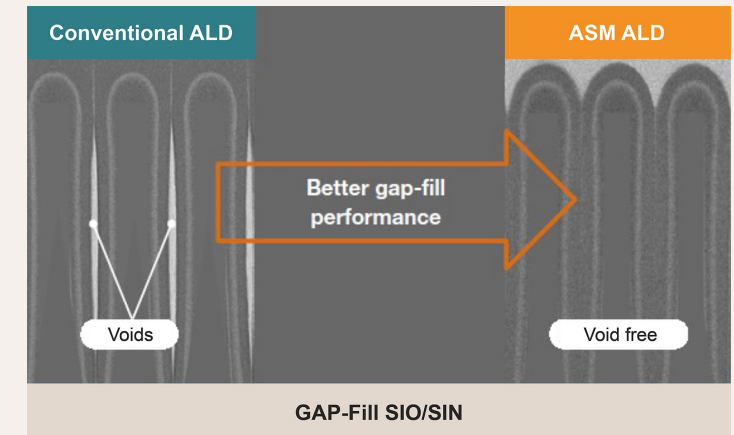


## → SONORA® Vertical furnace launched in 2022

- New 300mm furnace addresses logic/foundry, memory and analog/power markets.
- Dual-batch reactors for high volume manufacturing of LPCVD, diffusion and oxidation applications.
- SONORA achieves 30% higher productivity and a 50% lower cycle time, compared to its predecessor the A412.
- Existing A412 process recipes are easily transferred, accelerating system qualification and ramp-up.
- Innovative gas injection system for low pressure processing provides excellent film uniformities among individual wafers in large 150 wafer loads.

## → TENZA™ ALD Introduction in 2022

- TENZA™ ALD is an innovative process technology that provides excellent film quality and conformal coverage through the full high aspect ratio (>100:1) trench.
- Optimized for silicon oxide gap-fill, and liners for a range of structures in advanced transistors, memory devices, and interconnects.
- TENZA™ ALD leverages the high productivity QCM quad chamber module architecture.
- TENZA™ ALD incorporates EVC technology.





# Customer awards



**TSMC**

Excellent Performance  
Award for Excellent  
Production Support



**Intel**

EPIC Valued Supplier  
Award for Technology



**Samsung**

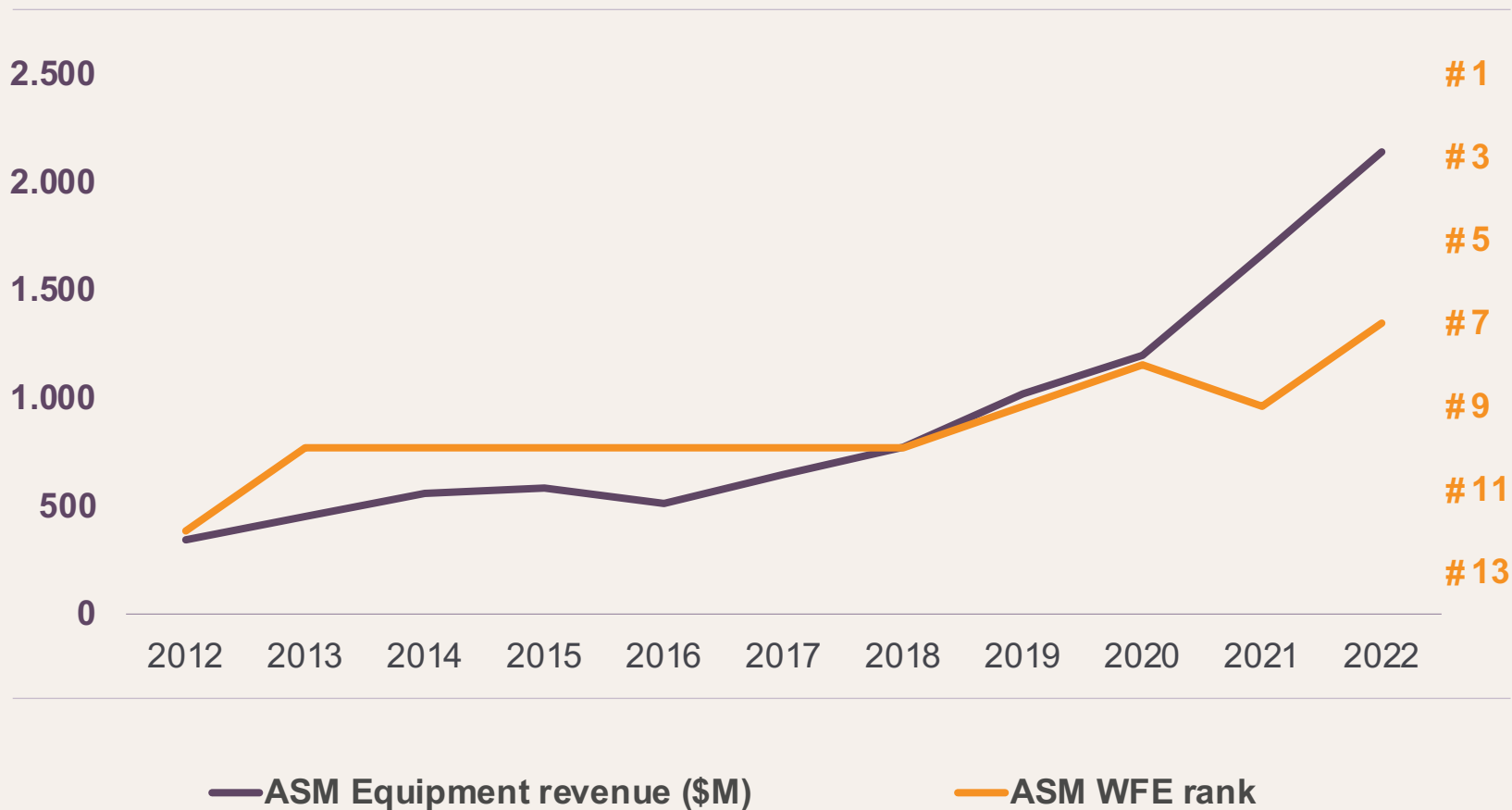
Best Collaboration  
Awards 2022





# ASM WFE rank #7

Source: TechInsights

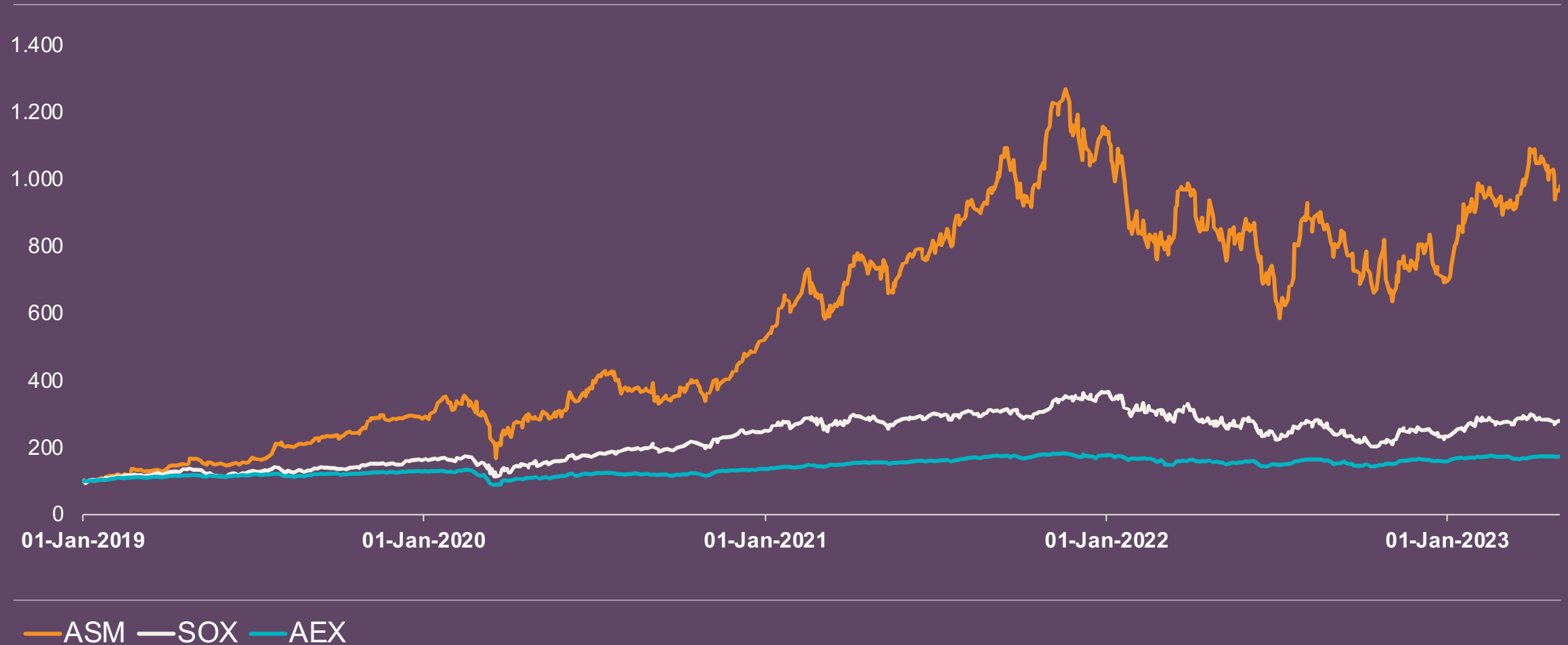


- ASM WFE rank is rising – now the #7 largest equipment supplier
- Growing from 12th position just 10 years ago



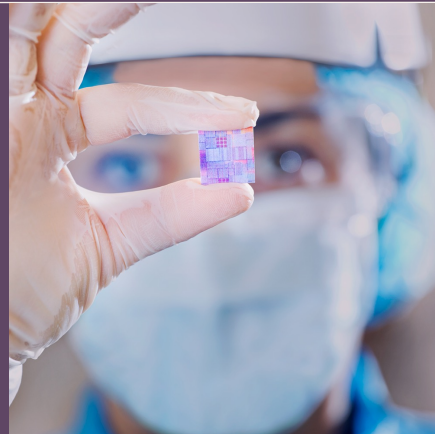


# Indexed total return ASM vs AEX and SOX index since 2019





# Agenda



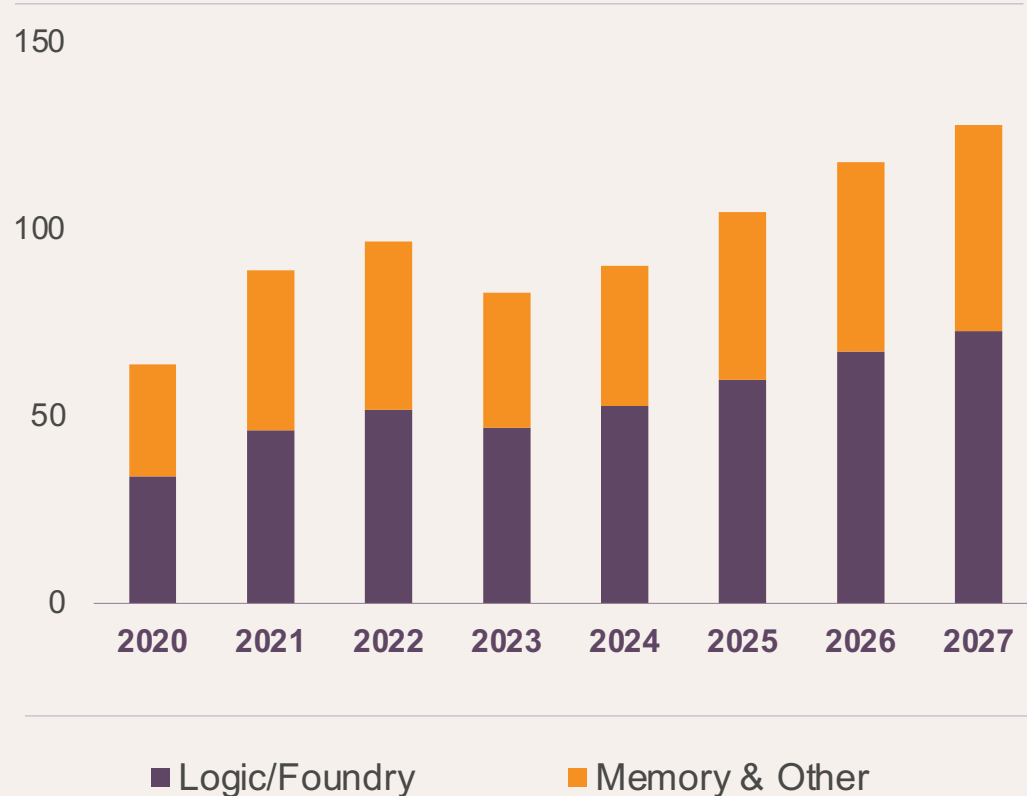
## Outlook 2023



# After a drop in 2023, market researchers expect WFE to resume growth in the coming years

## WFE Market forecast TechInsights

(US\$ billion)



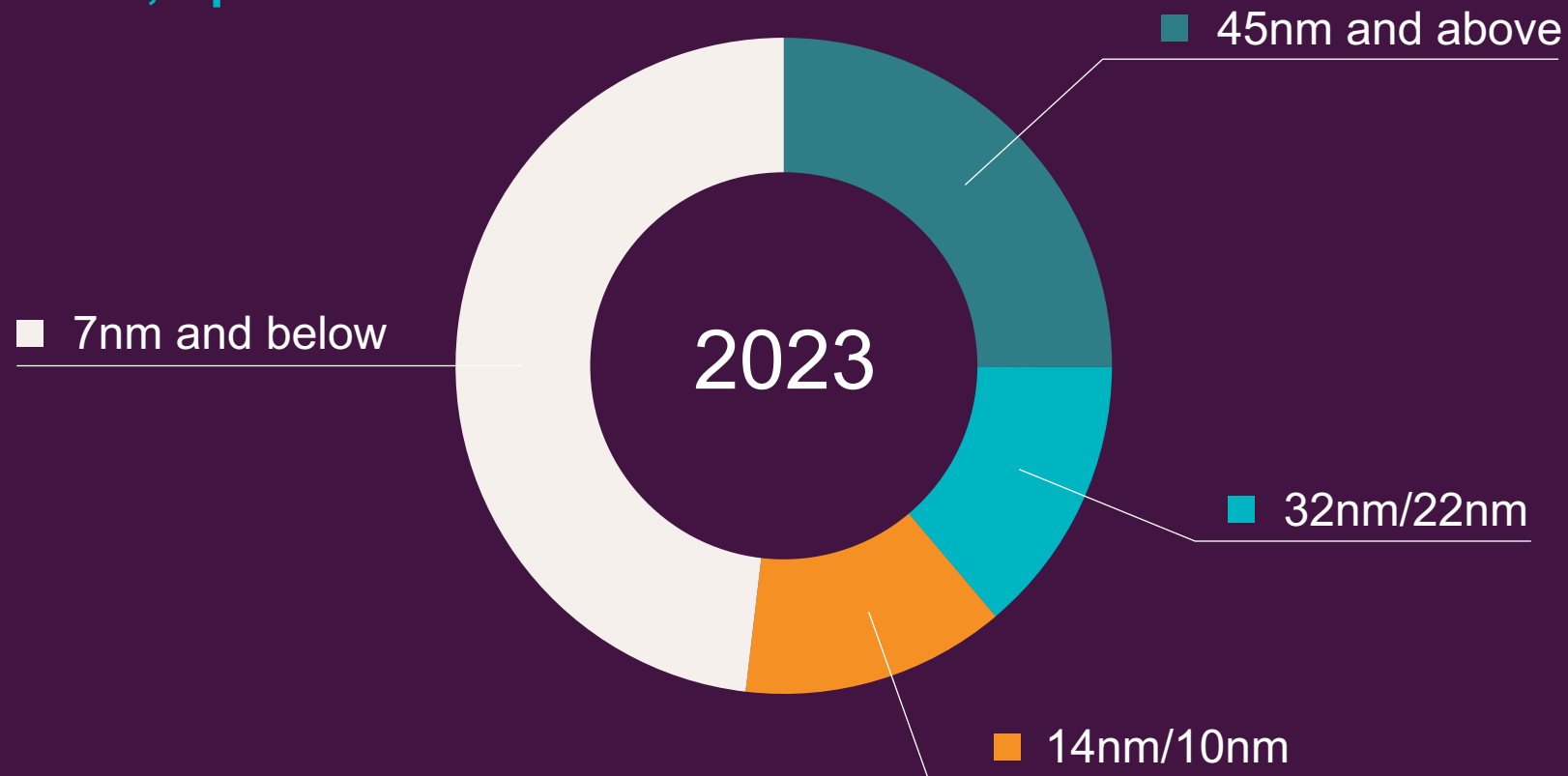
- **2023: WFE decline due to inventory corrections and lower demand mainly caused by macroeconomic conditions.**
  - Logic/foundry likely only a modest decline given needed investments for advanced nodes.
  - Equipment spending for memory is weak and expected to decline significantly in 2023.
- **WFE expected to recover from 2024, growth driven by secular trends of AI, 5G, EV, edge computing, etc.**
- **Multi-year investments announced across all market segments.**
- **Further scaling, 3D transitions and GAA driving investments.**
- **Mid-term growth supported by potential government sovereign efforts.**



# WFE by technology node

Source: Gartner, Apr 2023

(US\$ billion)



→ In 2023 7nm and below largest segment of WFE





# Guidance provided with Q1 2023 results

→ Wafer fab equipment (WFE) is expected to drop by a high teens percentage in 2023, down from a previous forecast of a mid to high teens percentage drop. We expect to again outperform the WFE market this year.

→ Memory WFE is expected to decline by a significant double-digit percentage. In the logic/foundry market, spending on the advanced nodes is still expected to be at a good level in 2023, but recently we have also seen a number of push-outs in this segment reflecting softer end-market conditions and some delays in new customer fab readiness. These push-outs will impact our expected orders in Q2 and Q3.

→ On a currency-comparable level, we expect revenue of a €650-690 million for Q2. Based on the current visibility, and reflecting aforementioned order push-outs, we project, following expected growth in the first half, a decrease in sales in the second half of 10% or more compared to the first half of the year.



# Continue expansion of R&D and manufacturing

- Signed in February 2023 an MOU with the Ministry of Trade, Industry and Energy of South Korea, and announced investment of around \$100 million for expansion of manufacturing and innovation center in Dongtan, South Korea
- Expansion of ASM's Dongtan facility starting in 2023



**South Korea**  
Dongtan



Completion of second manufacturing floor in FEMS in Q1 2023

**Singapore**  
Singapore



Completion of office renovation in Q1 2023

**Japan**  
Tokyo



Expansion of clean room space completed end 2022

**US**  
Phoenix



Training/ Demo center completed in early 2022

**Netherlands**  
Almere



# Agenda

## Environment, social and governance (ESG)







# ASM sustainability focus areas

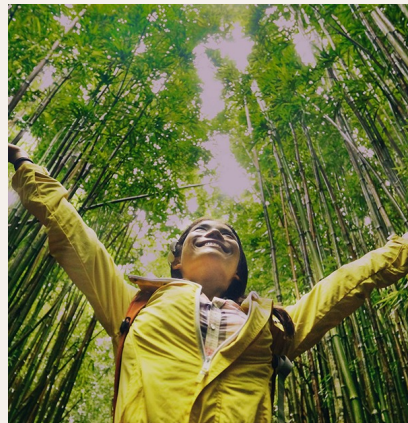
## Innovation

We are incorporating sustainability in the R&D of our products to make our machines more ecologically friendly and resource-efficient.



## People

We focus on creating a home for talent in the semiconductor industry. We empower our people by helping them develop, thrive and grow.



## Planet

ASM aims to be a Net Zero GHG company across its value chain by 2035. We expect our submission to the Science Based Targets initiative to be validated in H2 2023.



## Responsible Supply Chain

Our suppliers are key partners in our efforts to operate responsibly and sustainably and to create value in and beyond our operations.



## Sustainability Governance

At ASM, we do business ethically and transparently, obtaining voluntary assurance over our sustainability data that helps ensure integrity.



\* Organization that helps determine how much greenhouse gas emissions companies must reduce to prevent the worst effects of climate change.





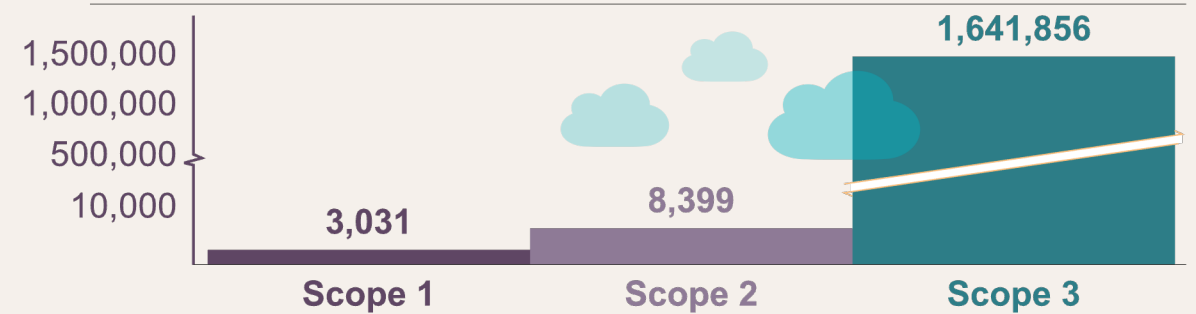
# Net Zero by 2035 progress update

- SBTi validation expected → H2 2023
- Climate Transition Plan → H2 2023 (after SBTi validation)
- Semiconductor Climate Consortium: Founding member and first chair of governing council

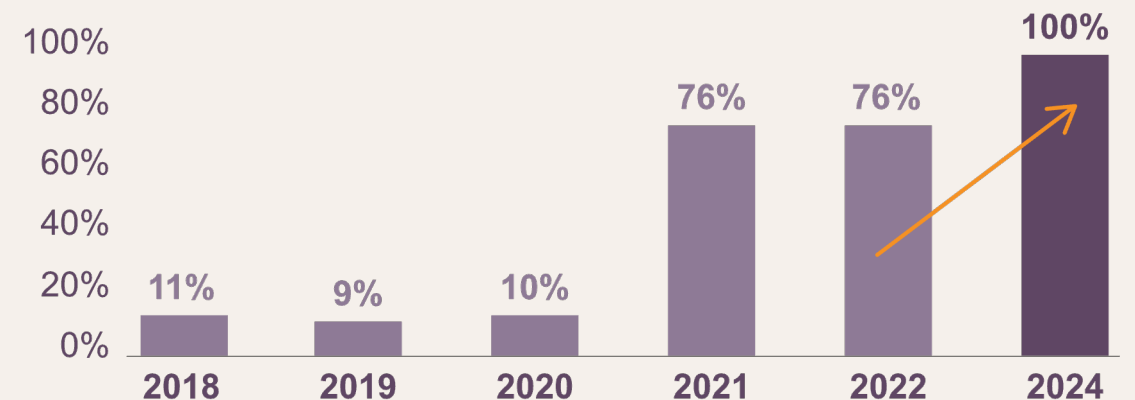
- 2021 Baseline Year\*
- Scope 3 = 99%; 72% is Customer Use of Product
- Scope 1 and 2 combined = 1% of total
  - Purchased electricity ~70% of Scope 1 and 2 combined
  - Target 100% renewable electricity by 2024
  - Already 76% RE from 2021

## ASM's 2021 GHG footprint

The majority of emissions (>99%) are from Scope 3 in mtCO<sub>2</sub>e



## Target renewable electricity %



\*As submitted for SBTi validation, subject to change as a result of validation



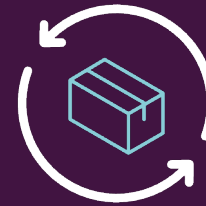
# Water and waste



**-5%**

**Absolute water withdrawal**

- 31% reduction normalized to revenue
- Focused efforts on water stressed regions
- Focus on structurally lowering withdrawals
- New water policy initiates journey toward Water Stewardship



**+109%**

**Packaging material reuse**



**86%**

**Landfill diversion rate**

- Value chain packaging reuse increasing landfill diversion for ASM, suppliers, and customers
- Strong further reuse potential
- Conducting Life Cycle Assessment (LCA) to quantify and further optimize environmental benefit



# Safety, people, and a responsible supply chain



- ASM reports all injuries first aid and greater
- Result remains among best in industry



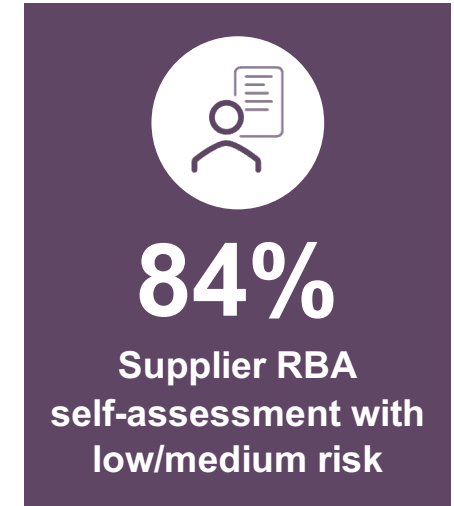
- 50% Supervisory board (from 43% 2021)
- 17% 'Sub board' (from 14% 2021)



- High participation rate of 89%
- All survey items improved



- Supply Chain = 23% of ASM's Scope 3 GHG
- CDP Climate Change disclosure provides key data to prioritize actions



- Key suppliers ~70% direct materials spend
- 100% key suppliers committed to RBA Code



# Improving ESG ratings



**B**

(same as 2021)

## Sustainalytics

Improved risk rating to **13.1**

**Top 25**

## AEX ESG Index

Top 25 'Best-in-Class' ESG practices

**69**

(2021: 58)

## S&P CSA 'Yearbook'

And 'Industry Mover'  
Improved score to **69**

**AA**

(2021: 'A')

## MSCI ESG

AA Rating

**4.0**

(2021: 3.6)

## FTSE4GOOD Index

Improved score to **4.0**

**33**

## Corporate Knights Global 100

First named in 2023, rank **33**

## CDP Climate Change / Water Security

B / B





# ASM's Employee Value Proposition (EVP)

ASM aspires to be the Employer of Choice for our existing and future talents. Our Employee Value Proposition is supporting this ambition by empowering our people, enabling them to develop and unlocking their full potential to become the best they can be, while driving our businesses and customers' success.

- **Work in a culture of trust, transparency and accountability.**
- **Be yourself in a diverse group of colleagues.**
- **Engaged and proud to be part of it.**



- **Empowered to develop yourself and others.**
- **A great employee experience and collaborate with the best people**
- **Recognized for making a difference.**





# EVP – focus on people and culture

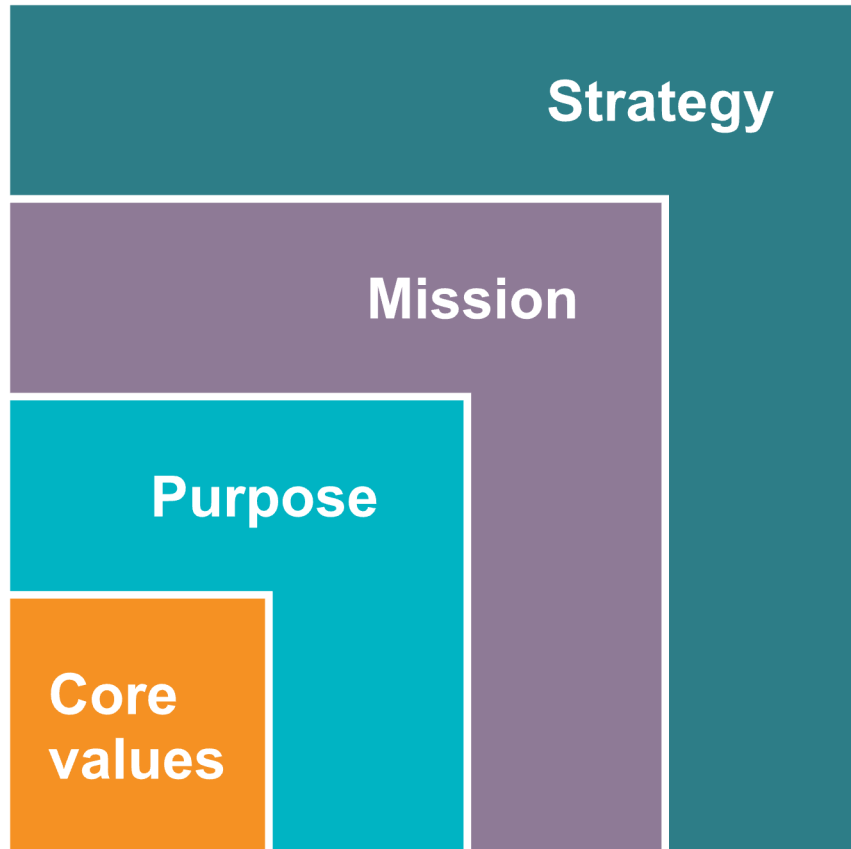
	Total headcount	Total hires	Female hires	% Female all employees
2021	3,312	1,220	14%	15%
2022	4,258 (29%)	1,520 (record high)	19%	17%

	Voluntary attrition	Gender pay ratio	Average remuneration employees	CEO ratio
2021	11.1%	95%	87	29
2022	10.2%	98%	99	27



# Core values, purpose, mission, and strategy



## Core values

Our values are We Care, We Innovate, We Deliver.



## Purpose

Our purpose is to improve people's lives through advancing technologies that unlock new potential.



## Mission

Our mission is to enable our customers' success by creating leading-edge semiconductor process products, services, and new materials.



## Strategy

Our strategy is Growth through Innovation.



# The principles that guide us

**We are helping to solve complex challenges in an ever-changing world.**

That's why our core values are the cornerstones of who we are, what we believe, and how we act.

In 2022 we increased our focus on action-planning with our managers and teams, prioritizing a workplace that fosters Accountability, Collaboration and Empowerment (ACE).



**We Care**



**We Innovate**



**We Deliver**



# Agenda



**Mid-term outlook  
and priorities**



# Strategic objectives







# Strategy enablers

→ To realize our strategy and strategic objectives we identified five critical enablers

## Best people



Our employees are our biggest asset. We strive to create a safe, inspiring, and motivating workplace where our people can use their talents, excel, and develop their potential.

## Leading edge innovation



Our growth strategy is founded on continuous innovation. Our R&D efforts focus on developing new materials and process solutions that enable novel applications.

## Early customer engagements



By strengthening our R&D engagements with chipmakers and our understanding of next-generation device roadmaps, we can develop value-added solutions to the industry's critical technology issues.

## Flawless operational excellence



Our aim is to provide our customers with dependable, leading-edge products and services at a consistent performance level, while providing the best total cost of ownership.

## Strong financial position

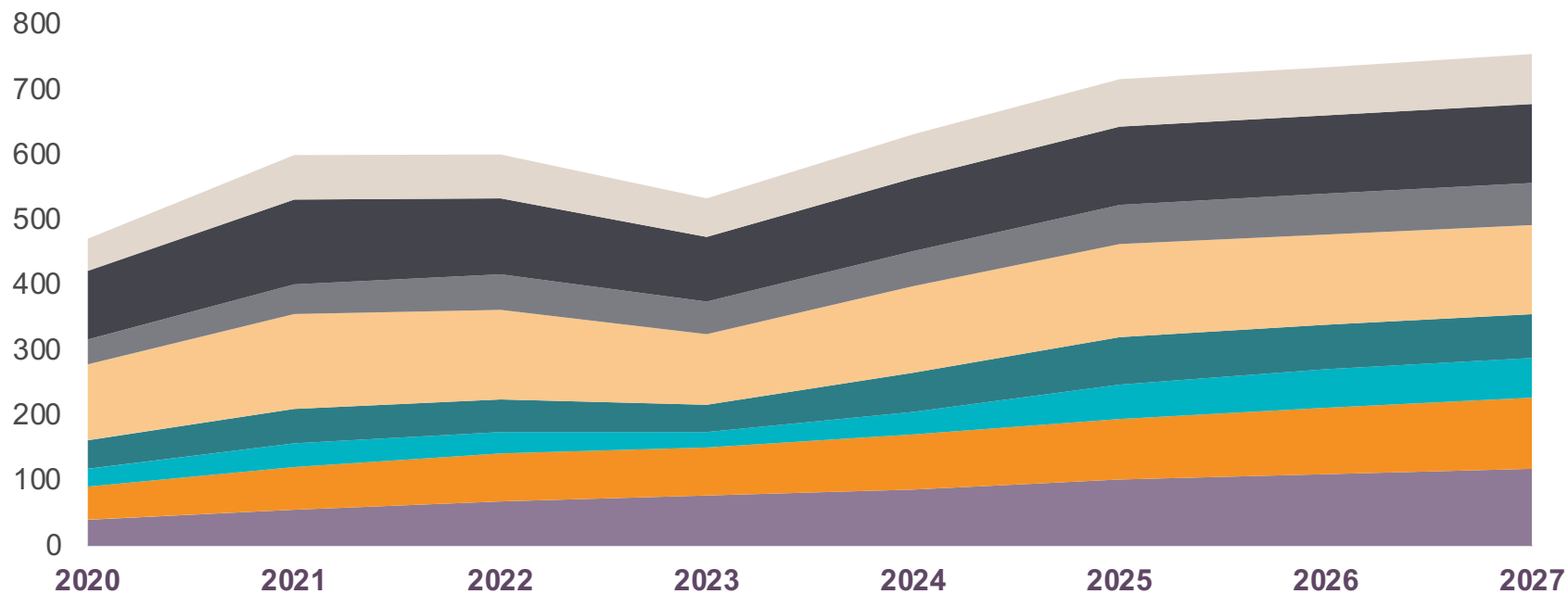


We strive to maintain a strong balance sheet that allows us to continue investing in R&D and in our people. We intend to continue paying a sustainable dividend and excess cash will be used for the benefit of shareholders.



# Long term semi growth drivers are servers, solid state drives, automotive and industrial

## Semiconductor Sales by Key Application (\$B)



Accelerated digitalization is driving strong long-term growth in the semiconductor industry.

The global semiconductor end market was flat in 2022 at about US\$600 billion.

While a decline is expected in 2023, the structural drivers for our industry are still strong.



# Longer term outlook is solid

- **Structural drivers for our industry are still intact.**
- **Semiconductor end market continuing to grow with strong digitalization trends, and expectations to reach US\$1 trillion in early 2030s.**
- **Data-intensive end-market applications, such as AI, cloud computing and EV, will drive investments in faster and more power-efficient semiconductors.**
- **We expect that customers are committed to move to next advanced technology nodes.**
- **Computing power requirements for AI and machine learning fuel further logic technology innovation.**
- **Cloud computing, social media, and IoT increase data storage demand, driving memory density scaling.**



# Financial targets towards FY 2025

	FY 2020	FY 2022	FY 2025
Revenue →	€1.3 billion	€2.4 billion	€2.8 to €3.4 billion <sup>1</sup>
Revenue growth →	22% CAGR (FY16-FY20)	33% YOY <sup>1</sup>	16 - 21% CAGR (FY20-FY25)
Gross margin % →	47.0%	47.5% <sup>2</sup>	46 - 50% (FY21-FY25)
SG&A % revenue →	11.9%	11.4% <sup>2</sup>	High single digit (FY25)
R&D (net) % revenue →	10.5%	9.5% <sup>2</sup>	High single digit to low teens (FY25)
Operating margin % →	24.6%	26.6%	26-31% (FY21-25)

## → ETR (effective tax rate %): Gradually increasing to low twenties

- We expect working capital days to range from 55-75 days (2021-2025)
- Expected capital expenditure ranging from €60-€100 million annually (2021-2025). For 2023, expected capital expenditure of €150-€200 million

<sup>1</sup> At constant currencies

<sup>2</sup> On a normalized basis, excluding PPA



# Key takeaways

**1** 2022 was another record-breaking year, marked sixth consecutive year of double-digit growth, and grew more than three times as fast as WFE.

**2** In 2022, headcount increased by 33% and since 2020, it has nearly doubled. Focus on attracting the best talent.

**3** Employee Value Proposition incorporates DEI and intends to foster an inclusive culture focused on developing people.

**4** Continued focus on sustainability and aiming for ambitious Net Zero 2035 target (all scopes) with submission to SBTi completed.

**5** Continue to be confident of meeting 2025 mid-term targets of €2.8 – 3.4 billion revenue, operating margin of 26 – 31%. (2022 achievements at €2.4 billion and 26.6% respectively).

**6** Although 2023 will be a year of correction for the entire industry, we expect to grow single digit and outgrow WFE.

**7** We continue to increase investments in people, processes, R&D and infrastructure in preparation for significant growth in the coming years.



Thank you