

Investor Day 2023

Growth through Innovation

Benjamin Loh, President and CEO



Forward-looking statements

Cautionary note regarding forward-looking statements:

This presentation contains “forward-looking statements”. All statements in ASM’s Investor Day 2023 presentations, other than statements of historical fact, 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 risks and uncertainties include, but are not limited to, economic conditions and trends in the semiconductor industry generally and the timing of the industry cycles specifically, product demand and semiconductor equipment industry capacity, worldwide demand and manufacturing capacity utilization for semiconductors, 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 slowdown or disruption including due to natural disasters, terrorist activity, armed conflict or political instability, changes in laws including import/export regulations, changes in tax and exchange rates, epidemics, pandemics and other risks indicated in the Company’s reports and financial statements. Investors are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this presentation. The Company assumes no obligation nor intends to update or revise any forward-looking statements to reflect future developments or circumstances. Forward-looking statements are not guarantees of future performance, and actual results, developments and business decisions may differ materially from those envisaged by forward-looking statements.

Key takeaways

- 1 Semiconductor growth continues despite a downturn in 2023; long-term secular trends remain solid and in the case of AI and electrification of vehicles, even accelerating.
- 2 ASM's Growth through Innovation strategy showing results. Revenue increased with a CAGR of 35% in 2020 - 2022 and has significantly outperformed WFE during the period 2016 - 2022.
- 3 ASM is well positioned to meet the forthcoming technology advances especially in GAA and advanced memory, and we continue to grow in our key products of ALD and Si epitaxy with a leading market share in ALD and a growing share in Si epitaxy.
- 4 Have added a rapidly growing product line in SiC epitaxy with significant demand growth over the next few years due to electrification of vehicles and other power applications.
- 5 Our focus on sustainability continues with our Net Zero 2035 targets now verified by SBTi.
- 6 We upgrade our revenue target for 2025 to €3.0 – 3.6 billion. For 2027 we target to grow revenue to €4.0 – 5.0 billion (CAGR 2022-2027 of 11 - 16%) with an operating margin of 26 – 31%.

ASM Executive Committee leadership team



Benjamin Loh
President and Chief Executive Officer

Chairman of the Management Board



Paul Verhagen
Chief Financial Officer

Member of the Management Board



Hichem M'Saad
Chief Technology Officer

Member of the Management Board



Brian Birmingham
Senior Vice President Global Sales



Kent Rossman
Senior Vice President Global Operations



Edyta Jakubek
Senior Vice President and Chief People Officer

→ In February 2022, ASM set up an Executive Committee, which consists of the three Management Board members, and three other senior executive leaders.

Key achievements since Investor Day 2021

Revenue CAGR 35%
in '20-'22

Outperforming WFE
despite supply chain
challenges

Invested in growth
& innovation

R&D headcount
+54% in '20-'22

Operating profit CAGR
40% in '20-'22

FCF more than tripled
from '20 to '22

Singapore
expansion completed
January '23

Manufacturing capacity
>3x since '20

Acquisition of LPE
in '22

New major SiC
customer wins in '23

Maintained leadership
in logic/foundry

Secured key tool
selections for GAA

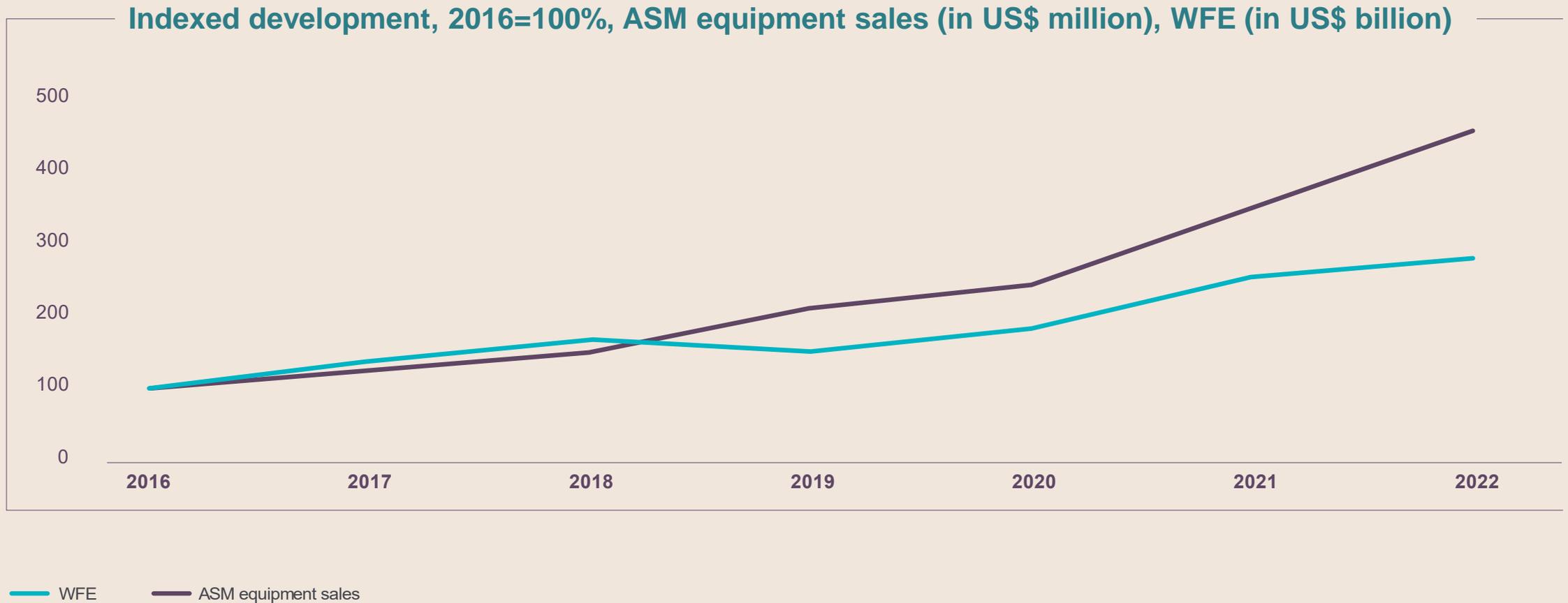
Gained share in DRAM
and 3D-NAND

Memory was 19%
of revenue in '22

Net Zero targets
verified by SBTi

Renewable electricity
increased to 76%

ASM growing twice as fast as WFE in 2016-2022



WFE source: TechInsights, September 2023

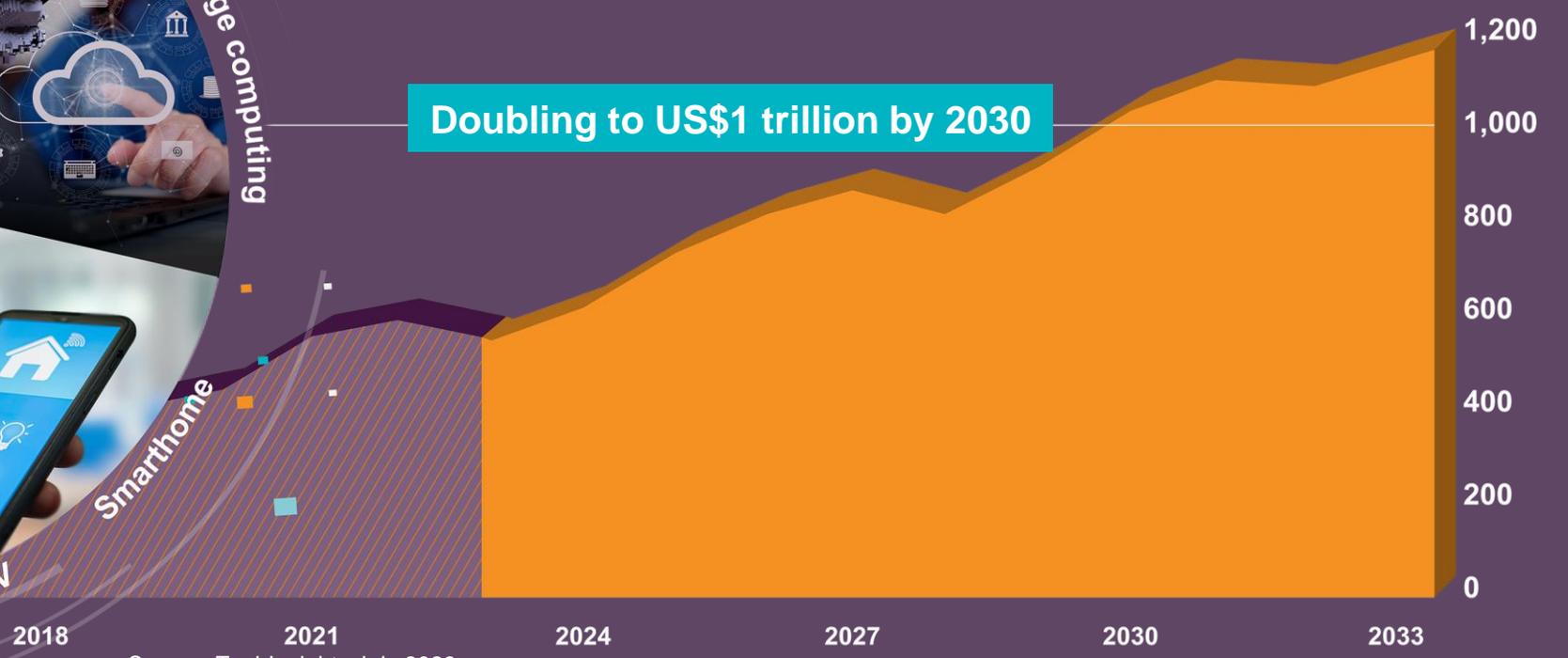
Digital transformation drives structural growth

Megatrends driving the semiconductor market



Semiconductor revenue (US\$ billion)

Doubling to US\$1 trillion by 2030

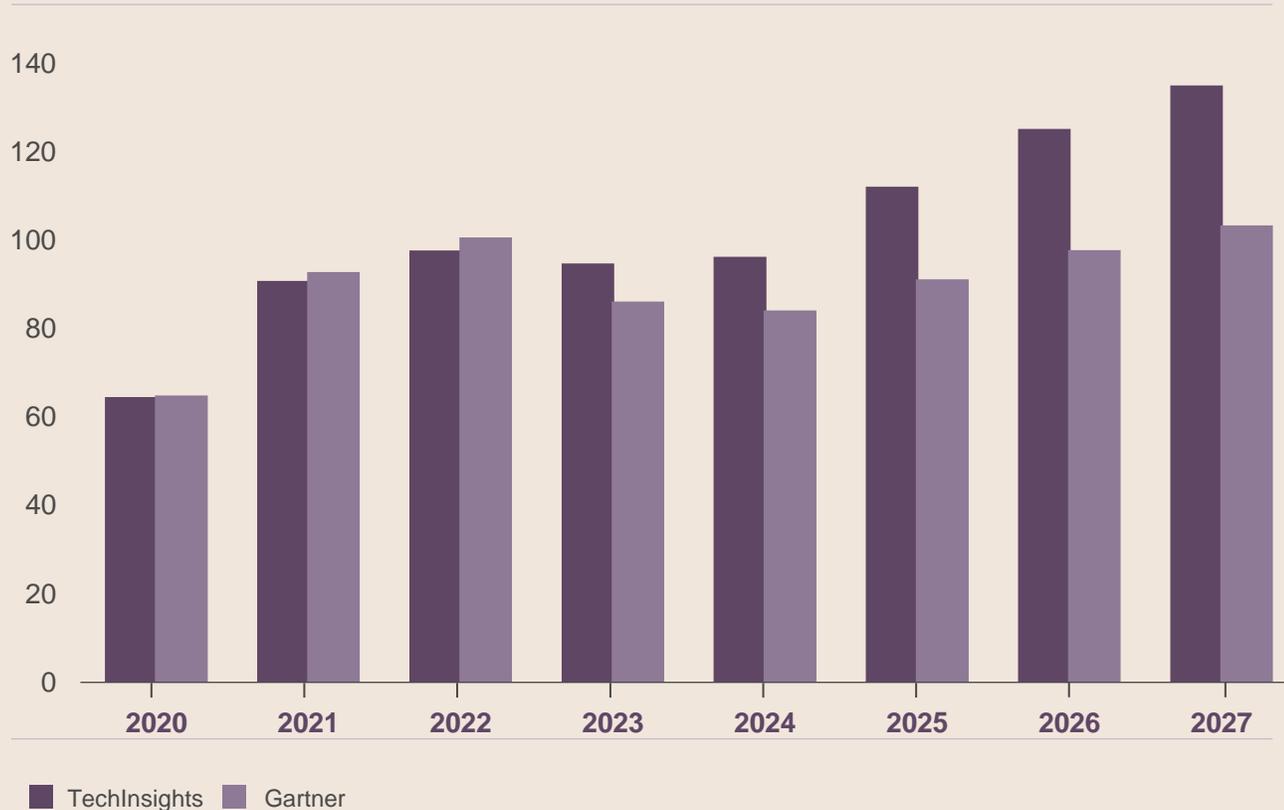


Source: TechInsights July 2023

WFE spending expected to grow in 2024-2027

WFE market forecast

(US\$ billion)



→ **WFE 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 in advanced CMOS
- Government sovereign efforts could add further investments
- In recent years increased investments in China have contributed to WFE growth

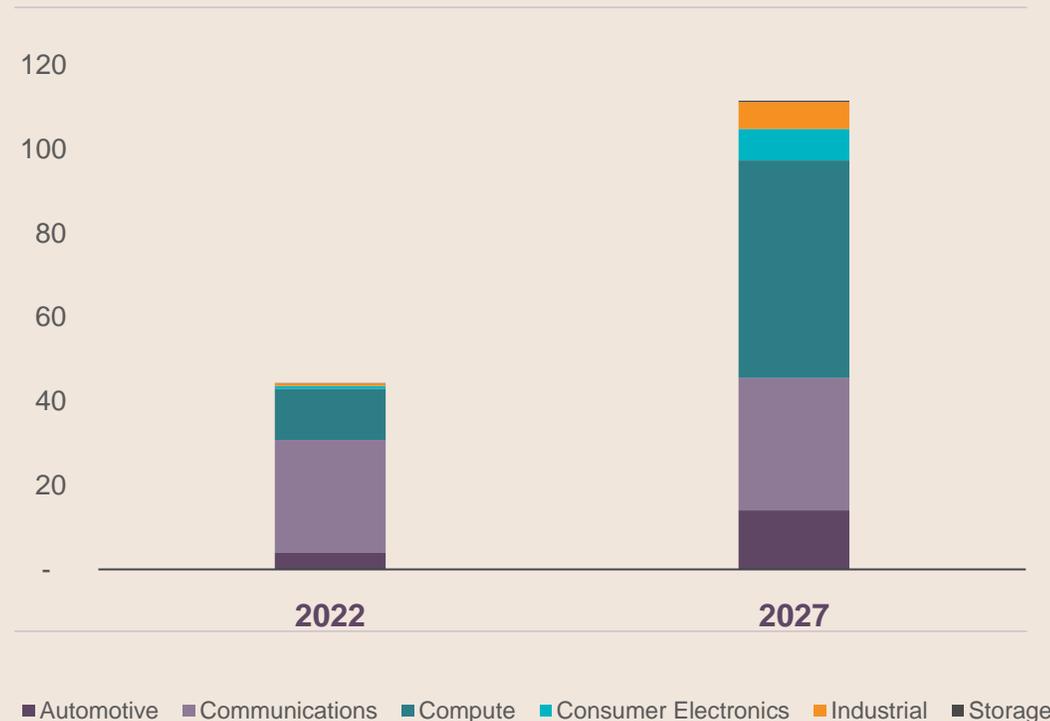
→ **ASM market outlooks are based on WFE of US\$100 billion in 2025 and US\$120 billion in 2027**

Source: TechInsights September 2023, Gartner July 2023

The growth of AI will drive increased capacity requirements for the semiconductor industry

AI semiconductor sales outlook

(US\$ billion)



AI-specific functions in >30% of logic devices by 2027 with significant upside

Source: Gartner, 2023

→ What it means for ASM:

• Increased capacity

- More datacenters with higher content servers – GPU, ASIC, communications, HB DRAM
- More silicon content edge device (ex. phone GPU, NPU, Auto ADAS systems) → more fabs

• Inflections

- Acceleration of Finfet to GAA → more single-wafer ALD and Epi steps
- High performance/ bandwidth DRAM drives high-k adoption, metals → more single-wafer ALD and Epi steps

Growth through Innovation - strategy unchanged

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



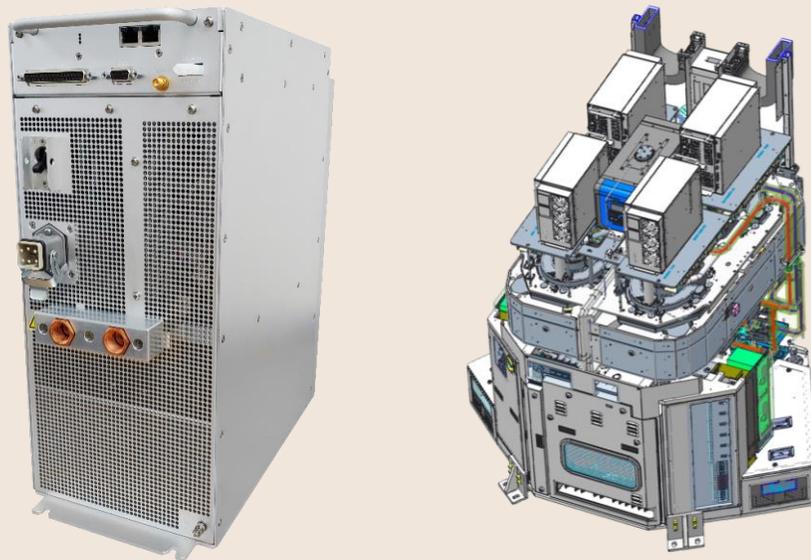
Strategy enablers



Mergers & acquisitions adding to ASM's growth

- First M&A activities in 2022 after 18 years
- M&A is an opportunistic part of our strategy and will mainly target semiconductor deposition equipment or technologies that enhance our deposition equipment

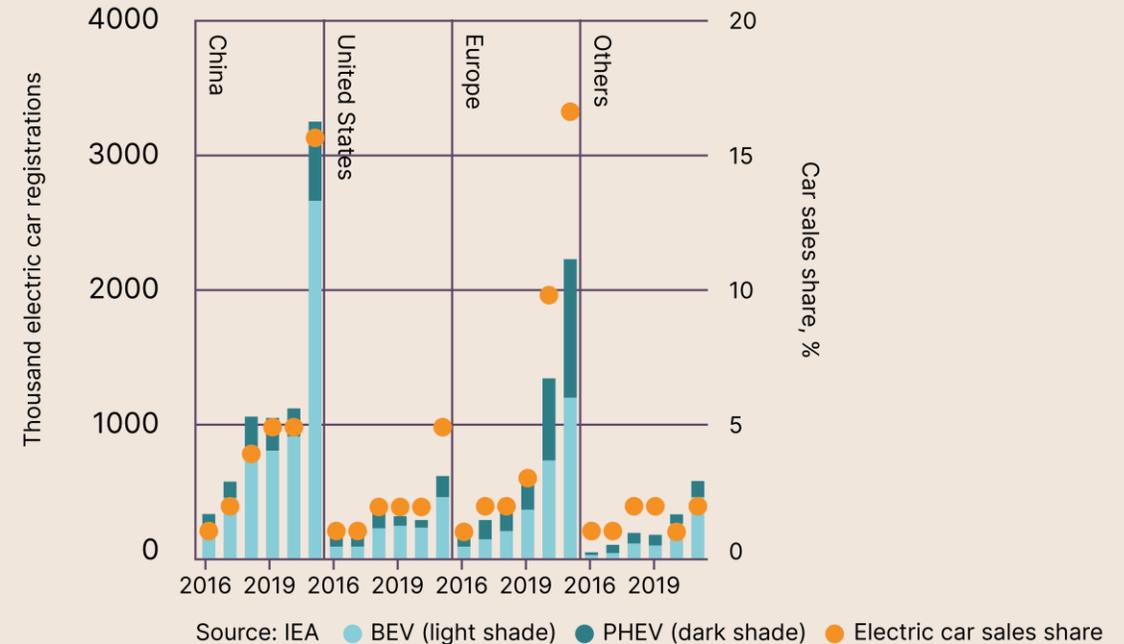
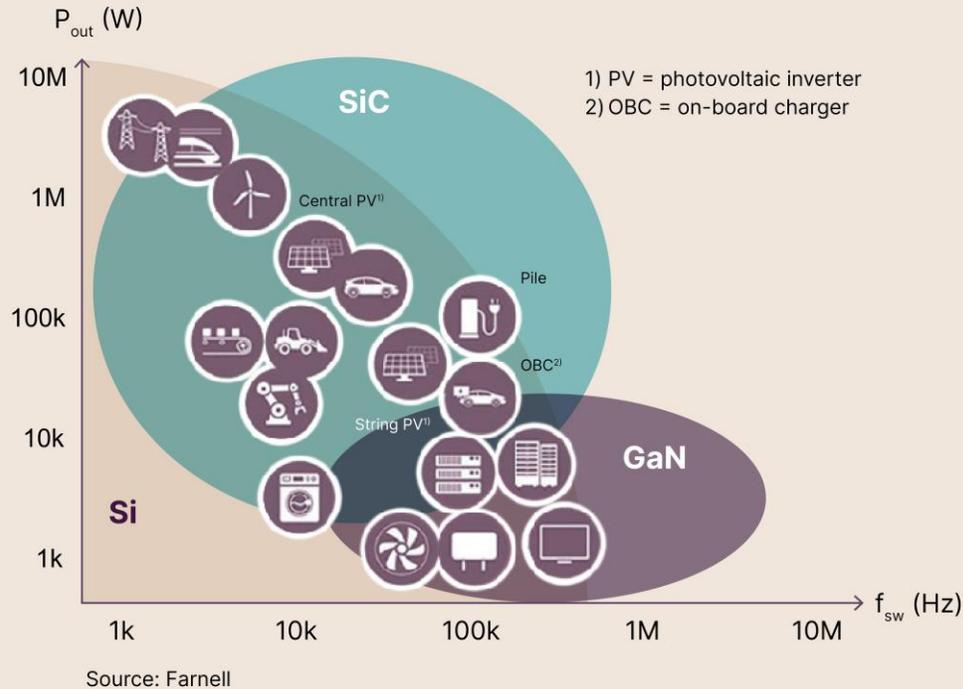
Technology acquisition – Reno Sub-Systems



Deposition equipment acquisition – LPE



Acquisition of LPE addresses high-growth market



- The power electronics market is ripe for disruptions by SiC
- An attractive, high-growth market, highly synergistic with ASM, both technology and operations
- Transport highest reliance on fossil → Consumers/governments driving EV adoption
- SiC also addresses expanding markets in renewables and other power applications

Expanding portfolio of state-of-the-art deposition equipment



ASM key products

Synergis® ALD



XP8® QCM PEALD



Intrepid® ES epitaxy



XP8® PECVD



Sonora® vertical furnace



PE106 SiC epitaxy



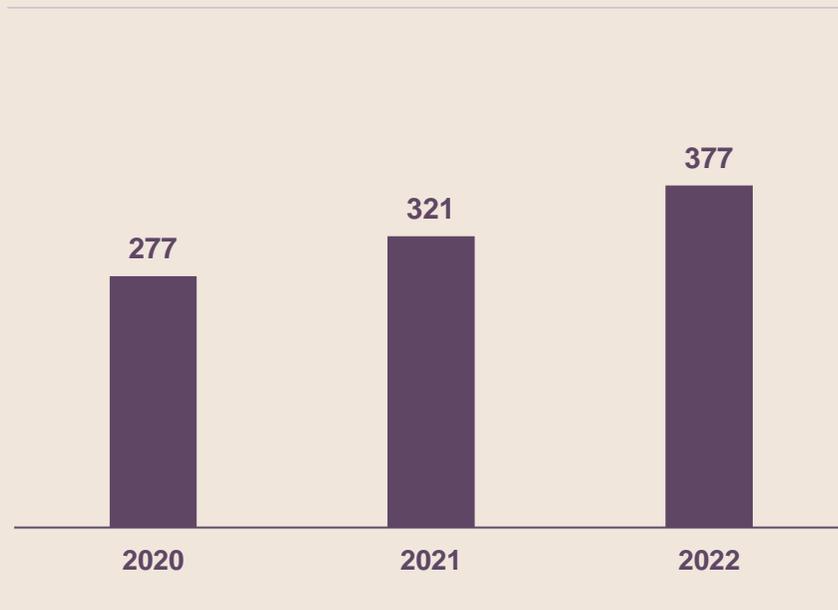
Double-digit growth in spares & services

→ Spares & services revenue CAGR 2020-2022 of 17% driven by growing installed base and successful adoption of outcome-based services

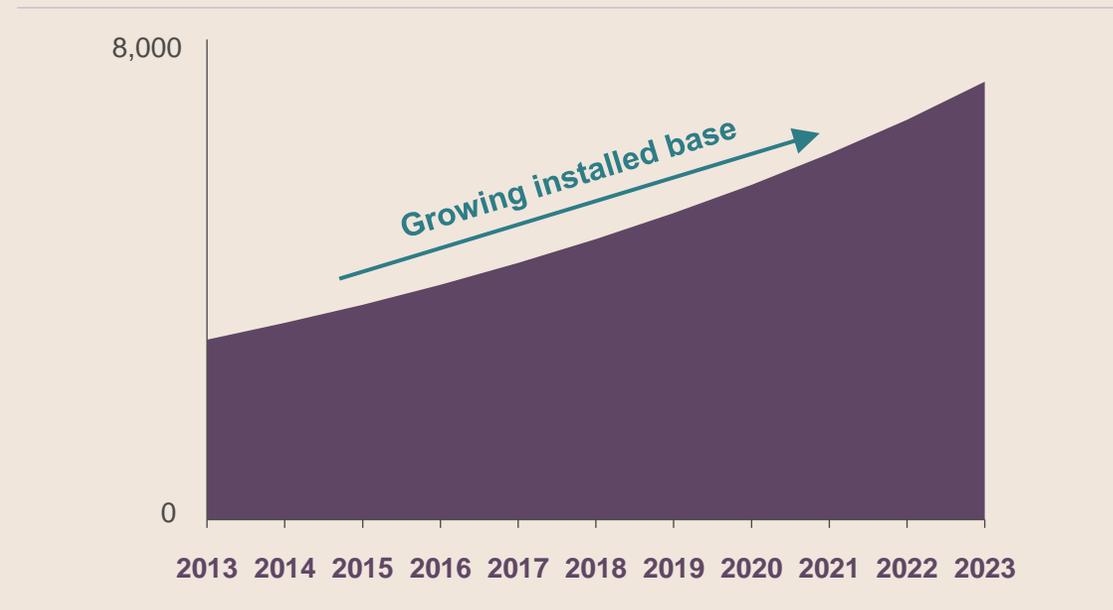
- Target continued healthy growth in 2023-2027

Spares & services revenue 2020 – 2022

(€ million)

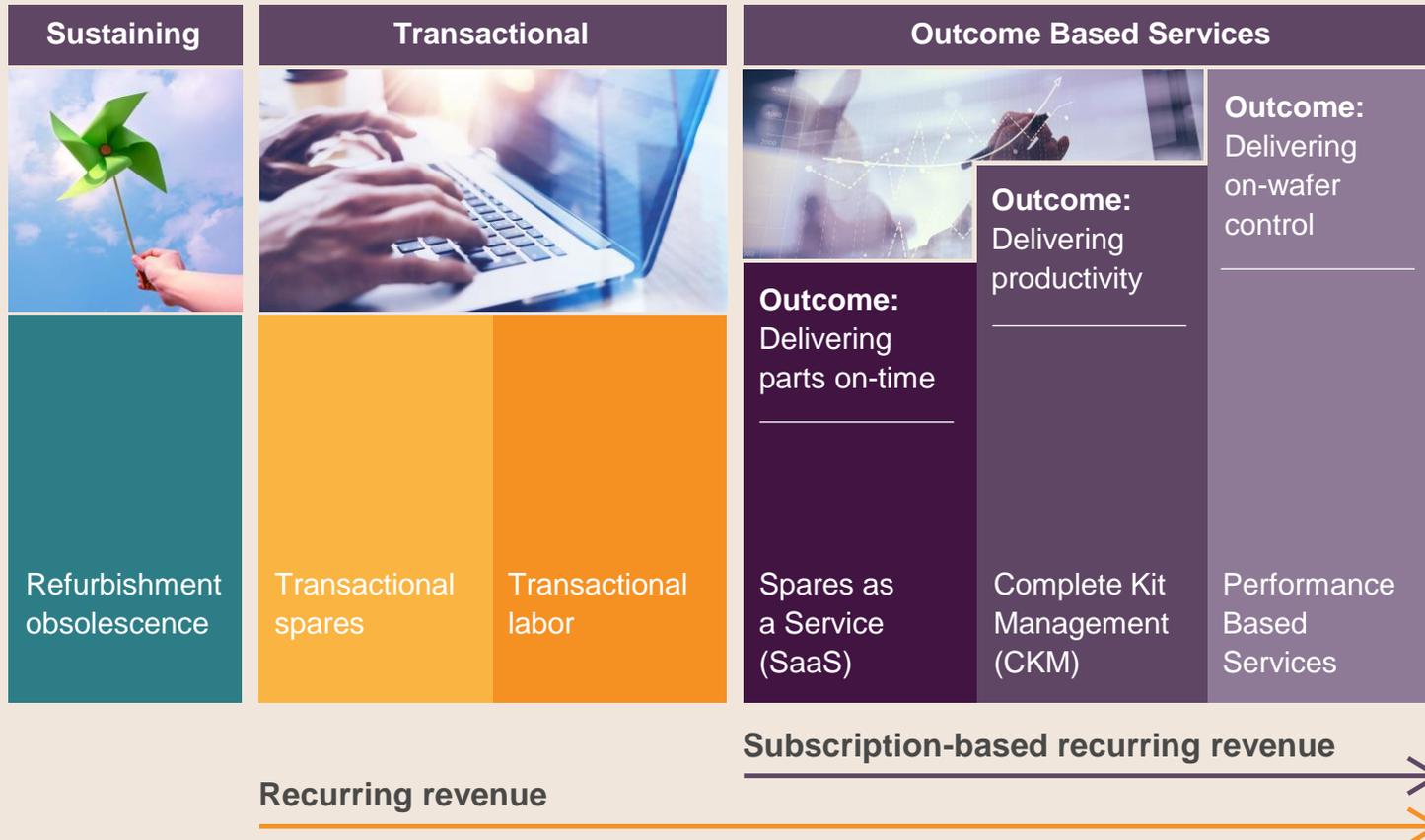


Number of systems 2013 – 2023



Note: Installed base definition changed compared to Investor Day 2021

Growth increasingly driven by outcome-based services



Benefits of outcome-based services

For the customer:

- Improved on-wafer performance – e.g. through surface technology
- Increased productivity – e.g. through complete kit management
- Cost reduction roadmaps
- Sustainability – e.g. part reuse, and lifetime extension through refurbishments

For ASM:

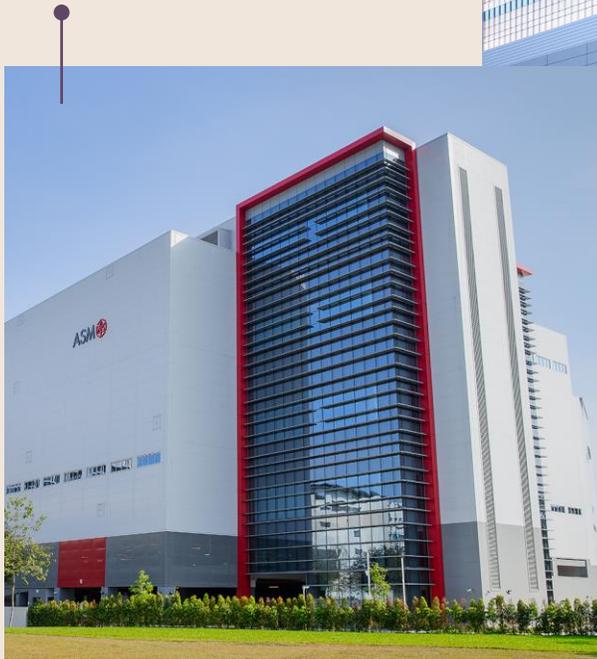
- Larger part of revenue in the form of subscription-based recurring revenue
- Larger share of after-market opportunity

Capacity in place for 2027 revenue target

Dongtan, South Korea
(completion early 2025)



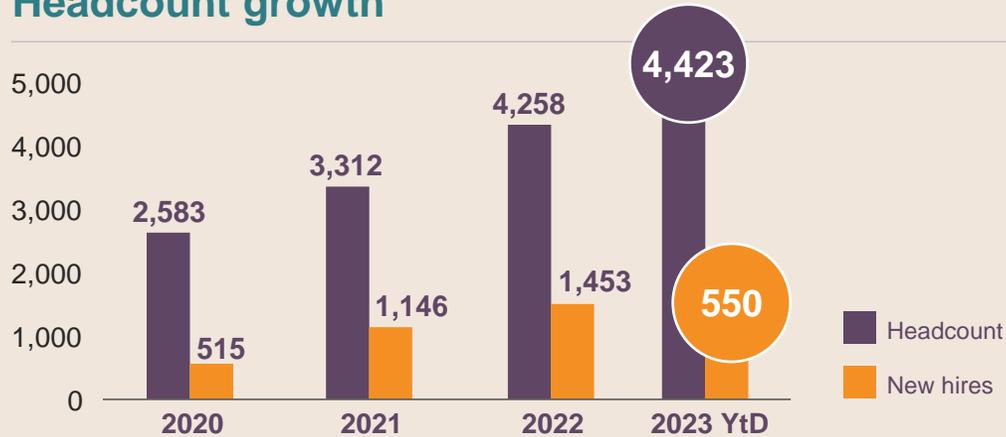
Singapore (completed)



- Met customer commitments despite significant supply chain headwinds
- Supply chain and operations more resilient
- Current internal manufacturing capacity >3x increase compared to 2020. Sufficient flexibility to meet 2027 targets

People are at the heart of our success

Headcount growth



Retention

	All employees	High performers	Talents
2020	89.3%	97%	94%
2021	87.5%		
2022	88.1%		
2023 H1	>90%		

Culture



ACE

Accountability

Collaboration

Empowerment

2023 engagement study

- Our employees understand how their role supports the overall business strategy: 4.25 (85% of favorable answers)
- Meaningful progress on Accountability, Collaboration, Empowerment (+0.18)

Diversity



Gender

- Progress towards 20% female employees in 2025
- Female participation increased to 17% (in 2022) from 15% (in 2021)
- 19% female hires in 2022

Nationalities

- ASM is present in 15 countries
- 66 nationalities - TOP: US, Korea, Singapore.

ASM sustainability focus areas

- **Our Focus** - Deliver long-term sustainable value creation for all of our stakeholders and make a positive impact in the world
- **We Address** - Key topics and opportunities informed by our stakeholder priorities and aligned with our strategy:

<p>Innovation </p> <p>We incorporate sustainability in the R&D of our products and technologies.</p>	<p>People </p> <p>We empower our people by helping them develop, thrive and grow in an inclusive environment.</p>	<p>Planet </p> <p>ASM aims to be a Net Zero company across its value chain by 2035.</p>	<p>Responsible supply chain </p> <p>Our suppliers are key partners in our efforts to operate responsibly and sustainably.</p>	<p>Sustainability governance </p> <p>At ASM, we do business ethically and transparently.</p>
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- **We Lead** - A sustainability leader in our industry, and beyond
- Our **Net Zero by 2035** (all scopes) target verified by SBTi
- Most ambitious SBTi designation - **first in sector**
- Formed and chair **Semiconductor Climate Consortium**
- We will do our utmost to collaborate with customers and upstream suppliers to implement sustainability initiatives to be able to achieve Net Zero 2035 target

Key takeaways

- 1 Semiconductor growth continues despite a downturn in 2023; long-term secular trends remain solid and in the case of AI and electrification of vehicles, even accelerating.
- 2 ASM's Growth through Innovation strategy showing results. Revenue increased with a CAGR of 35% in 2020 - 2022 and has significantly outperformed WFE during the period 2016 - 2022.
- 3 ASM is well positioned to meet the forthcoming technology advances especially in GAA and advanced memory, and we continue to grow in our key products of ALD and Si epitaxy with a leading market share in ALD and a growing share in Si epitaxy.
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Growth through Innovation

Investor Day 2023

Market outlook & growth opportunities

Dr. Han Westendorp

Corporate VP Global Marketing



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Key takeaways

1 We see continued digitization, growth in AI and electric vehicle adoption trends that are expected to continue to drive growth in the semiconductor and Wafer Fab Equipment market.

2 The market for single-wafer ALD is expected to outgrow the WFE market, and to grow

- to a range of US\$3.1 - US\$3.7 billion by 2025¹
- to a range of US\$4.2 - US\$5.0 billion by 2027²

3 The Si Epi market is expected to grow

- to a range of US\$1.9 - US\$2.3 billion by 2025¹
- to a range of US\$2.3 - US\$2.9 billion by 2027²

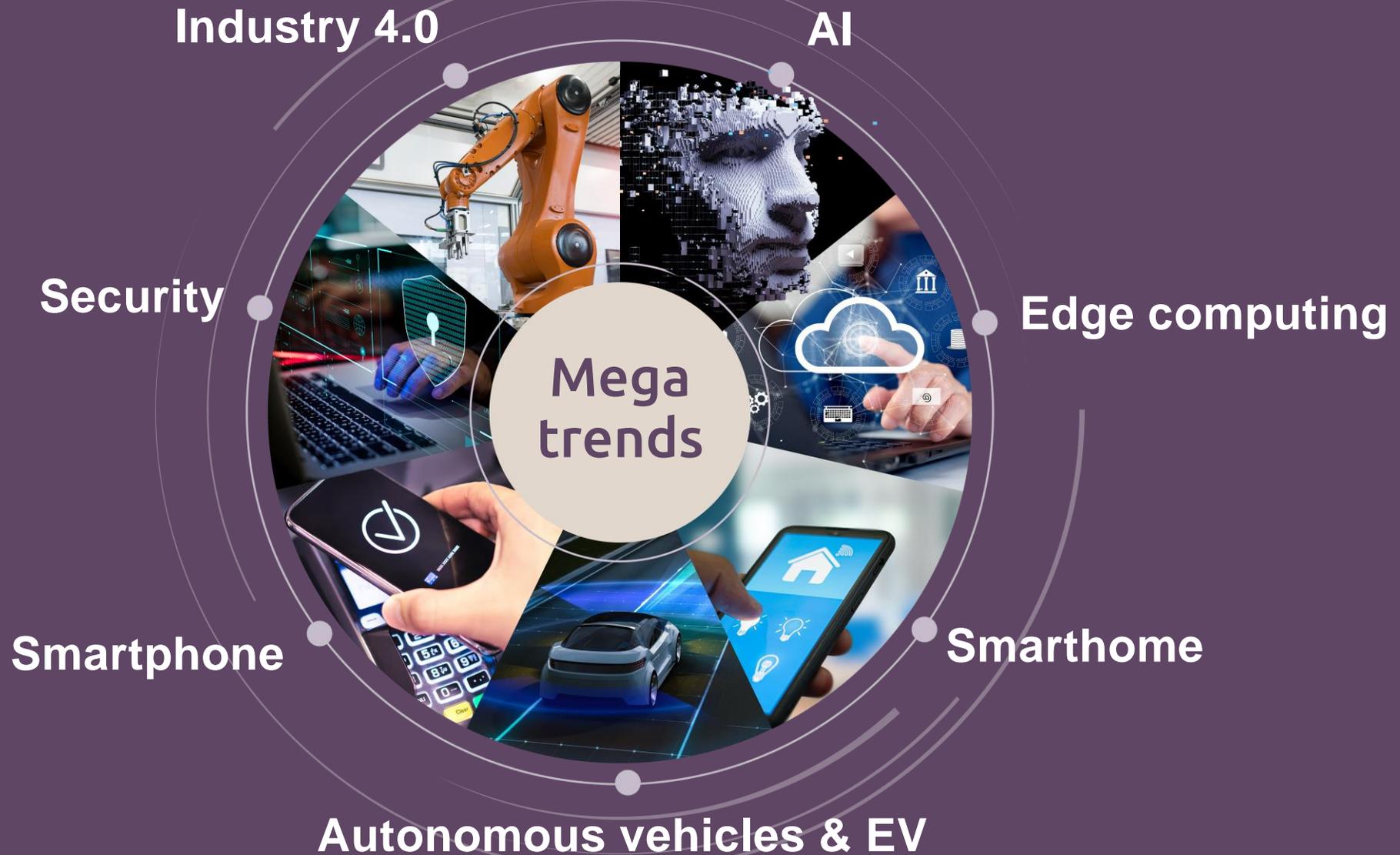
4 The transition from FinFET to gate-all-around (GAA) – is expected to represent an increased SAM for ASM of ~US\$400 million per 100k WSPM for single-wafer ALD and Epi combined.

5 The market outlook for SiC epitaxy is strong, supported by the growing market of electric vehicles with increased SiC adoption.

¹ Based on US\$100 billion WFE in 2025 ² Based on US\$120 billion WFE in 2027

Market outlook



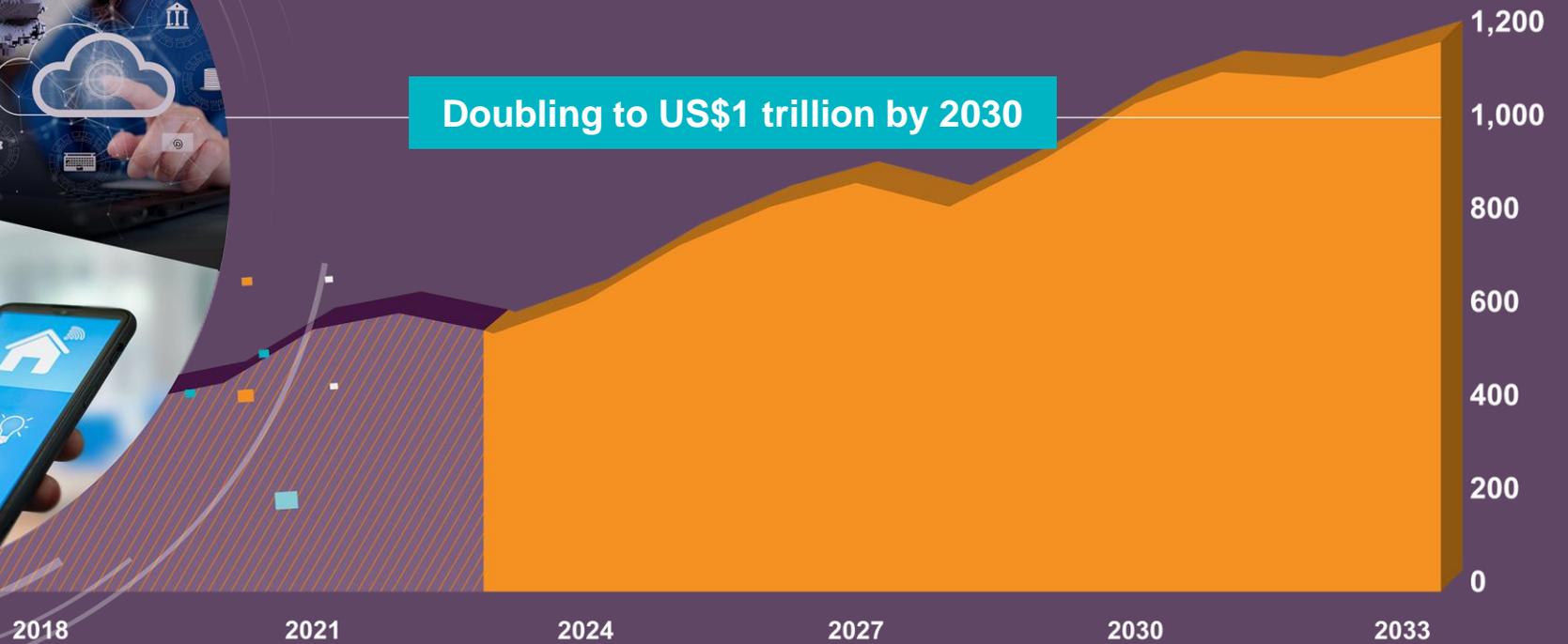


Digital transformation drives structural growth

Megatrends driving the semiconductor market



Semiconductor revenue (US\$ billion)



Nearly every facet of the economy is expected to be positively impacted by AI



All enabled by SEMICONDUCTORS

- Machine learning
- Generative AI
- Autonomous vehicles
- Edge devices
- Smarter smartphones
- Industry 4.0

+ **Products yet to be invented**

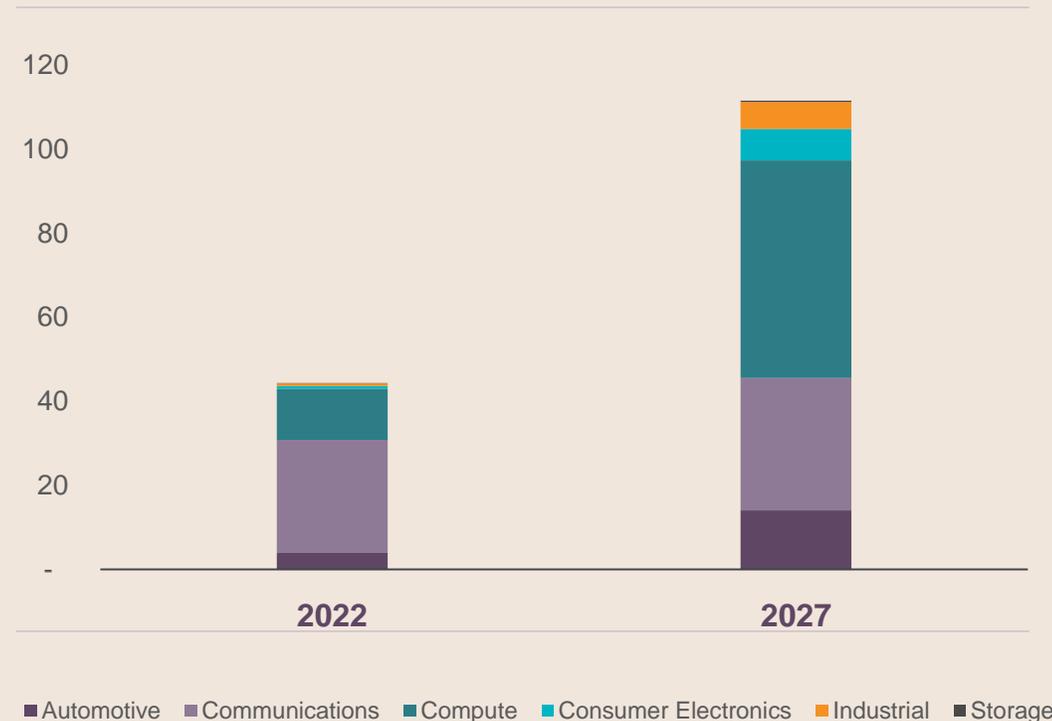


US\$ trillions in GDP growth

The growth of AI will drive increased capacity requirements for the semiconductor industry

AI semiconductor sales outlook

(US\$ billion)



AI-specific functions in >30% of logic devices by 2027 with significant upside

Source: Gartner, 2023

→ What it means for ASM:

• Increased capacity

- More datacenters with higher content servers – GPU, ASIC, communications, high-bandwidth DRAM
- More silicon content for edge devices (ex. phone NPU, GPU, Auto ADAS systems) → more fabs

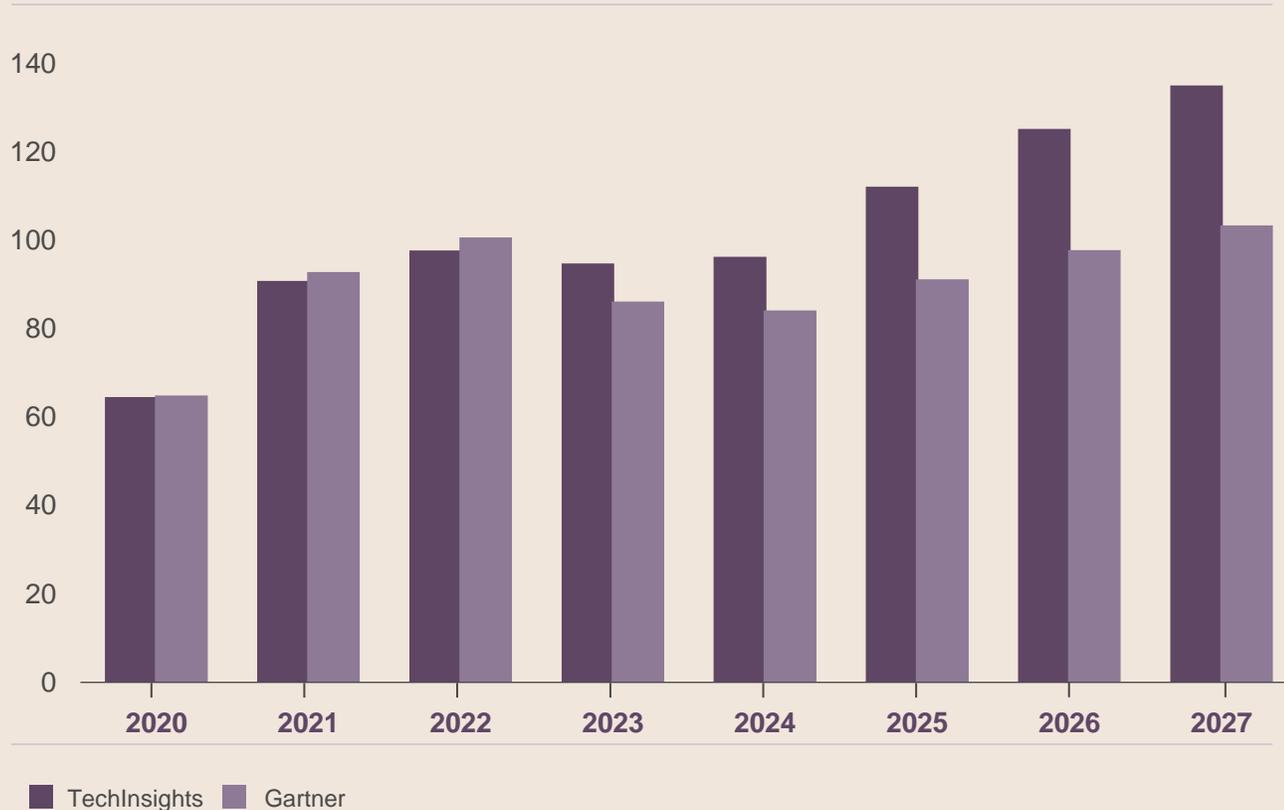
• Inflections

- Acceleration of FinFET to GAA → more single-wafer ALD and Epi steps
- High performance/ bandwidth DRAM drives high-k adoption, metals → more single-wafer ALD and Epi steps

WFE spending expected to grow in 2024-2027

WFE market forecast

(US\$ billion)



→ **WFE 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 in advanced CMOS
- Government sovereign efforts could add further investments
- In recent years increased investments in China have contributed to WFE growth

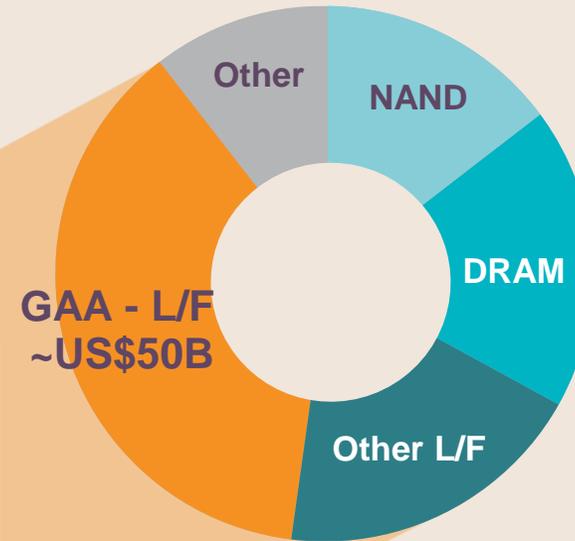
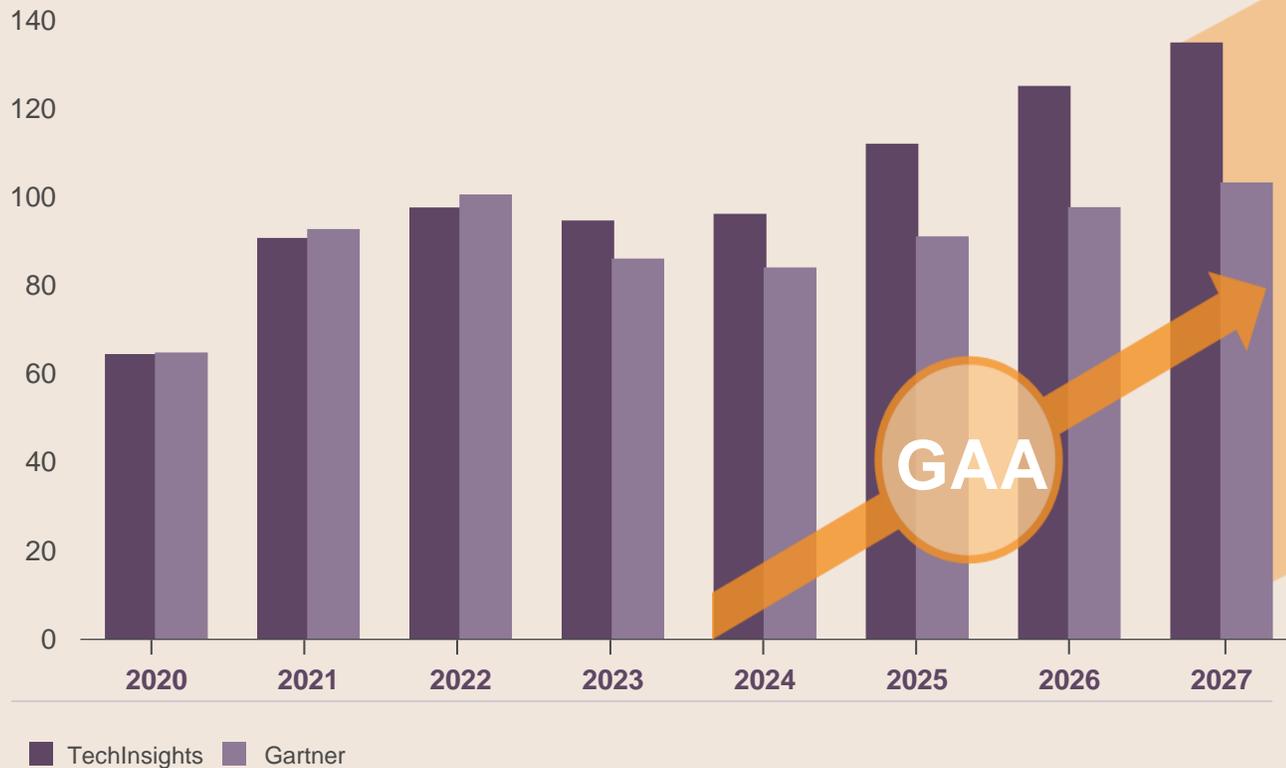
→ **ASM market outlooks are based on WFE of US\$100 billion in 2025 and US\$120 billion in 2027**

Source: TechInsights September 2023, Gartner July 2023

GAA investment is a big part of that growth

WFE market forecast

(US\$ billion)



- GAA transition beginning in 2024 expected to grow to >40% by 2027
- Focus on high performance compute, new smartphone capabilities
- GAA is the largest and fastest growing part of the WFE market
- ASM core strength

Source: ASM, TechInsights September 2023, Gartner July 2023

Growth opportunities



Example applications expected to drive ASM growth

ALD high-k gate and Vt tuning

Total V_{ts}

2016 2020 2023 2025 2027

¹ Increase of total # of V_{ts} GAA structure ²

High-k, dipole layers for multi- V_{ts} , supporting ALD hardmask (HM) and etch stop layers (ESL)

ALD dielectric gap-fill

Seam-free gap-fill ³
in high aspect ratio features

TSV Oxide Liner

Dielectric liners for very high aspect ratio TSVs ⁴

ALD metal

Better conductors ⁵

Multiple work function metals ²

SiC power

SiC Epi

SiC Epi deposition for power devices ⁶

Epi channel

Epi nanosheets for GAA ⁷

Selective ALD

TaN

Enabling selective liner deposition ⁸

DoD

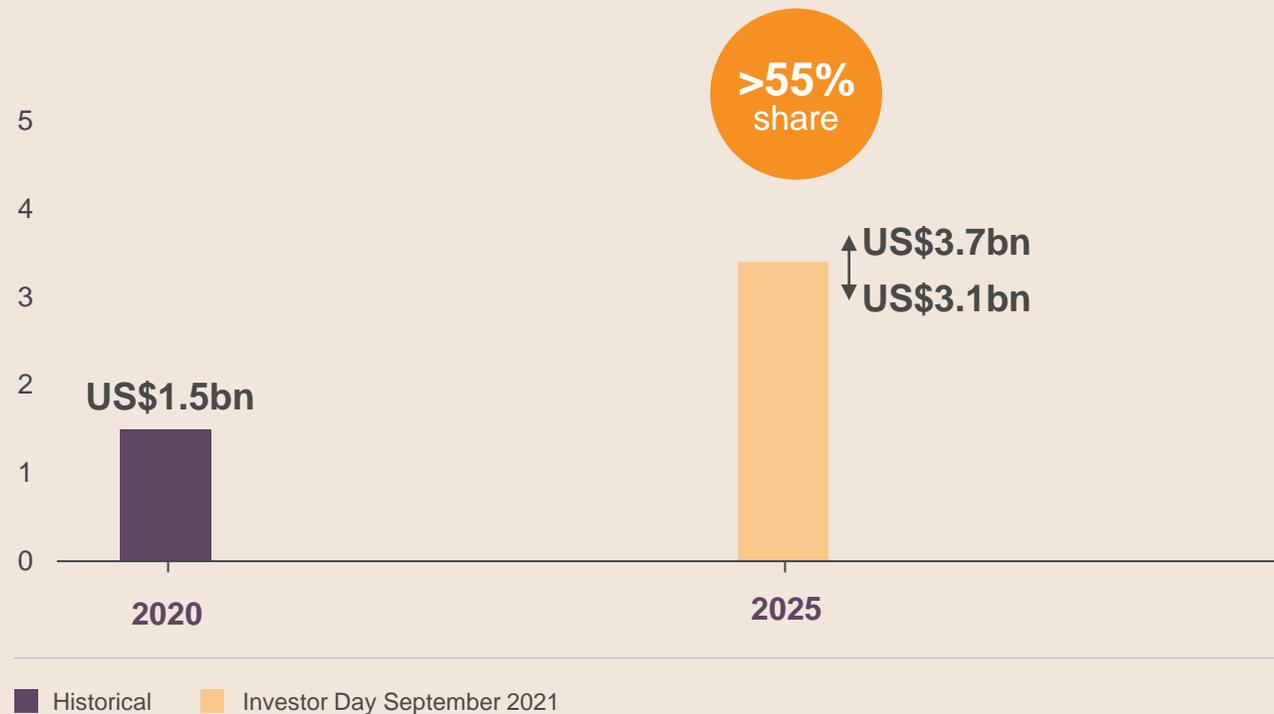
Self-aligned deposition ⁹

Sources: ¹ Up to 2023 based on public data – Beyond: adapted from IMEC projections | ² IBM | ^{3,6} TechInsights | ^{4,5,7,8,9} ASM internal

2021 single-wafer ALD market outlook: US\$3.1-3.7 billion by 2025¹

Single-wafer ALD market outlook

(US\$ billion)



→ Logic/foundry

- GAA transition
- High-k gate & Vt tuning
- Sacrificial layers, HM, ESL
- Metals
- Selective ALD
- High aspect ratio TSV

→ Memory

- High-k gate & Vt tuning
- Metals
- High aspect ratio gap-fill
- Selective ALD

Historical market data: ASM | Future market data: ASM

¹ Based on US\$100 billion WFE

2023 single-wafer ALD market outlook maintained at US\$3.1-3.7 billion by 2025¹

Single-wafer ALD market outlook

(US\$ billion)



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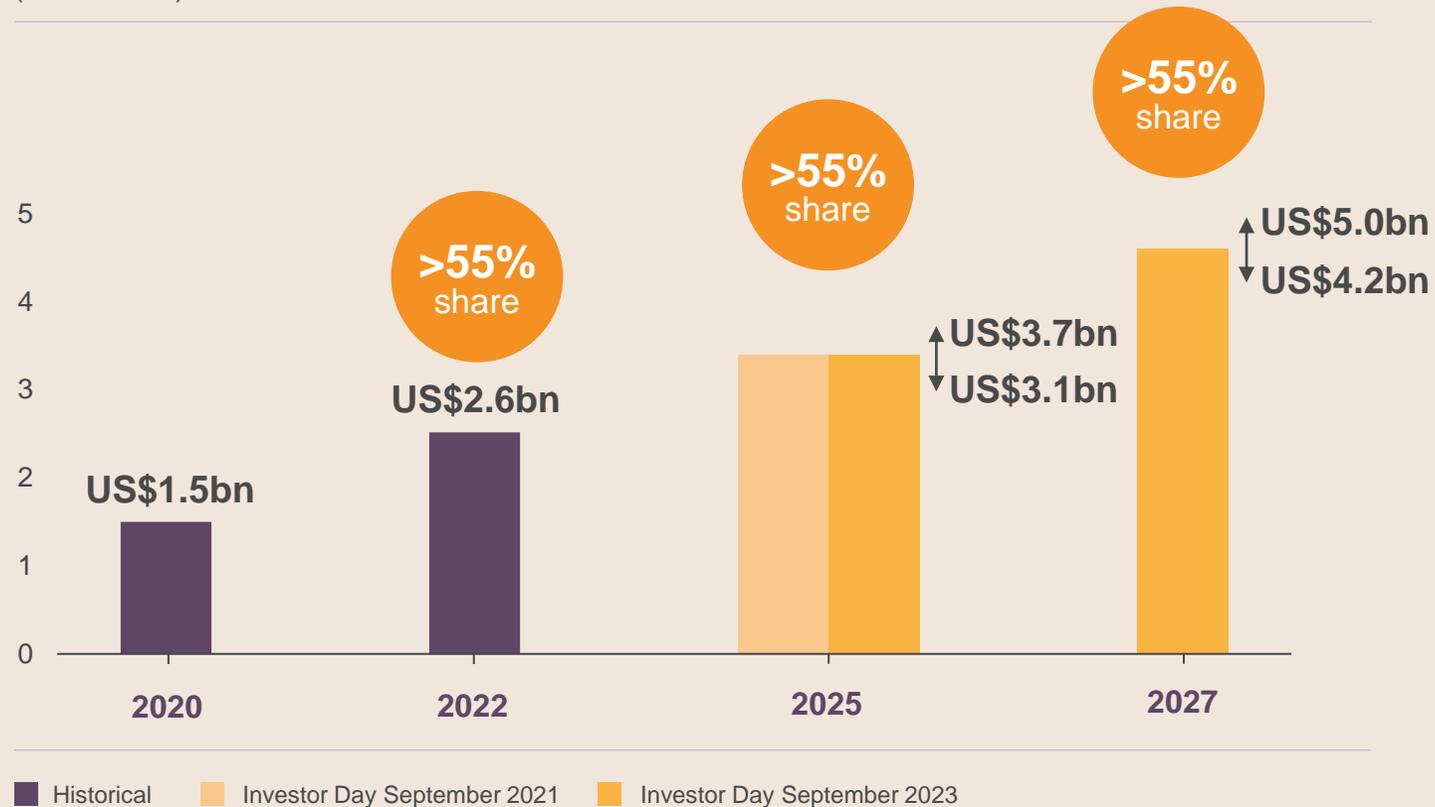
Historical market data: ASM | Future market data: ASM

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2023 single-wafer ALD market outlook: US\$4.2-5.0 billion by 2027¹

Single-wafer ALD market outlook

(US\$ billion)



→ Logic/foundry

- GAA transition
- High-k gate & Vt tuning
- Sacrificial layers, HM, ESL
- Metals
- Selective ALD
- High aspect ratio TSV

→ Memory

- High-k gate & Vt tuning
- Metals
- High aspect ratio gap-fill
- Selective ALD

→ CAGR SW ALD market '22-'27 10-14%

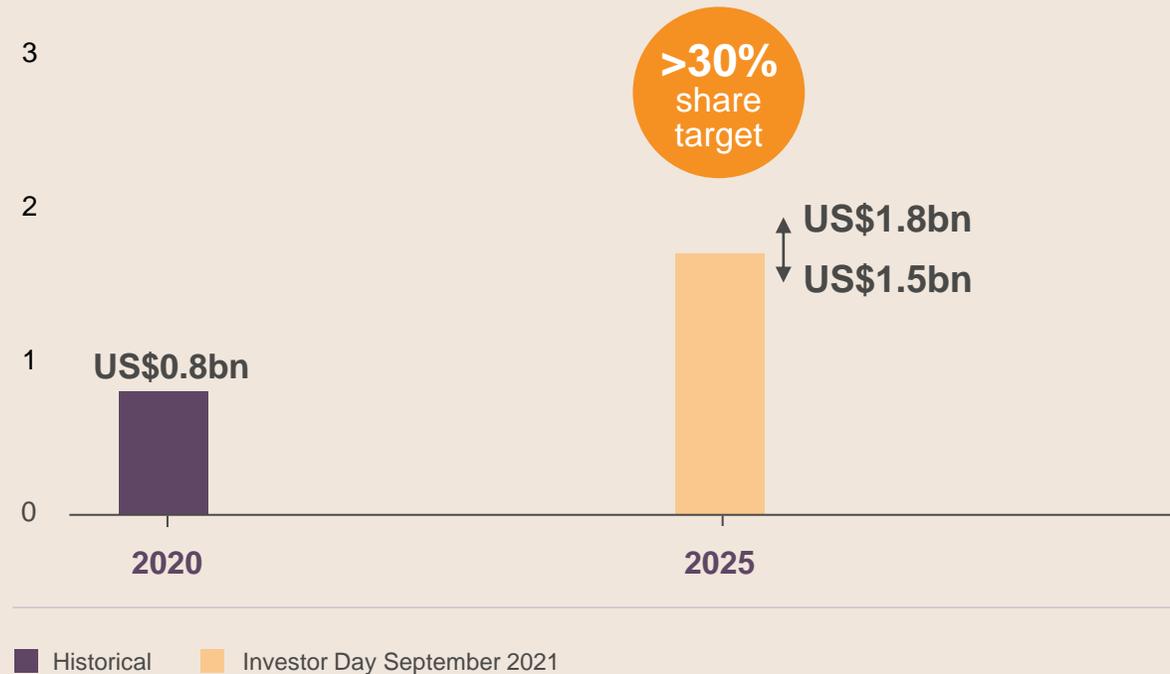
Historical market data: ASM | Future market data: ASM

¹ Based on US\$120 billion WFE

2021 Si epitaxy market outlook: US\$1.5-1.8 billion by 2025¹

Si epitaxy market outlook

(US\$ billion)



→ Leading-edge

- Logic/foundry
- Memory

→ Non-leading-edge

- Non-leading-edge foundry
- Wafer, power, analog

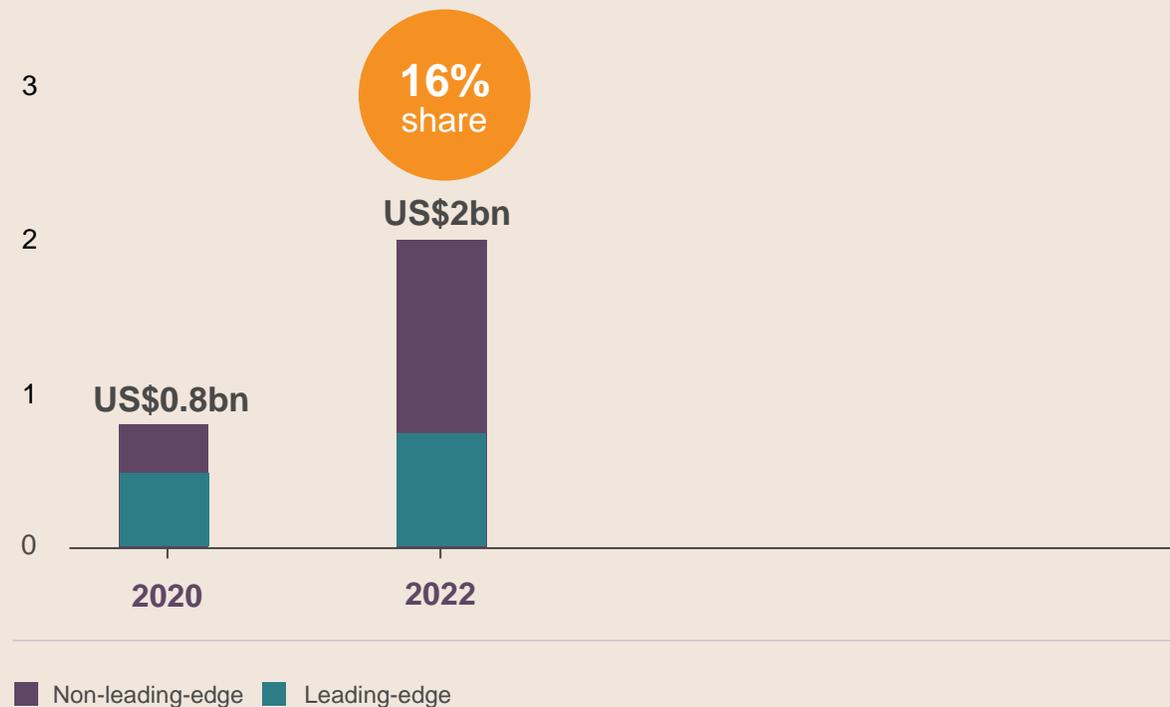
Source TechInsights, ASM

¹ Based on US\$100 billion WFE

Si epitaxy market historical segment mix

Si epitaxy market outlook

(US\$ billion)



→ Leading-edge

- Growth in investment 2020-2022

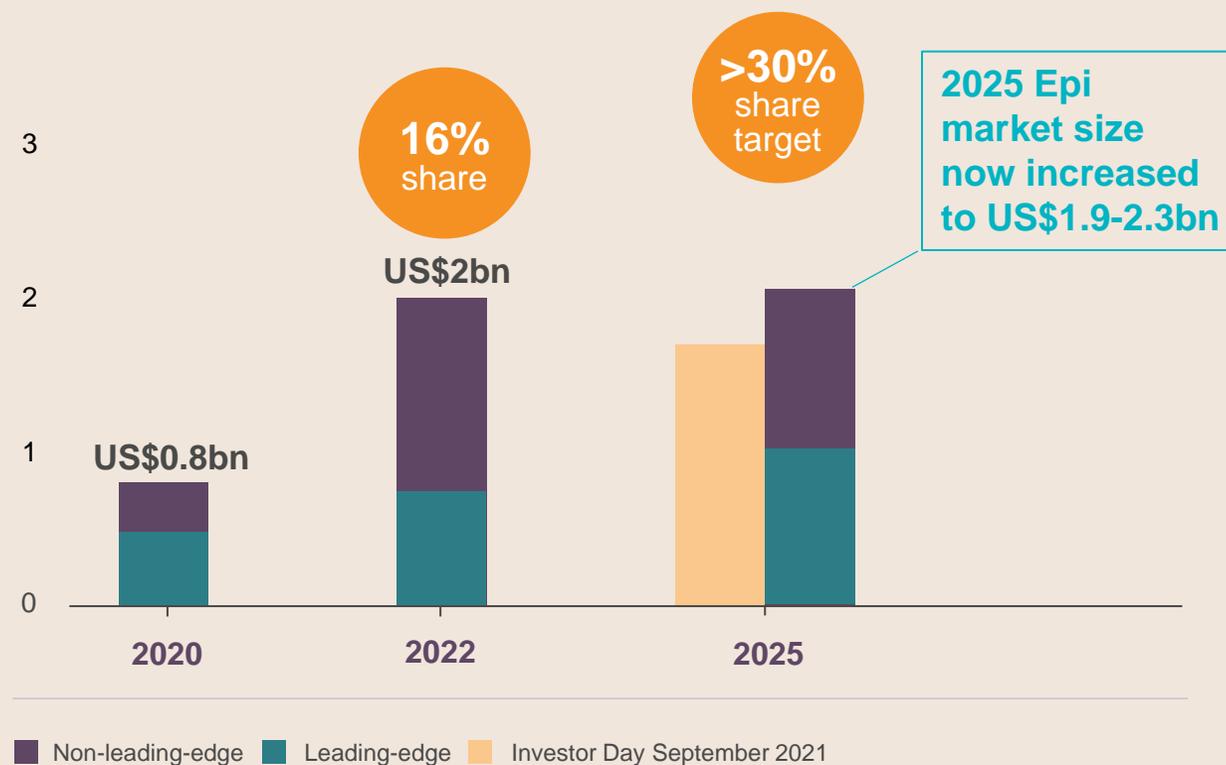
→ Non-leading-edge consists of:

- Wafer, power, analog
 - Healthy growth for wafer & power segments
 - Strong momentum driven by Intrepid ESA
- Non-leading-edge foundry
 - Stronger-than-expected growth in 2022, in part driven by China, but ASM has a limited position

2023 Si epitaxy market outlook: US\$1.9-2.3 billion by 2025¹

Si epitaxy market outlook

(US\$ billion)



→ Leading-edge

- Structural growth in leading-edge as we move to GAA and high-performance DRAM

→ Non-leading-edge

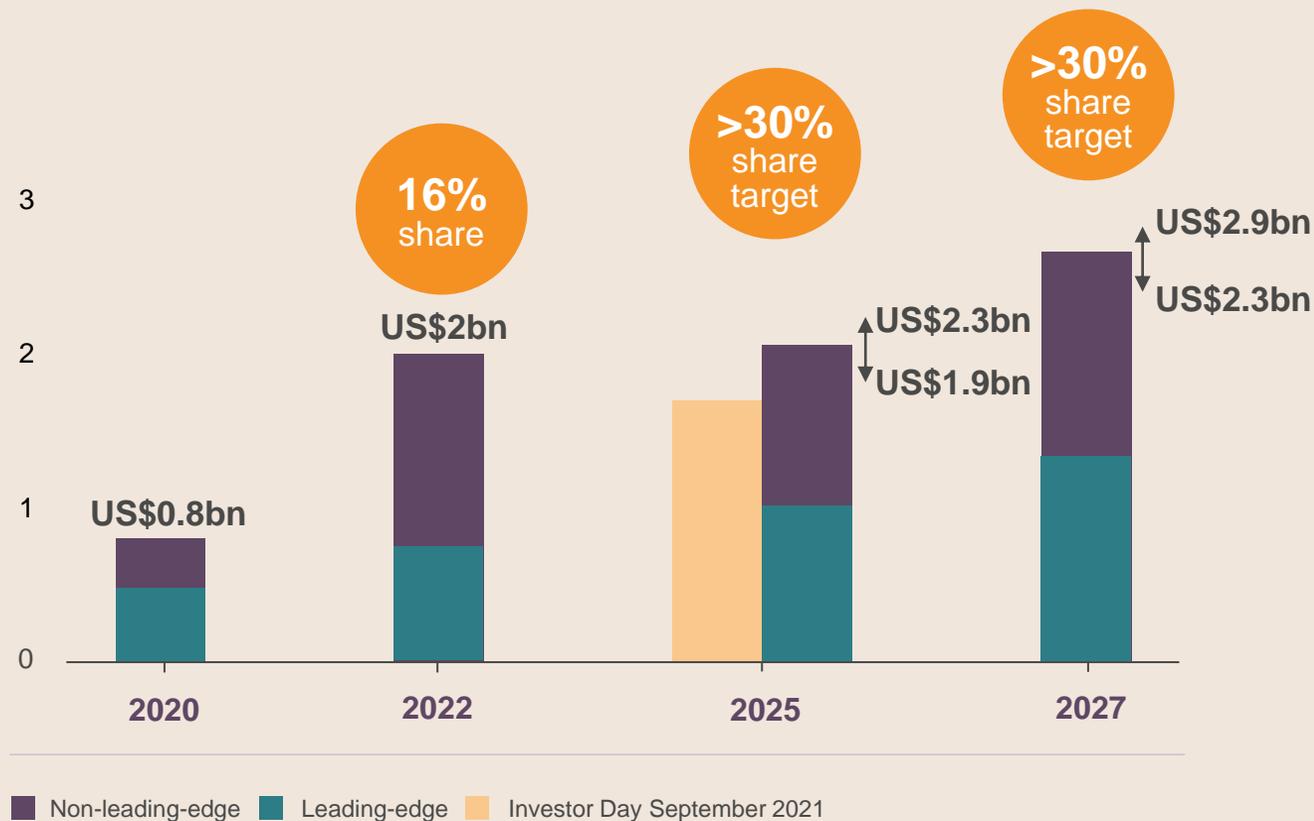
- Wafer, power, analog
 - Continued growth in wafer, power, analog compared to 2022
 - Strong momentum driven by Intrepid ESA
- Non-leading-edge foundry
 - Investments in 2025 expected to be at lower level compared to 2022
 - ASM continues to have a limited position

→ Change in market mix towards leading edge expected in 2024-2027 with move to GAA

2023 Si epitaxy market outlook: US\$2.3-2.9 billion by 2027²

Si epitaxy market outlook

(US\$ billion)



→ Leading-edge

- Continued growth in leading-edge driven by GAA and high-performance DRAM

→ Non-leading-edge

- Wafer, power, analog
 - Continued growth in wafer, power, analog compared
 - Strong momentum driven by Intrepid ESA
- Non-leading-edge foundry
 - Investments in 2025-2027 expected to be at lower level compared to 2022
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→ Change in market mix towards leading edge expected in 2024-2027 with move to GAA

→ CAGR Si epitaxy market '22-'27 3-8%, with leading-edge segment outgrowing epi market with CAGR '22-'27 of 10-15%

Source TechInsights, ASM

² Based on US\$120 billion WFE

Increased ALD and Epi SAM with move from FinFET to GAA

Increases served available market for ASM by ~ US\$400 million per 100k wafer starts per month (WSPM)



ASM internal market data, figure not to scale

→ Single-wafer ALD

- High-k gate & Vt tuning
- Sacrificial layers, HM, ESL
- Metals
- Selective ALD
- High aspect ratio TSV

→ Epitaxy

- GAA nanosheet stack
- Source/drain contact

In the transition to gate-all-around:

- We expect to maintain our leading market share in single-wafer ALD
- We expect to gain market share in Epi

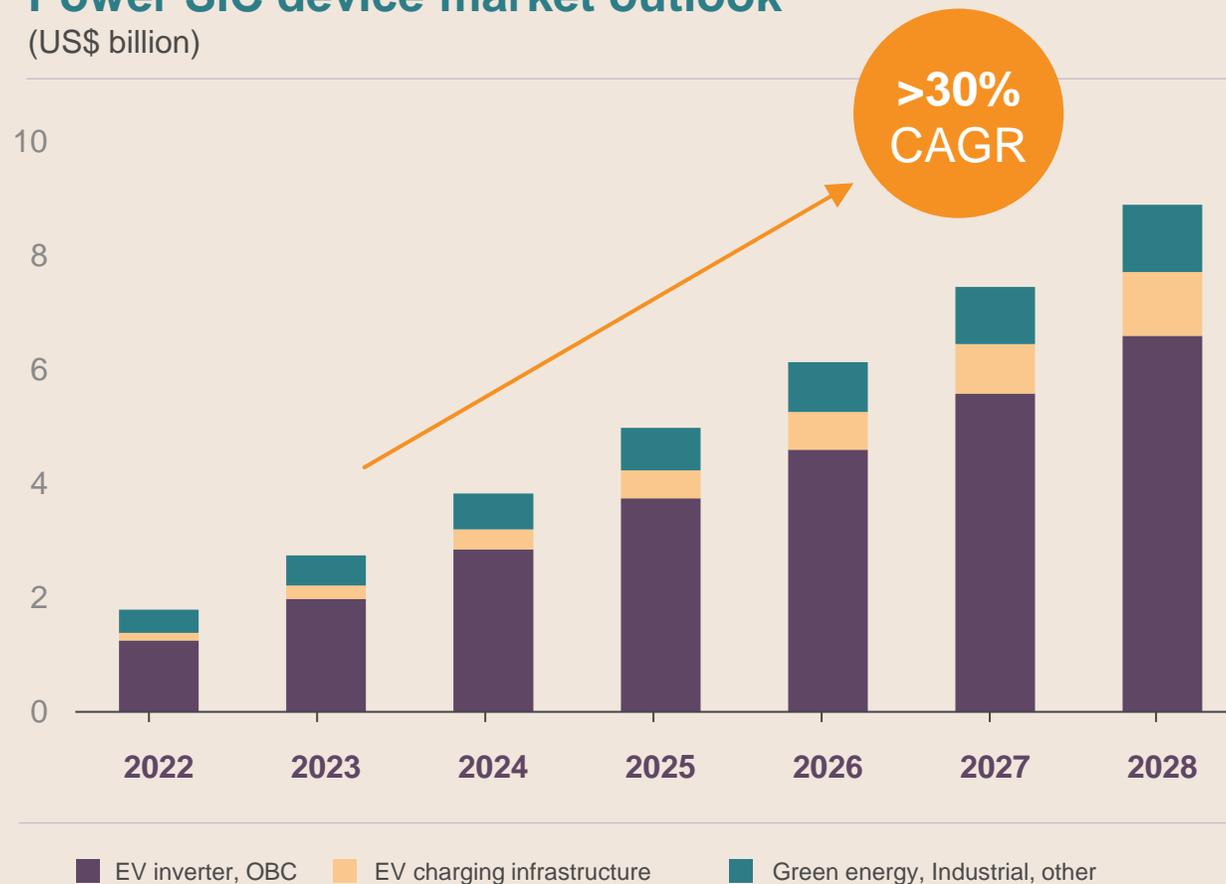
SiC Epitaxy



Power SiC device market expected to grow strongly in the near term, and reaching nearly US\$9 billion by 2028

Power SiC device market outlook

(US\$ billion)



→ Key drivers for SiC investment :

- EV adoption accelerating
- Electric vehicle accelerating adoption of SiC
 - Power efficiency, transition to 400 → 800V battery
 - 6" → 8" transition
 - Lower system cost
- Charging infrastructure for electric vehicles
 - SiC for fast charging and power efficiency
- Green energy, industrial applications

→ Customer pull for ASM SiC epitaxy

- Uniformity/lower defects → Higher yield & lower cost of ownership (COO), system simplicity

Key takeaways

1 We see continued digitization, growth in AI and electric vehicle adoption trends that are expected to continue to drive growth in the semiconductor and Wafer Fab Equipment market.

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5 The market outlook for SiC epitaxy is strong, supported by the growing market of electric vehicles with increased SiC adoption.

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Growth through Innovation

Investor Day 2023



Technology and products

Dr. Hichem M'Saad
CTO



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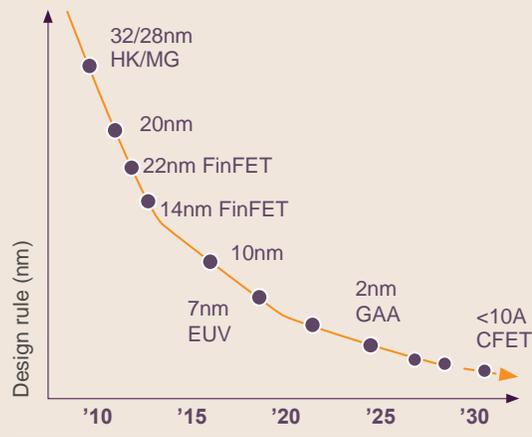
This presentation contains “forward-looking statements”. All statements in ASM’s Investor Day 2023 presentations, other than statements of historical fact, are forward-looking statements. Forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those in the forward-looking statements. These risks and uncertainties include, but are not limited to, economic conditions and trends in the semiconductor industry generally and the timing of the industry cycles specifically, product demand and semiconductor equipment industry capacity, worldwide demand and manufacturing capacity utilization for semiconductors, 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 slowdown or disruption including due to natural disasters, terrorist activity, armed conflict or political instability, changes in laws including import/export regulations, changes in tax and exchange rates, epidemics, pandemics and other risks indicated in the Company’s reports and financial statements. Investors are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this presentation. The Company assumes no obligation nor intends to update or revise any forward-looking statements to reflect future developments or circumstances. Forward-looking statements are not guarantees of future performance, and actual results, developments and business decisions may differ materially from those envisaged by forward-looking statements.

Key takeaways

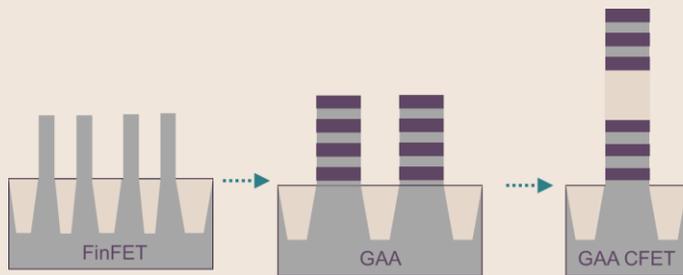
- 1 ASM products and R&D portfolio are well positioned to capture growth opportunities in logic and memory.
- 2 Trends towards new materials and 3D scaling driving further adoption of ALD.
 - Molybdenum is the ALD metal of choice and is replacing CVD Tungsten and PVD Cu.
 - Rapid adoption of Selective ALD in GAA devices for performance improvement, reliability, and process simplification.
 - New ALD plasma sources enabling VHAR gap-fill in 3D structures.
- 3 Epi is poised to gain market share in the transition to GAA and DRAM due to the unique closed-loop wafer temperature control which enables unmatched process capability.
- 4 Good momentum for the newly introduced SONORA furnace. Making inroads in PECVD with technically differentiated niche offerings.
- 5 Innovative SiC epitaxy reactor technology leading to best-in-class SiC Epi. Significant market adoption at leading customers in this high growth segment.
- 6 New opportunities in advanced packaging and heterogeneous integration in areas of ASM core strengths.

3D scaling accelerating in logic and memory technologies

Logic



*GAA: Gate-all-around

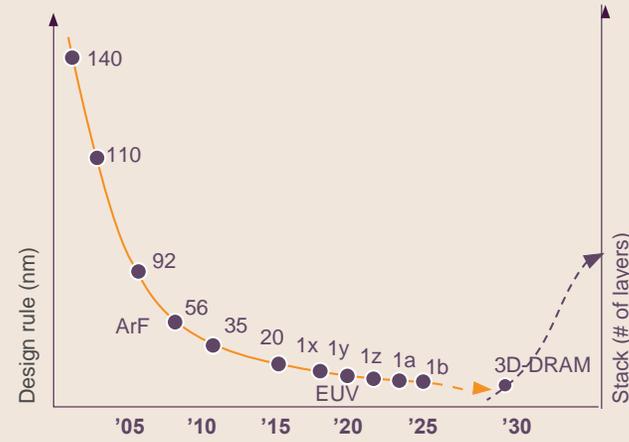


1st Gen: 2012
Now in 5th Gen

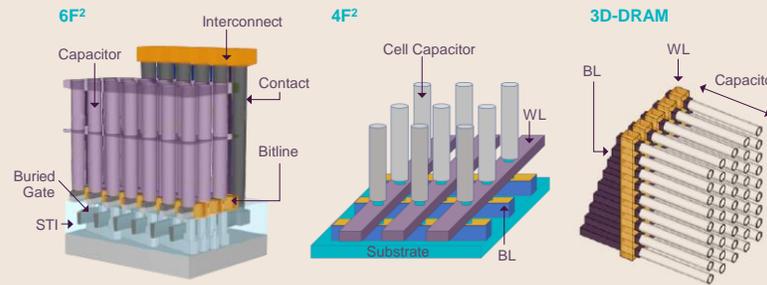
1st Gen: 2025

2030+

DRAM



*ArF: Argon Fluoride EUV: Extreme Ultraviolet

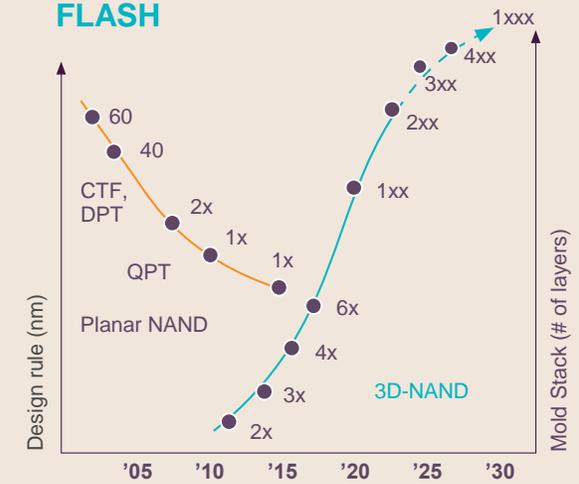


Current

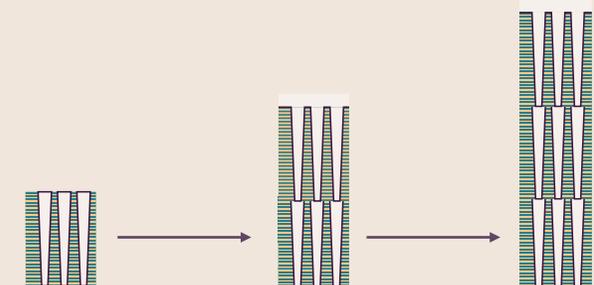
~2026

~2029-2030

FLASH



*CTF: Charge Trap Flash, DPT: Double Patterning
QPT: Quadruple Patterning

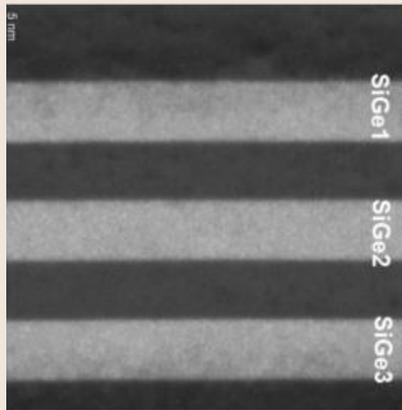


1 tier (6 nodes)
1xx layers
2015-2021

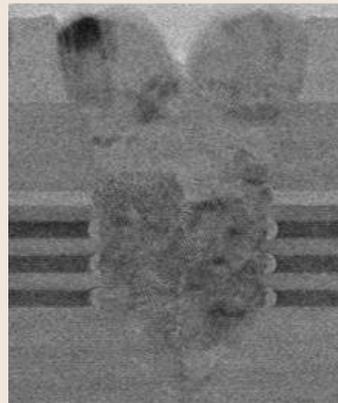
2 tier
2xx layers
2022-2023

3 tier
4xx layers
>2025

Logic GAA creates new ALD/Epi opportunities

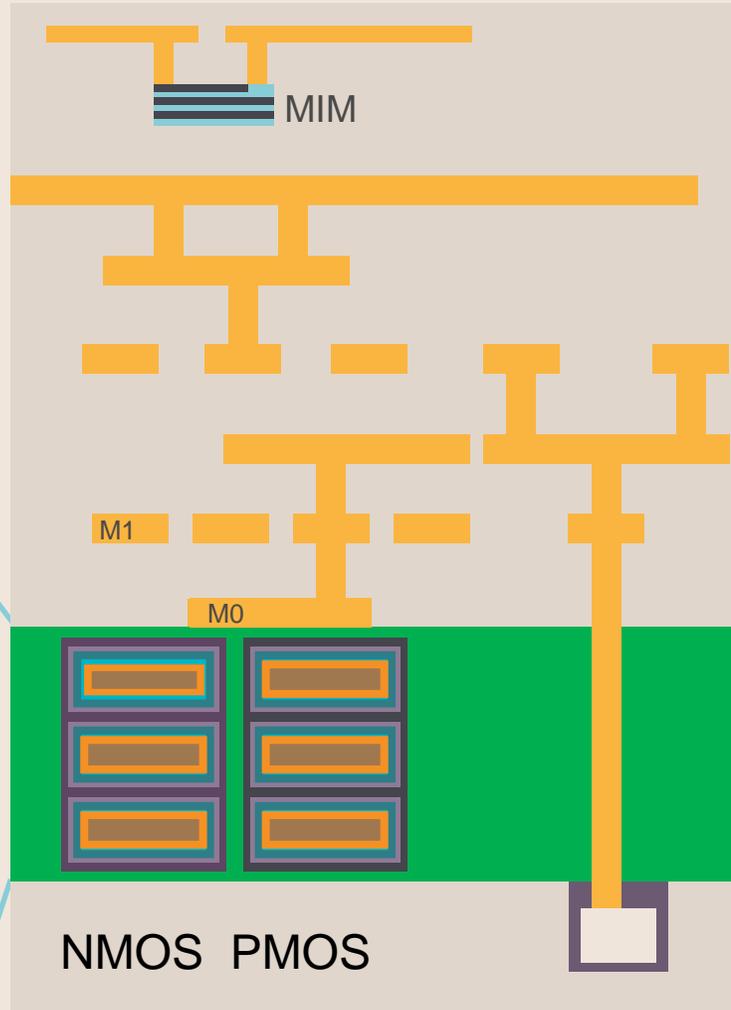
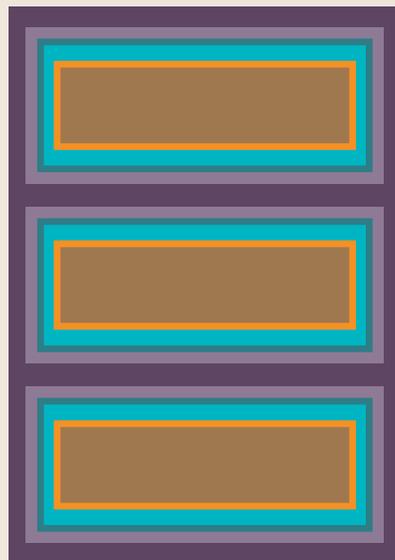


Channel Epi



Source/Drain Epi

- Epi Si
- IL
- High-k
- Dipole
- TiN
- WFMs



Simplified Schematic. Not all layers are shown, and each layer may consist of few individual ones.

New interconnect metals:

- Molybdenum replacing CVD Tungsten and PVD Copper

Selective deposition processes for performance and Yield:

- DoD and MoD

Increasing embedded functionality:

- a) additional memory with MIMCAP (Hf-based ALD dielectrics) and
- b) Power Management using IGZO channels for TFT

**Well-positioned,
with leading
innovations, to
address these
technology
inflections**



ASM is market leader in ALD

Core strengths

- >30 years of ALD precursors and materials research
- Deep precursor chemistry, materials and plasma expertise in geographically diverse R&D teams
- Long term strategic external R&D partnerships
- Largest product portfolio to meet diverse needs
- Strong impactful IP portfolio



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2003
3 to 4 layers
 Al_2O_3 , ZrO_2

Infineon NOLA DRAM
www.future-fab.com

DRAM MIM capacitor

2013
20+ layers
 HfO_2 , ZrO_2 , ZAZ, SiO_2 , SiN , PSG, BSG...TiC, TiN, TaN

Intel 45nm transistor Chipworks

IBM FEOL eDRAM, Chipworks

**+ Logic HKMG
+ FEOL eDRAM MIM
+ Patterning materials**

2023
80+ layers
 HfAlO , ZrAlO , IGZO, WN, Mo...
UHD, TENZA™, MW,
Pulsed plasma, and ICP ALD

Intel 22nm FinFET transistor Chipworks IMEC GAA IGZO via CRD/IMEC

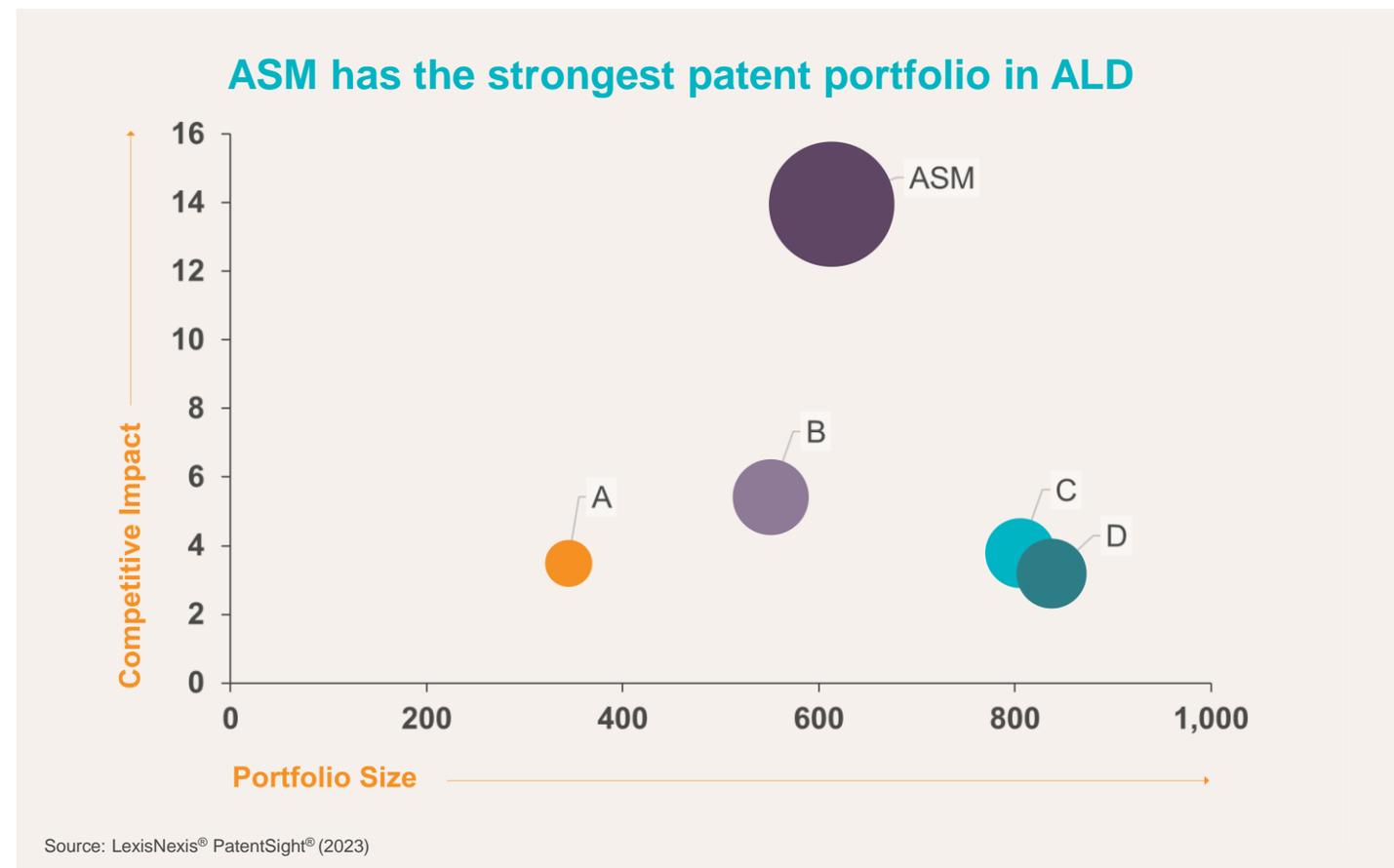
Super conformal PEALD Conformal fill in lateral cavities

**+ Metal
+ quarternary/quinary/senary materials + seam-free gap-fills**

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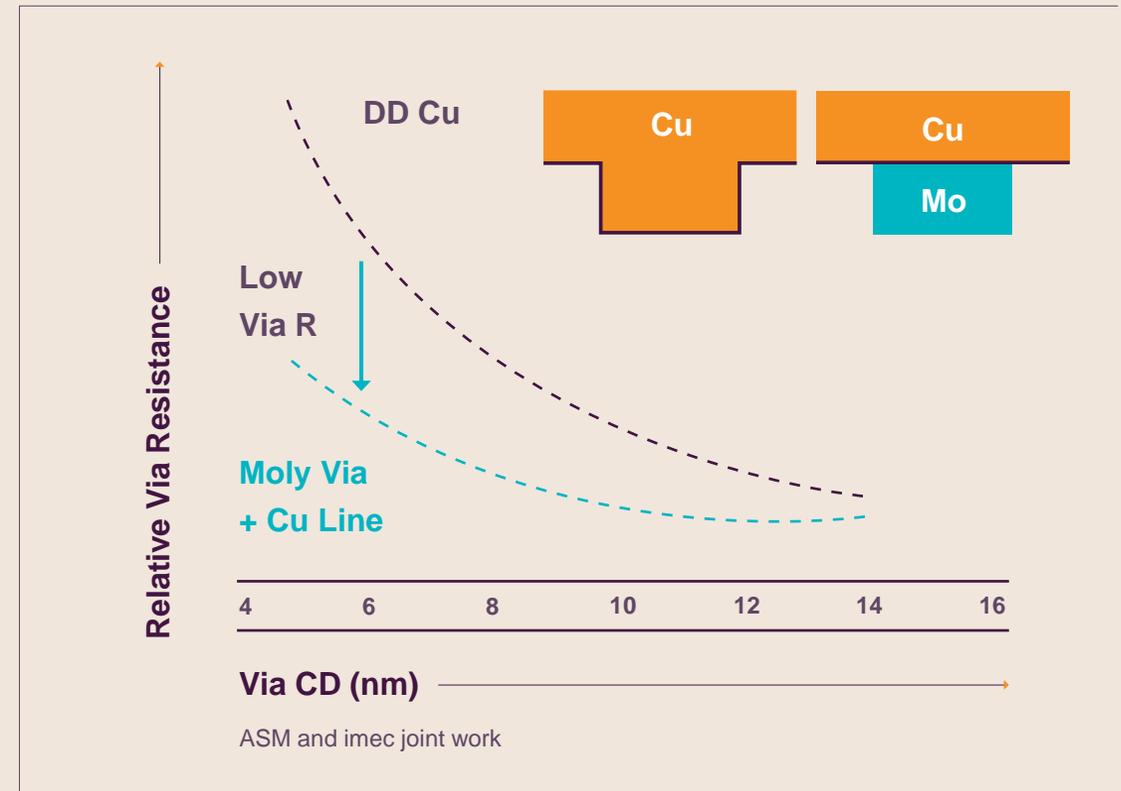
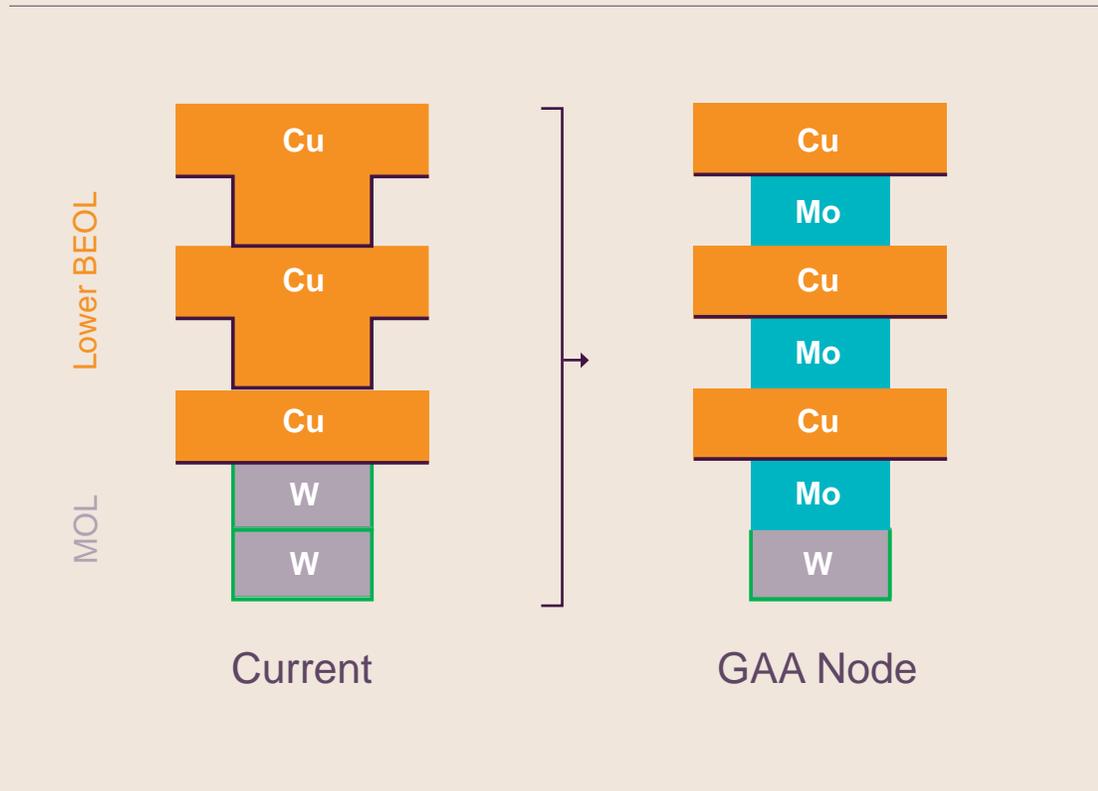


Metal ALD



Mo metal is replacing W and some Cu in logic technology

- Molybdenum simplifies process flow and lowers resistance
- ASM engaged in all applications for Mo inflection

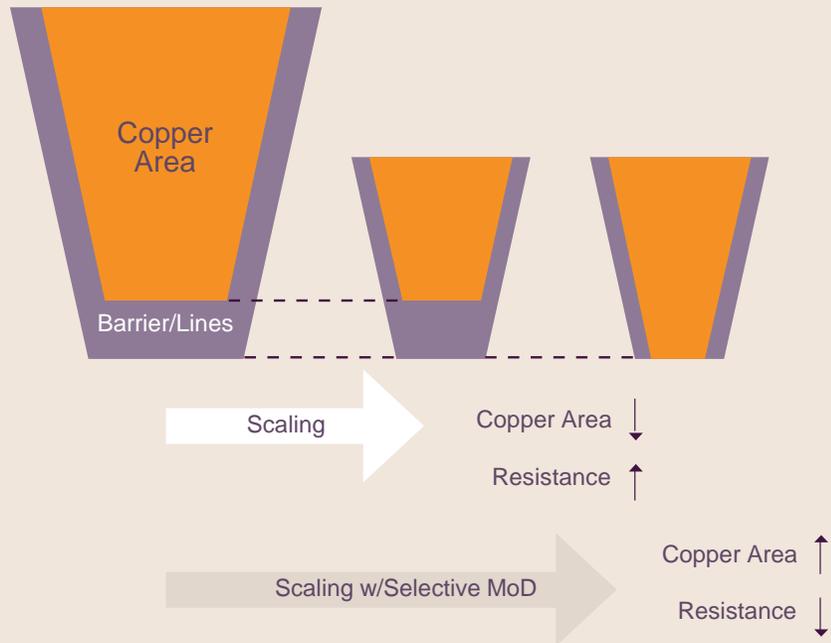


Selective ALD

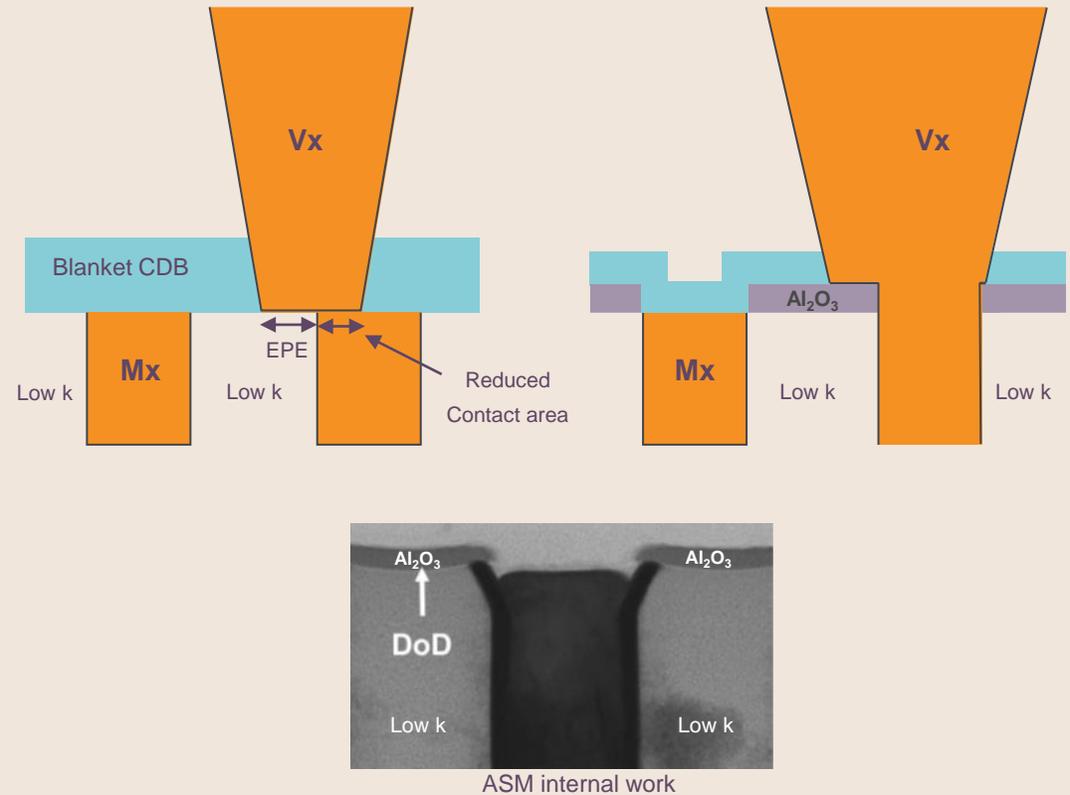


Selective ALD helps overcome Interconnect scaling challenges

Selective Metal on Dielectric (MoD)

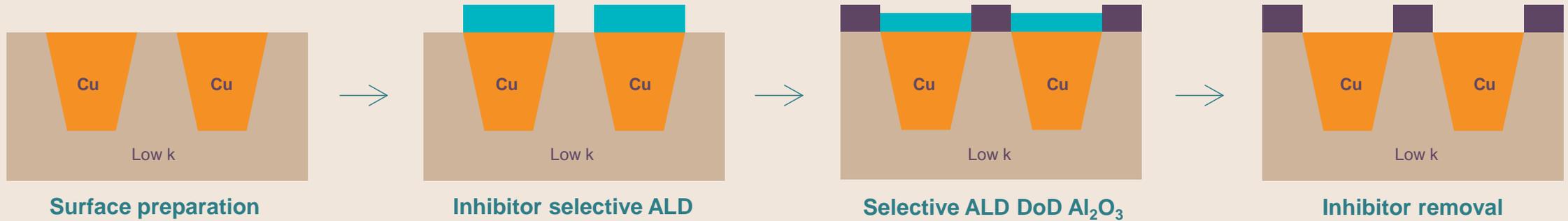


Selective Dielectric on Dielectric (DoD)

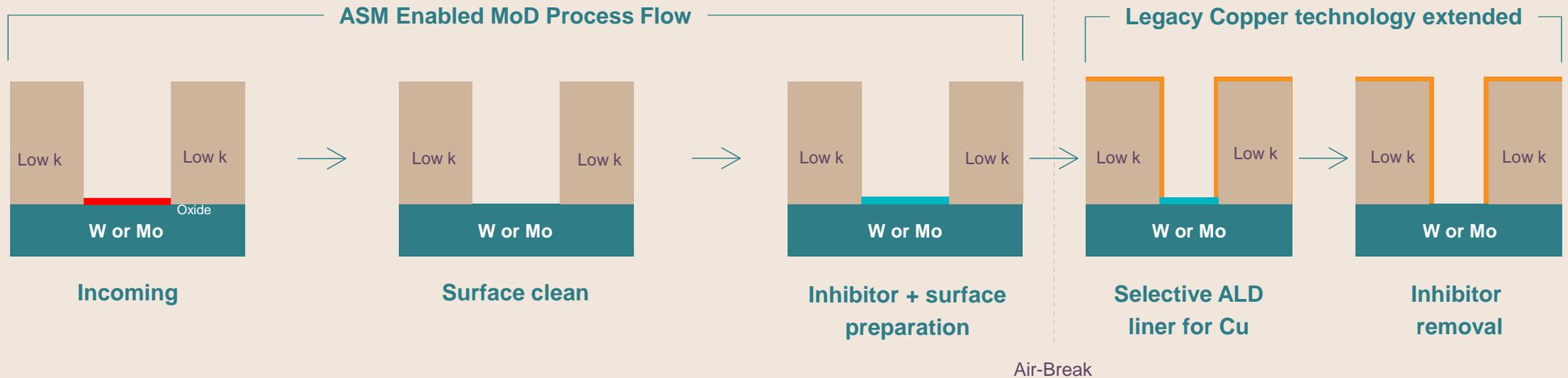


Selective deposition process – DoD and MoD

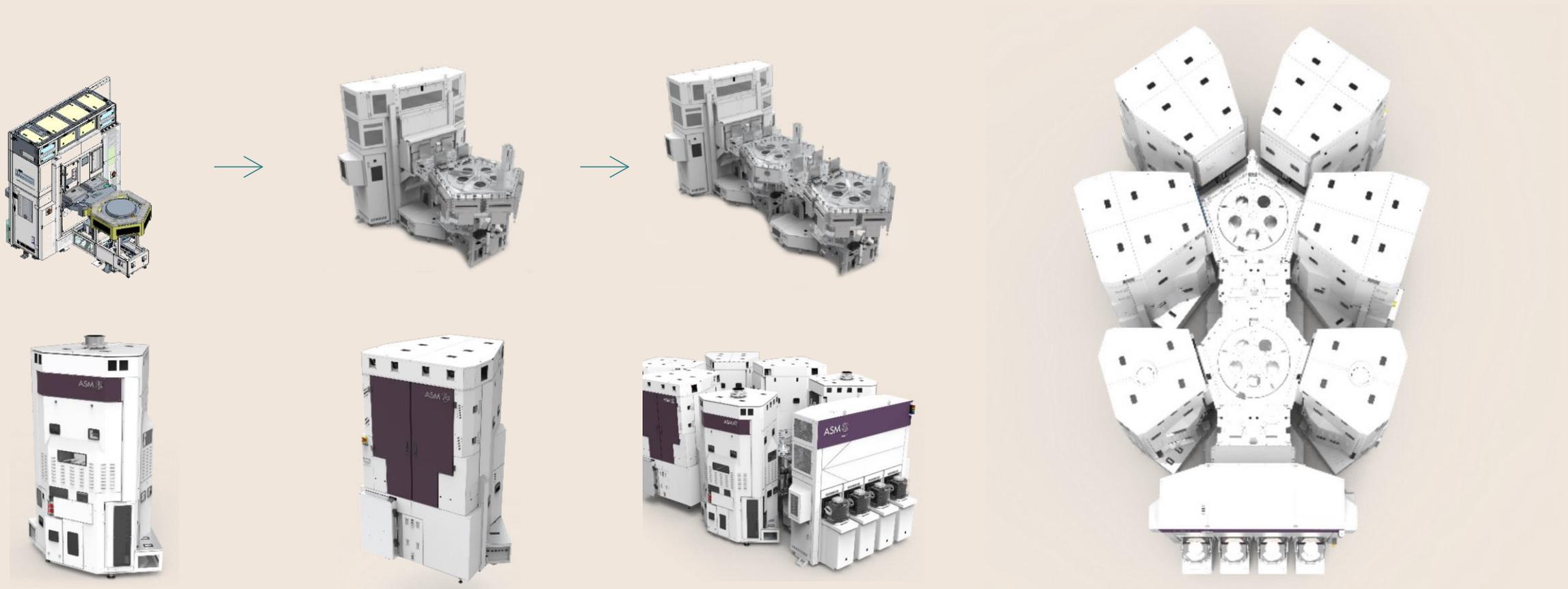
DoD



MoD



Expanding the HVM proven XP8 to sequential and clustered deposition processes

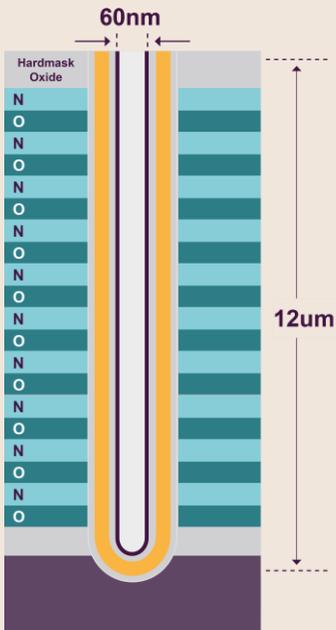


ALD Gapfill in VHAR enabled by new plasma technology



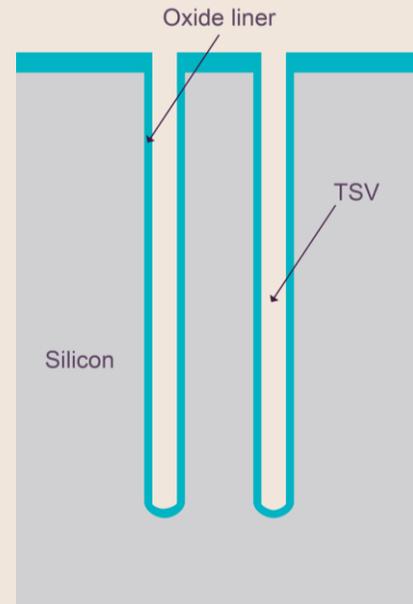
ALD plasma sources evolving to meet dielectric liner and gap-fill applications in advanced technologies

Channel hole gap-fill



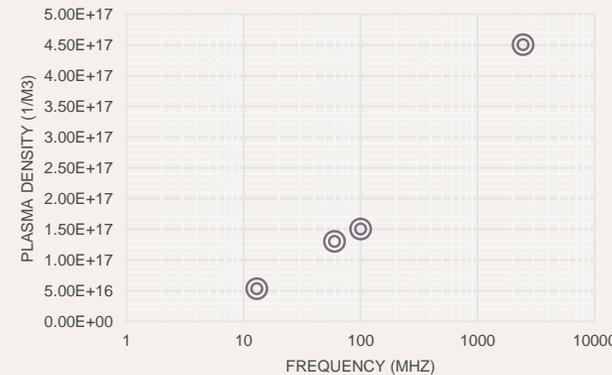
- Void-free gap-fill
- High quality

TSV liner



- High conformality in HAR (up to >200:1)
- High quality and productivity

Plasma density vs frequency



Ion energy vs frequency



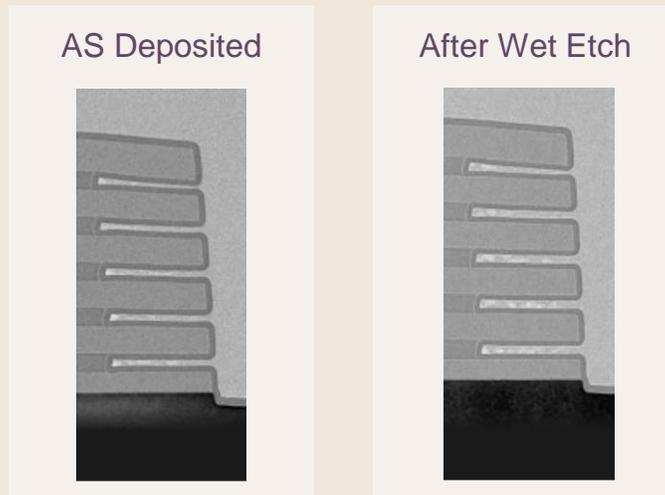
- ➔ Plasma density increases with plasma frequency
- ➔ Ion energy decreases as plasma frequency increases

Developed a multitude of frequency sources to address the liner and VHAR gap-fill applications.

New ALD plasma sources for complex GAA applications

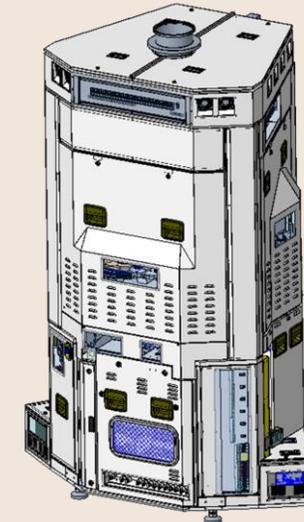
Liners and gap-fill for lateral cavities in GAA devices drive new ALD capabilities

ICP ALD



ASM Internal work

ICP ALD Reactor



- **ASM's ICP ALD provides higher radical density at ALD process pressure regimes while maintaining short cycle times**
- **ICP ALD enables highly conformal deposition even on complex structures (lateral features) that conventional ALD cannot provide**

New Epi opportunities in GAA and DRAM



Epi layers growing in numbers and complexity across market segments

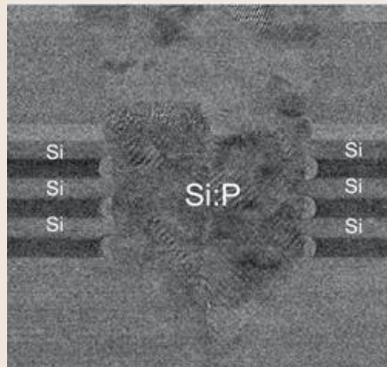
Advanced Logic and Foundry	1 st Gen GAA	2 nd Gen GAA	1 st Gen CFET
	3-4x Si/SiGe Channel Superlattice		12-16x Si/SiGe Channel Superlattice
	SiAs/SiAsP NMOS S/D	LT NMOS S/D	LT NMOS S/D
	SiGe:B PMOS S/D	LT PMOS S/D	LT PMOS S/D
		LT SiP Contact	LT SiP Contact
		LT SiGe:B Contact	LT SiGe:B Contact

DRAM Memory	HVM	N+1	N+2	N+3	N+4	
	SiGe Channel					
	High performance CMOS			SiGe:B S/D PMOS		
				SiP S/D NMOS		
				SiP Contact Application 1		
				SiP Contact Application 2		
						3D DRAM Superlattice

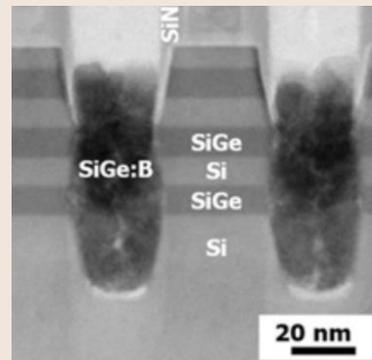
Advanced Epi films for logic and memory technologies

Logic

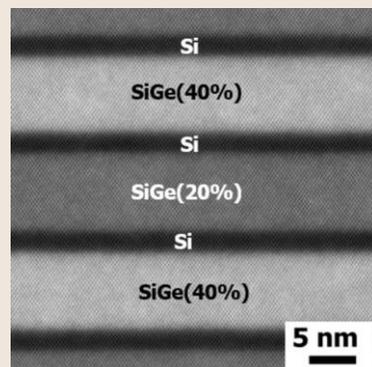
LT NMOS S/D



LT PMOS S/D



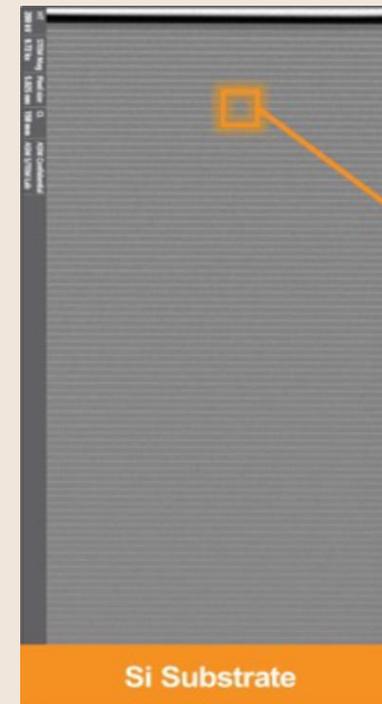
CFET Si/SiGe Superlattice



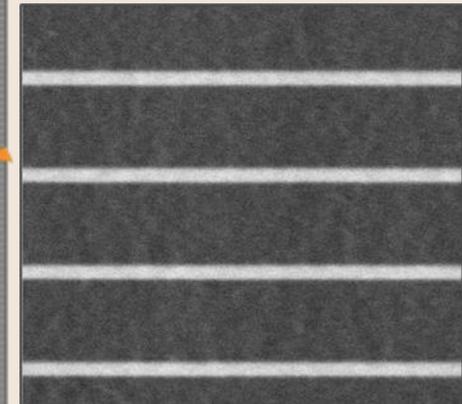
ASM internal work

Memory

>100x Si/SiGe Superlattice for 3D-DRAM



ASM internal work



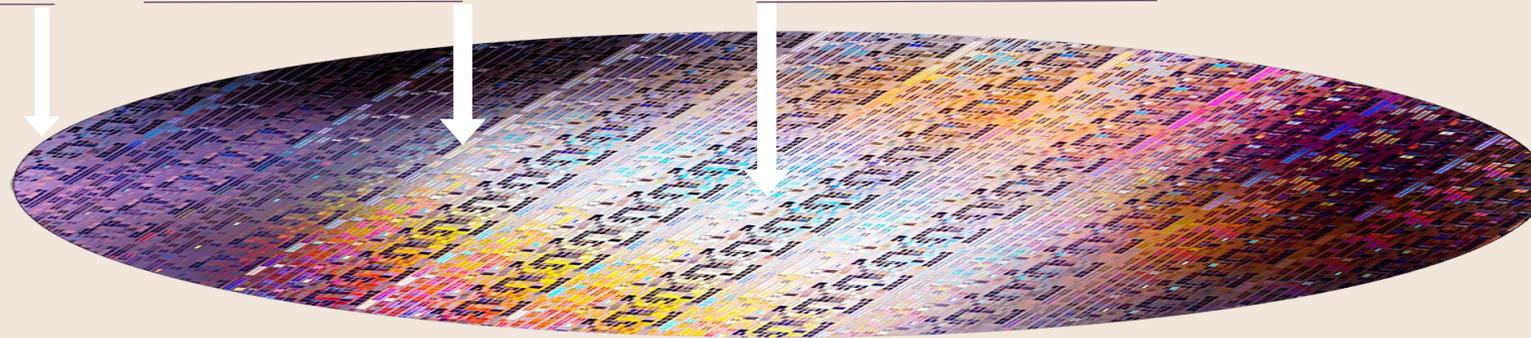
- High-quality, low-defect, strained Epi superlattice
- Total thickness > 8 μm

Turino-CL: extreme uniformity and productivity

Edge Pyrometer

Middle Pyrometer

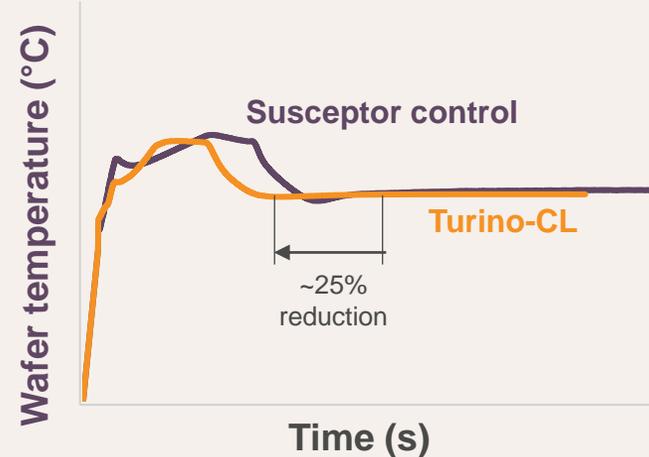
Center Pyrometer



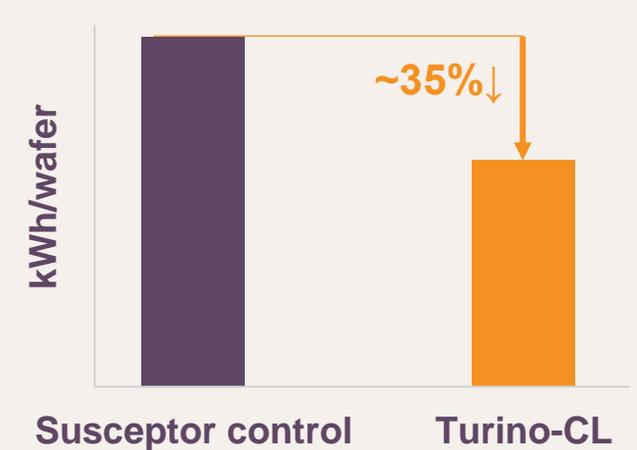
Intrepid® mono layer control



Faster ramps for productivity



Energy consumption reduction

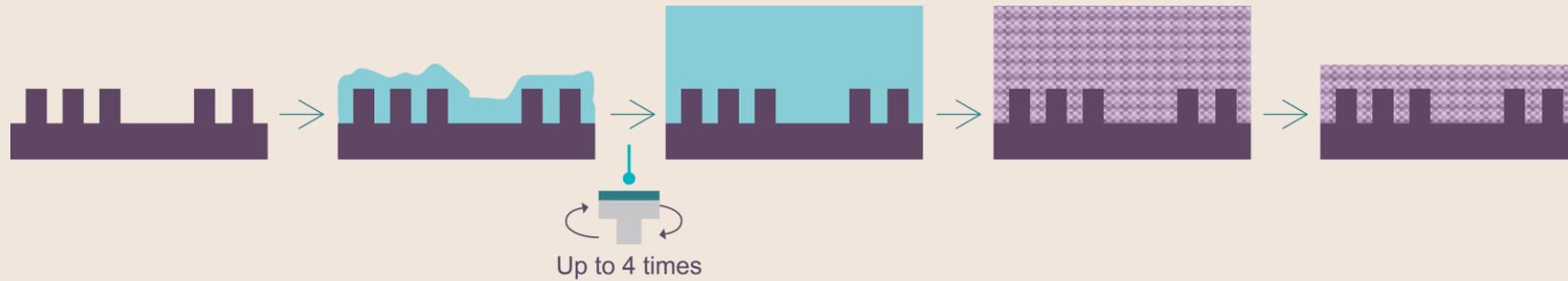


Selective growth in PECVD and VF



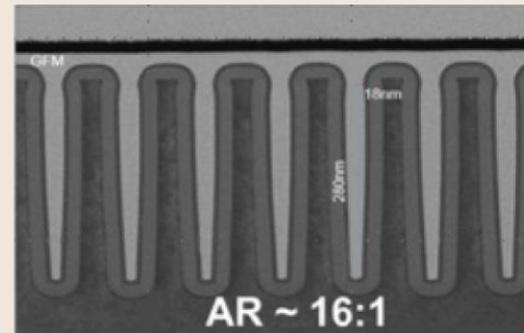
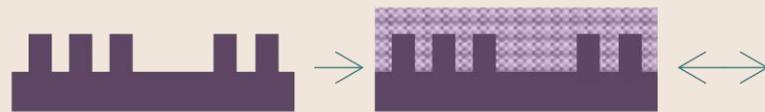
PECVD carbon gap-fill process simplifying process integration and providing cost benefits

Spin-on-Carbon (SOC)



- SOC out of capability for many levels
 - Workaround required to minimize overburden
 - Cost increase
 - Limited scalability

PECVD Carbon



- A scalable, self planarizing PECVD carbon gap-fill.

Vertical Furnace platforms

SONORA 300mm



Official release:
2022



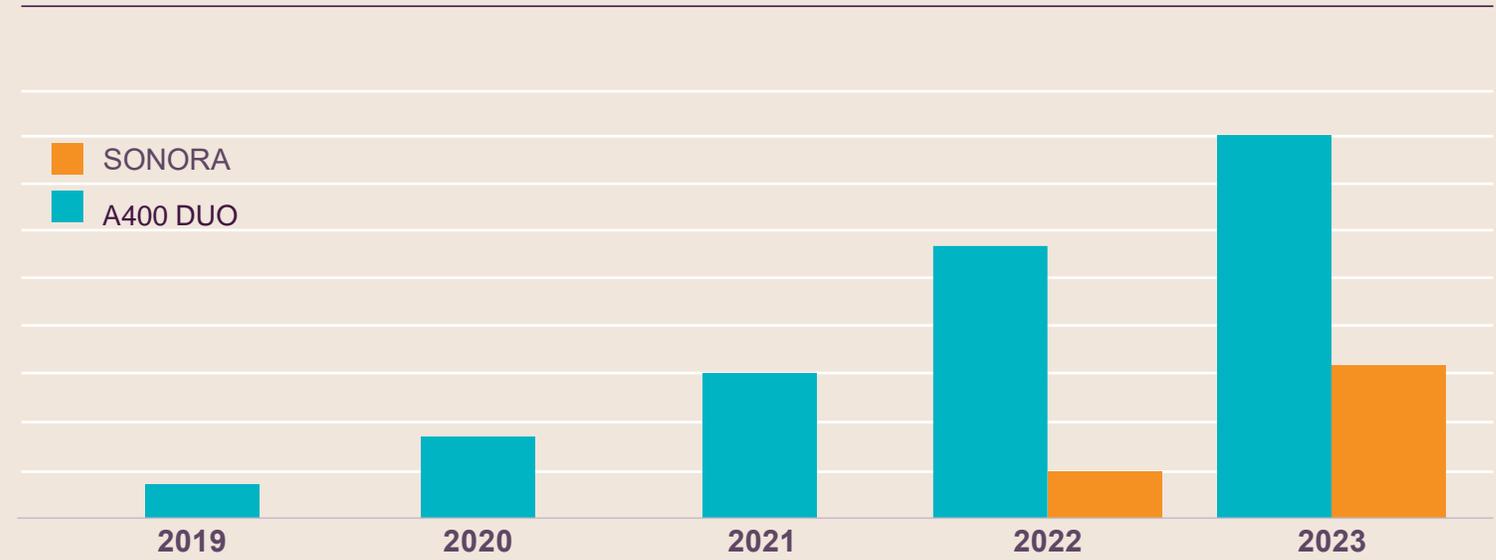
A400 DUO ≤ 200mm



Official release:
2019



Reactor Installed Base Growth: A400 DUO & SONORA

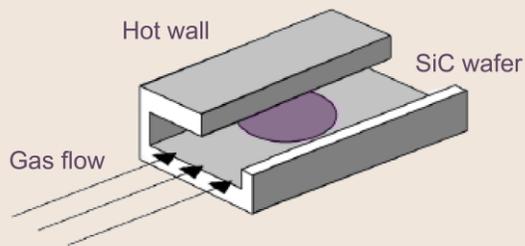


- New high throughput platforms offer lower cost of ownership
- A400 DUO is the leading platform in SiC, GaN, Power, and MEMS
- Innovation in ALD, LPCVD, and diffusion applications with growing market share in Logic/Foundry

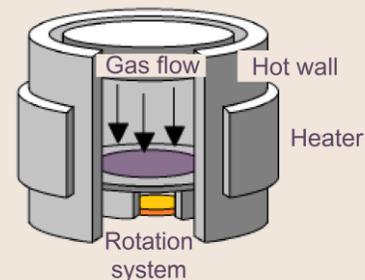
LPE for SiC



ASM has best-in-class SiC Epi reactor



ASM's approach is Cross flow reactor

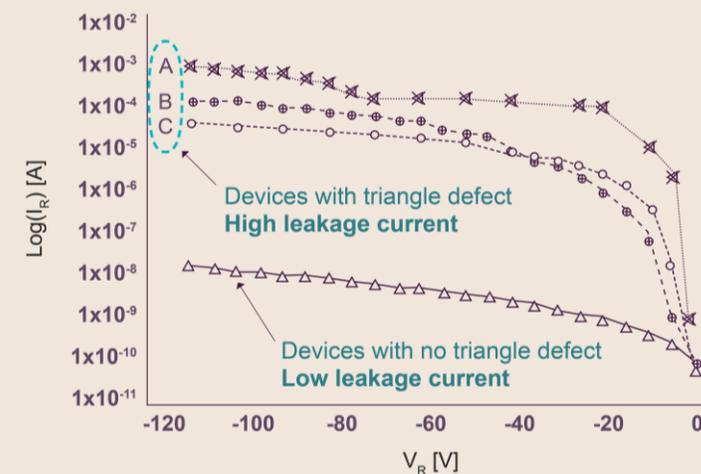


Perpendicular flow reactor

SiC Epi process performance: cross flow vs perpendicular



Triangle defects increase leakage and degrade yield



R.A. Berechman et al., J. Appl. Phys. 2009

ASM's single wafer cross flow reactor design enables best-in-class uniformity and defectivity performance

Opportunities in advanced packaging



Key takeaways

- 1 ASM products and R&D portfolio are well positioned to capture growth opportunities in logic and memory.
- 2 Trends towards new materials and 3D scaling driving further adoption of ALD.
 - Molybdenum is the ALD metal of choice and is replacing CVD Tungsten and PVD Cu.
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Growth through Innovation

Investor Day 2023

Delivering on customers' growth needs

Kent Rossman, Senior VP Operations



Forward-looking statements

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Key takeaways

1

ASM significantly increased revenue in 2020-2022, meeting customer commitments, despite supply chain headwinds.

2

Actions have been taken to make ASM and our supply chain more resilient in the “new reality”.

3

Recently completed expansion in Singapore combined with upcoming expansion in Korea offers the flexibility to deliver on 2027 revenue targets.

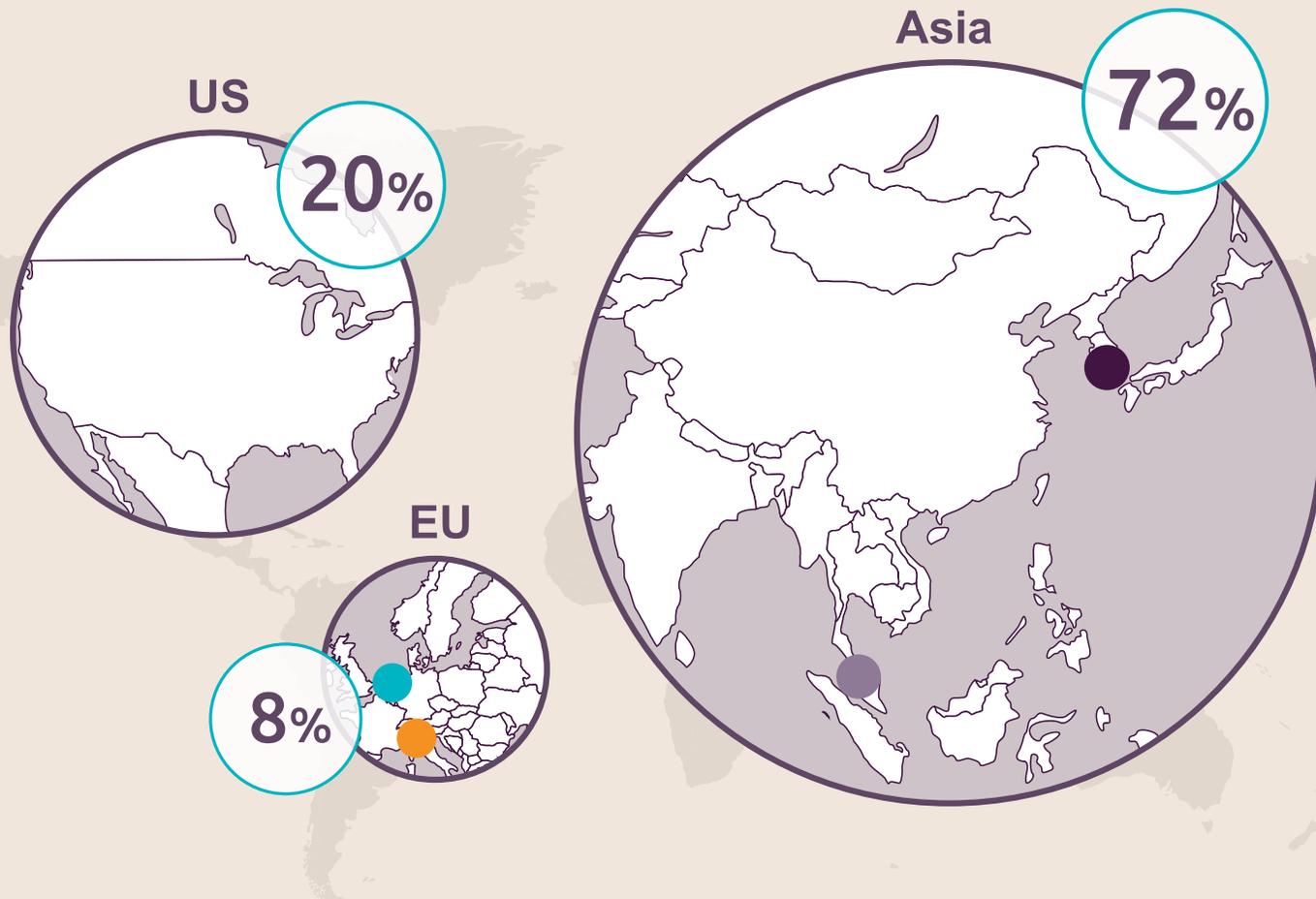
4

Increased focus on manufacturing innovation.

5

ESG becoming increasingly important in overall supply chain footprint.

Introducing ASM Global Operations



- Parts supply mostly Asia based, ~60% contract manufacturing Asia-based
- Main manufacturing facility in Singapore, additional manufacturing in South Korea, Italy, and the Netherlands
- Flexible outsourced assembly model
- >1,400 operations employees
- >80% higher output since 2020

 Supplier spend by geography as a % of total (2022)

ASM manufacturing sites:  Italy  Netherlands  Singapore  South Korea

Supply chain shocks became a new reality



COVID



Texas iced-out



Heat & drought



Historic floods



Suez canal



Lockdowns



War



Nordstream 2



Trade war



Rolling blackouts



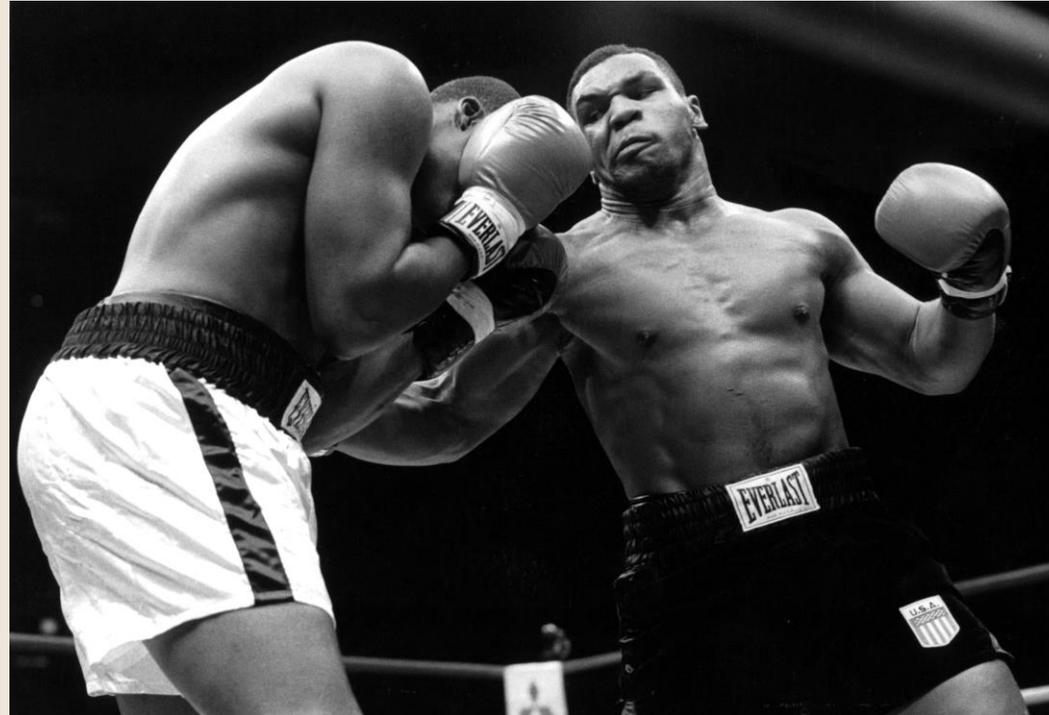
Chip shortage



Butterfly effect

Supply chain plans of the past are insufficient

Supply chain professional
Circa 2020 – mid-2022



**Everyone has a plan
'till they get punched
in the mouth'**

— Mike Tyson

Supply chain resiliency of the now

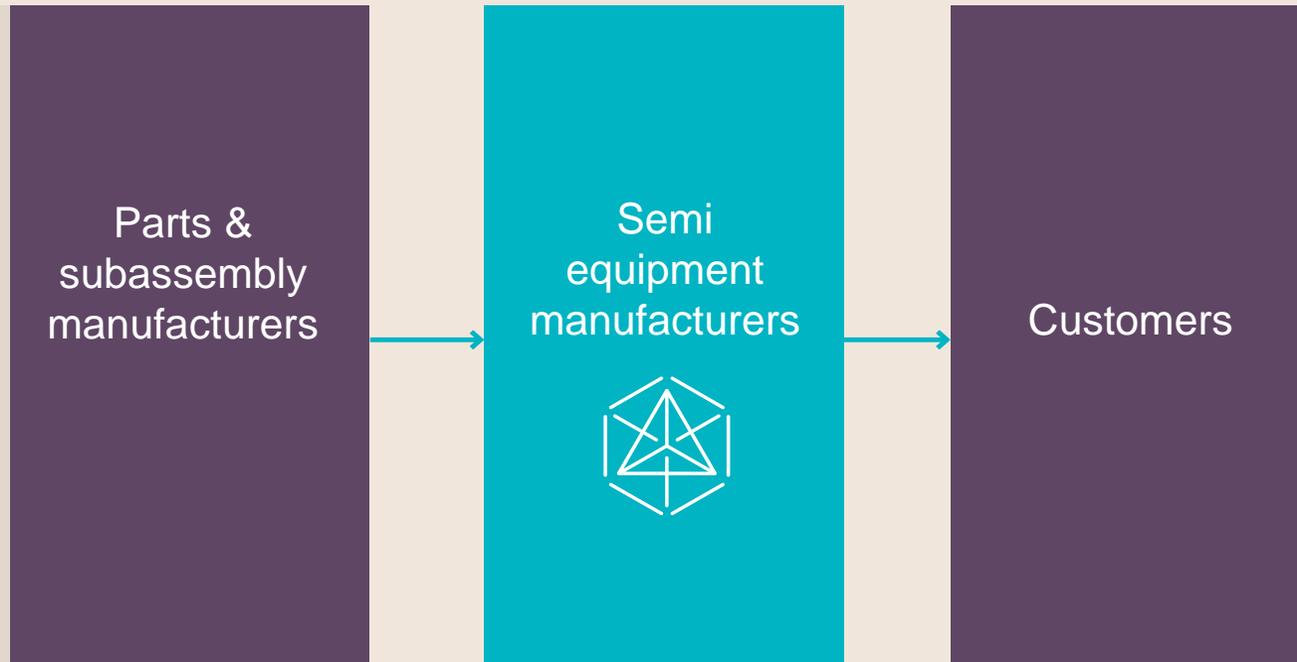


Learning to “**Float like a butterfly**” in the new reality

— special thanks to Muhammed Ali

Increased supply chain complexity requires end-to-end focus & depth

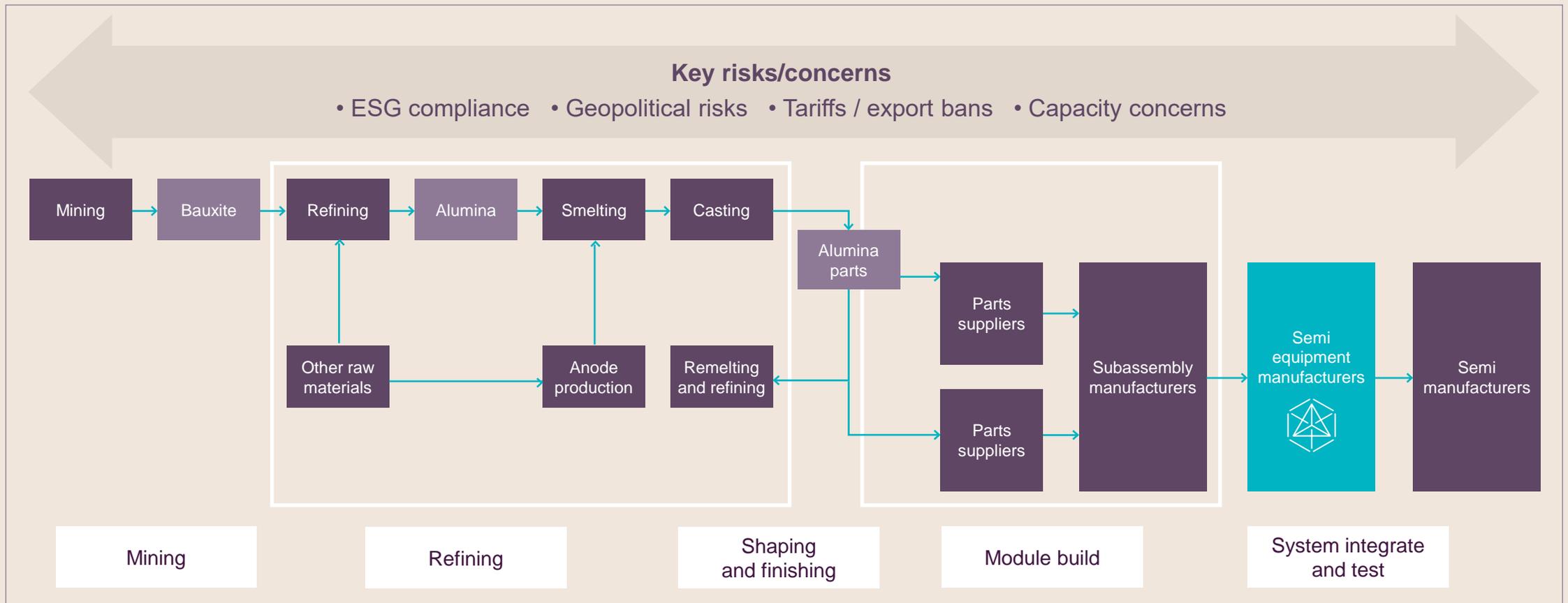
Past:



Increased supply chain complexity requires end-to-end focus & depth

Present:

Example of ASM tool part supply chain



Actions have been taken to improve parts cost, manufacturability, and reliability since 2021

“First time right”



Product Development Engineering



Centers of Excellence Team



Suppliers

- Part designers, suppliers, and a new “Centers of Excellence” team work together focusing on cost, manufacturability, and reliability already during the design phase
- Continuous improvement on existing parts ongoing
- The result is better, less costly, systems, and faster time to market with higher supplier part capacity
- Has resulted in significantly less problem parts per new system shipped

Supply chain health improved significantly

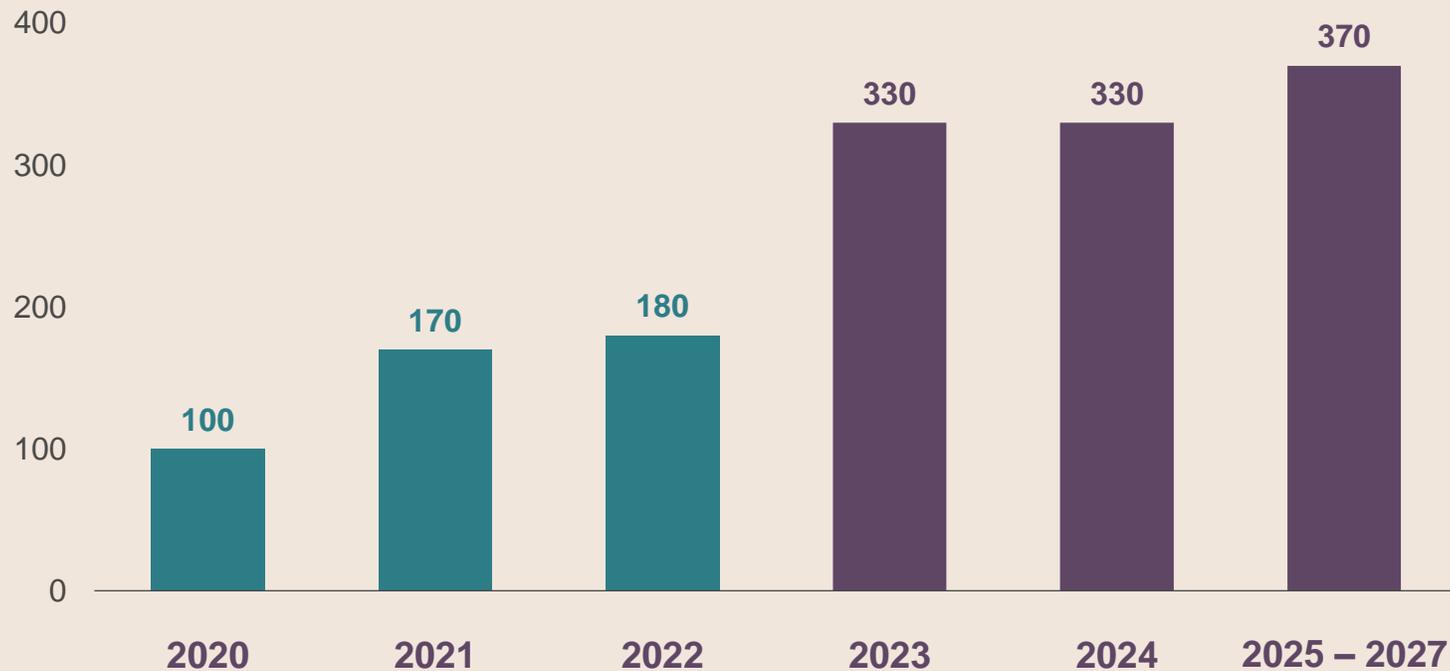
Part family	Jun. 2022	Dec. 2022	Sept. 2023	Ongoing ASM actions taken
Machining, sheet metal, power, pedestals, and chemical processes				Supplier & capacity adds, yield improvements, long-term supply agreements added
Contract manufacturing				Multi-source, efficiency improvements, and long-term supply agreements
Semi chips				Value engineering (uprev chipsets)
Gas delivery				Capacity adds, multi-sourcing
Specialty materials (Qtz, SiC, etc.)				Value engineering, capacity adds, multi-source & long-term supply agreements

Improve supply chain resilience through:

- Increasing existing supplier capacity
- improving supplier efficiencies
- innovating part manufacturing techniques
- signing long-term supply agreements
- multi-sourcing suppliers

ASM investing in capacity ahead of needs

Normalized manufacturing capacity



→ **ASM online ample forward-looking capacity in 2023**

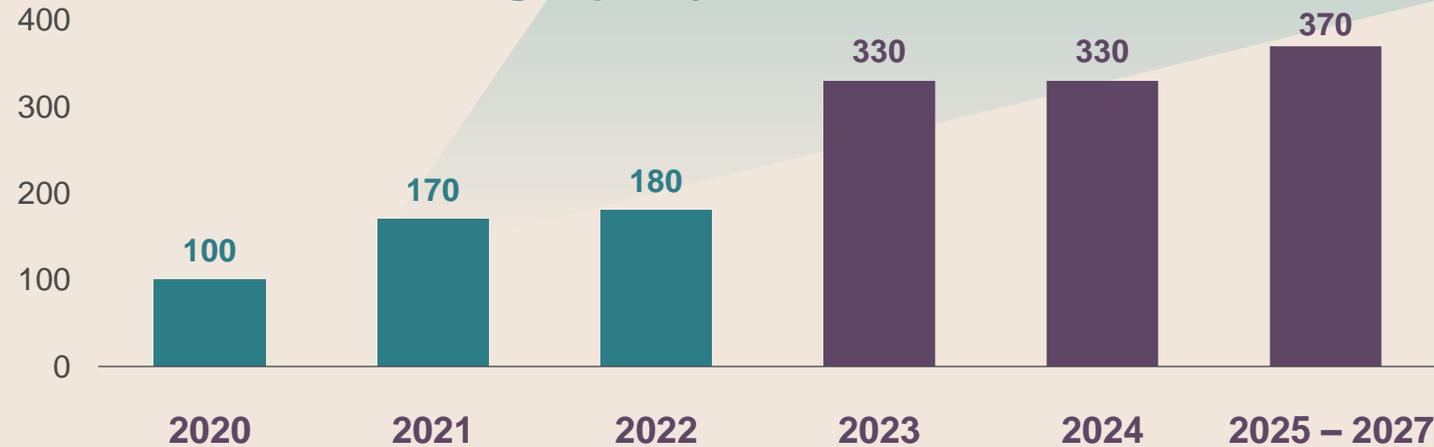
- Analysis of where to expand manufacturing to be started mid 2024
- Decisions to be made in 2025
 - Possibility to bring more capacity online in 2027 pending review

ASM investing in capacity ahead of needs



Woodlands L4 move

Normalized manufacturing capacity



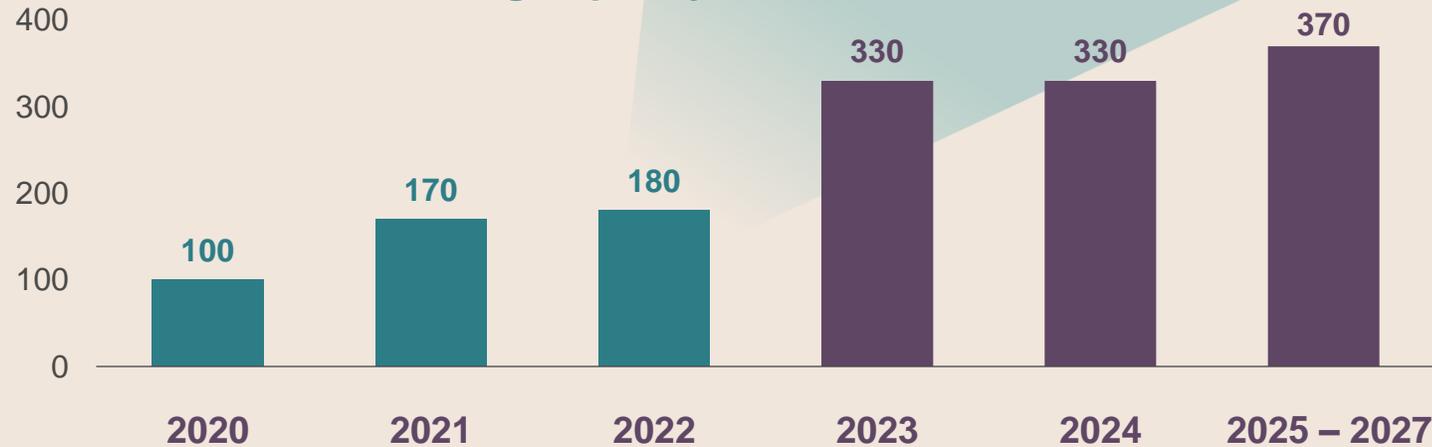
→ Singapore expansion first manufacturing floor (L4) facilitated strong revenue increases in 2021 and beyond

ASM investing in capacity ahead of needs



LPE acquisition

Normalized manufacturing capacity



- Singapore expansion first manufacturing floor (L4) facilitated strong revenue increases in 2021 and beyond
- LPE acquisition brought local manufacturing capacity in Milan

ASM investing in capacity ahead of needs



Woodlands L3 completed

Normalized manufacturing capacity



- Singapore expansion first manufacturing floor (L4) facilitated strong revenue increases in 2021 and beyond
- LPE acquisition brought local manufacturing capacity in Milan
- Singapore second floor (L3) expansion provided capacity for targeted growth in 2023 through 2027

ASM investing in capacity ahead of needs



Dongtan expansion

Normalized manufacturing capacity



- ➔ Singapore expansion first manufacturing floor (L4) facilitated strong revenue increases in 2021 and beyond
- ➔ LPE acquisition brought local manufacturing capacity in Milan
- ➔ Singapore second floor (L3) expansion provided capacity for targeted growth in 2023 through 2027
- ➔ Korea expansion will provide further capacity local to products and enhanced business continuity plan (BCP)

ASM investing in capacity ahead of needs



Dongtan expansion

Normalized manufacturing capacity

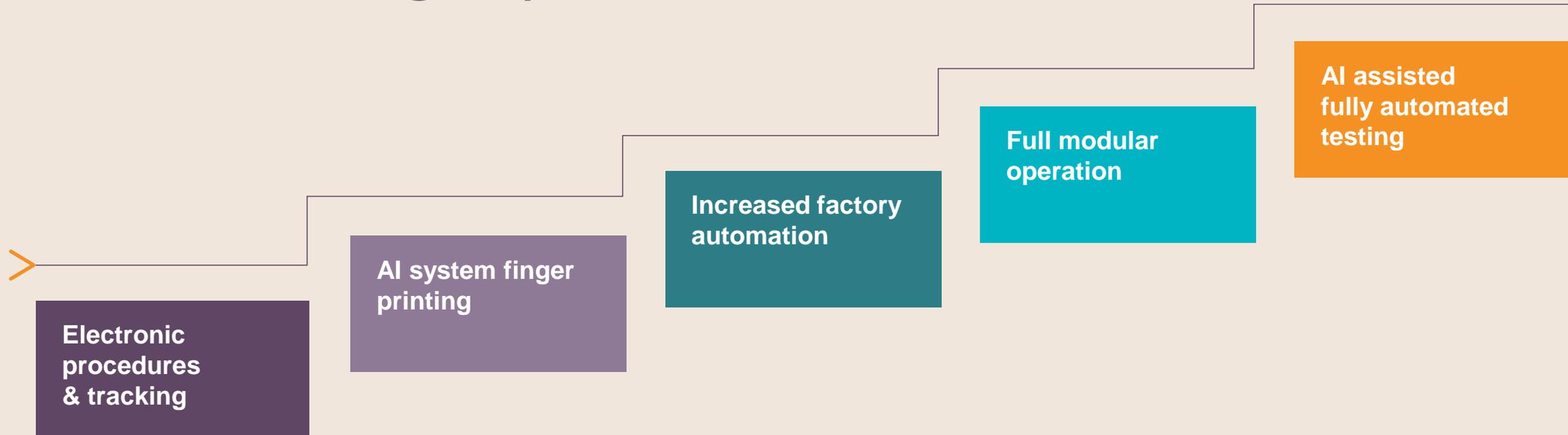


- Singapore expansion first manufacturing floor (L4) facilitated strong revenue increases in 2021 and beyond
- LPE acquisition brought local manufacturing capacity in Milan
- Singapore second floor (L3) expansion provided capacity for targeted growth in 2023 through 2027
- Korea expansion will provide further capacity local to products and enhanced business continuity plan (BCP)

Increased focus on manufacturing innovation



Technology roadmap to drive manufacturing improvements



- Deploying software-based Manufacturing Efficiency Solutions (**MES**) to improve learning
- **AI-assisted system health** to improve quality / problem detect & solution speed.
This will reduce field start up cycle time & costs throughout product life
- **Systems modular build with automated testing** to reduce costs, increase capacity, improve quality, & manufacturing flexibility

Sustainable supply chain



Engaging our supply chain on sustainability

Target Net Zero by 2035



Supplier capacity

Collaborate with suppliers to accelerate their Net Zero journey

CDP Supply Chain Climate Disclosure

Drive engagement and transparency

Energy programs → 2024 and beyond

Through SCC, increasing access to renewable electricity

- 82% submission to date of Carbon Disclosure survey
- 100% renewable electricity for Singapore Operations
- >370 tons CO₂ saved (part refurb)

Responsible



Supplier collaboration opportunities - 2024

Safety

Pursuing “Zero Harm”

Human rights

Addressing risks to vulnerable workers

Resource conservation in packaging

Further grow supplier adoption

Climate adaptation

Climate risk assessments and mitigation

- Reusing system crates
- Uncovering risks in mineral supply chain

Resilient



Cybersecurity

Strengthening supplier resiliency and foster strong relationships with suppliers

Information security

Strengthening our human rights due diligence

Today

Setting clear expectations

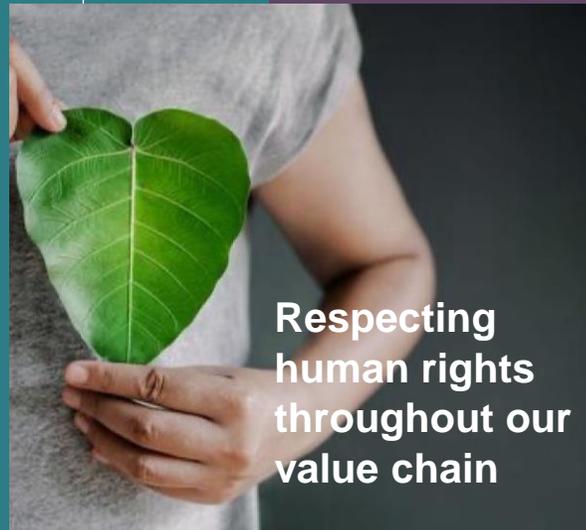
- >99% acknowledge Code of Business Conduct last 5 years
- Major update to Human Rights Policy in process

Engaging on key risks

- Increased accountability for minerals sourcing

Engaged in industry efforts

- Responsible Business Alliance (RBA) – Full Member
- Responsible Minerals Initiative (RMI) – Member
- Responsible Factory Initiative (RFI) – Committee
- Semi Supply Chain Resilience – Committee



**Respecting
human rights
throughout our
value chain**

Strengthening 2024 and beyond

Supplier due diligence

- Increase risk evaluation during supplier selection and sustaining

Responsible mineral sourcing

- Expand minerals scope driven by increased regulatory and sourcing risks (e.g., cobalt)

Industry collaboration

- Grow leadership and engagement in key industry initiatives

Value chain risk assessment

- Deepen understanding of relevant human rights risks, supported by leading experts

Key takeaways

1

ASM significantly increased revenue in 2020-2022, meeting customer commitments, despite supply chain headwinds.

2

Actions have been taken to make ASM and our supply chain more resilient in the “new reality”.

3

Recently completed expansion in Singapore combined with upcoming expansion in Korea offers the flexibility to deliver on 2027 revenue targets.

4

Increased focus on manufacturing innovation.

5

ESG becoming increasingly important in overall supply chain footprint.

Growth through Innovation

Investor Day 2023



ASM products sustainability

Dr. Hichem M'Saad

CTO



Forward-looking statements

Cautionary note regarding forward-looking statements:

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Key takeaways

- 1 ASM target of Net Zero by 2035 for all scopes was verified by SBTi.
- 2 Majority of our GHG emission is attributed to Scope 3, in particular from our sold products.
- 3 Accordingly, ASM strongly focuses on products sustainability innovation.
- 4 Sustainability innovation is an integral part of our development roadmap, aiming for improvements at product and sub-fab level.
- 5 Reducing Scope 3 footprint is highly dependent on our customers and upstream value chain, hence we collaborate to accelerate emission footprint reduction.
- 6 Key examples of ASM's product sustainability focus:
 - More efficient Plasma sources
 - More efficient use of chemicals
 - More efficient heating technologies

Emission segmentation at ASM

Scope 1 <0.1%	Direct emissions from company-owned facilities
Scope 2 0.5%	Indirect emissions from offsite utility-purchases
Scope 3 >99%	Indirect emissions from upstream/downstream peripheral activities

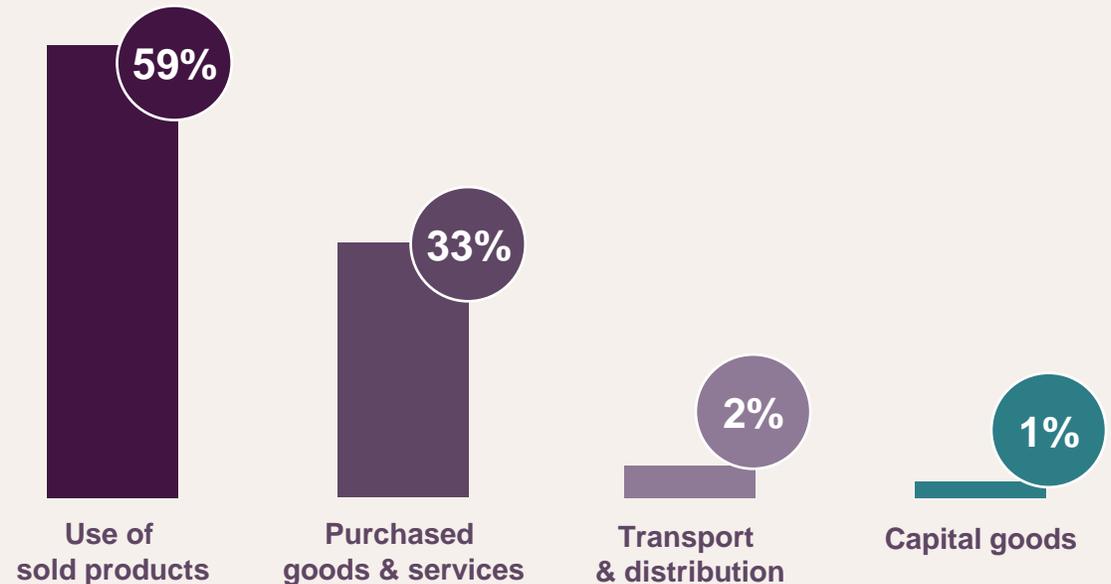
Scope 3 emissions

- Greatest impact to ASM’s emissions

Use of sold products

- Largest contributor to Scope 3

Zooming in on Scope 3 emissions (tCO₂e)



All other Scope 3 categories <1% each:



Sustainability fully integrated into product development

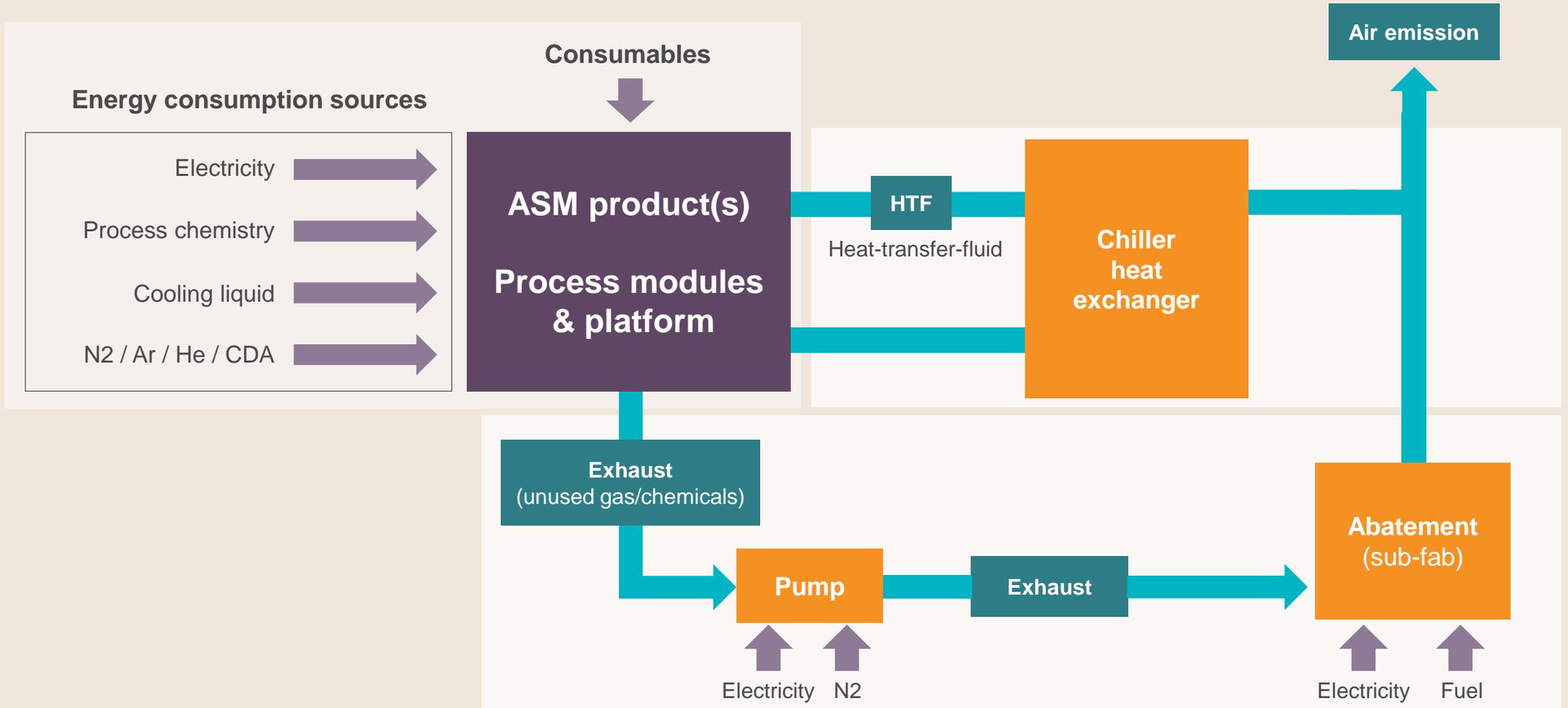


Our vision is to develop differentiated & eco-efficient tools & processes, while maximizing energy saving through product innovation.



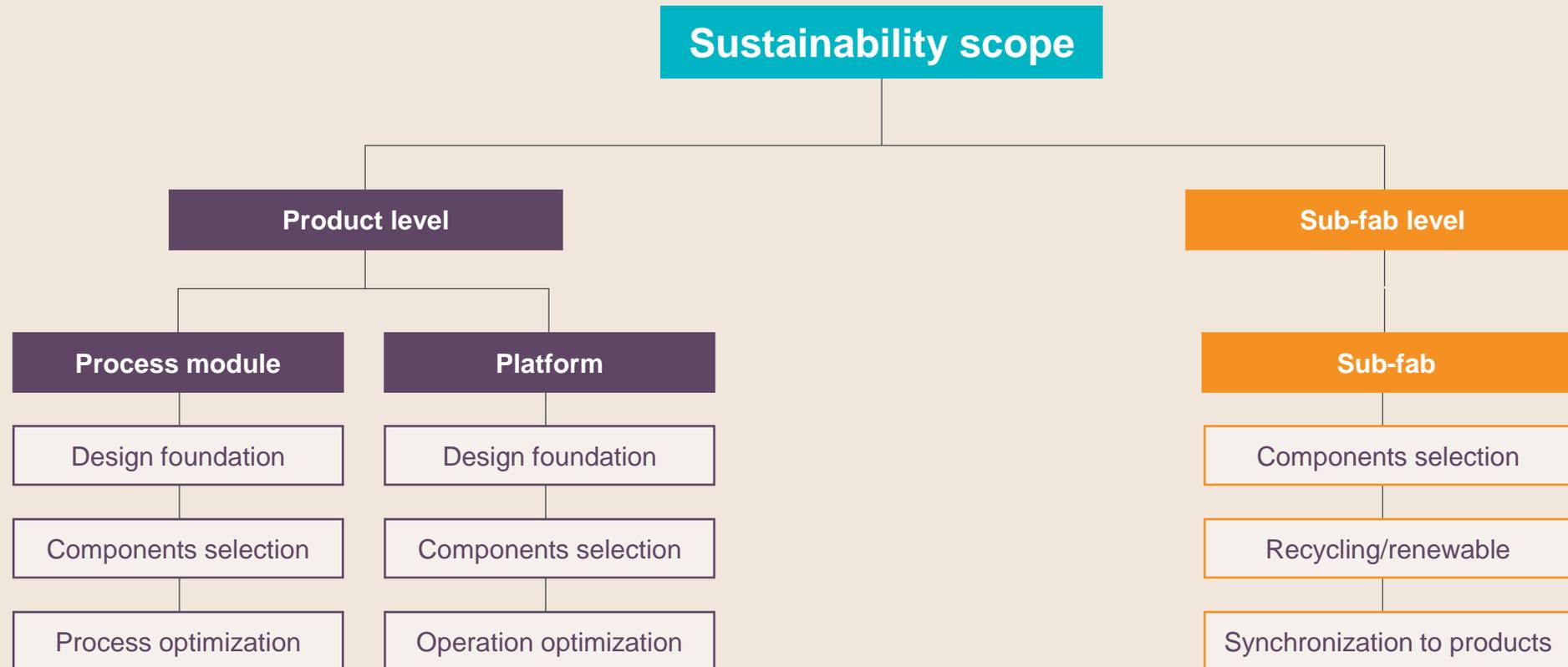
Our aim is to lower energy/precursor usage, emissions and cost per wafer

Product sustainability contributors*



* Simplified version for illustration purposes

Sustainability scope covers product & sub-fab



Scope to maximize synergy between ASM products & customers' sub-fab to minimize emissions per wafer

Product Sustainability Strategy

	More efficient Plasma sources	More efficient use of chemistries	More efficient thermal technologies
Key energy driver	<ul style="list-style-type: none"> RF power On-tool RF matching network Remote RF generator(s) RF cables losses (30-50 ft long) 	<ul style="list-style-type: none"> Precursors selection Precursors utilization efficiency Purge efficiency 	<ul style="list-style-type: none"> Heating technology Heating efficiency Processing temperature
Sustainability focus	<p style="text-align: center;">↓ RF energy / wafer ↓</p> <p>Example: ASM EVC RF matching technology</p> <ul style="list-style-type: none"> 5% reduction in reflected power 100x faster tuning 	<p style="text-align: center;">↓ Precursors dose / wafer ↓</p> <p>Example: Enhanced chemical utilization for ALD process</p> <ul style="list-style-type: none"> Residence time modulation > 50% reduction in precursors consumption Lower abatement load 	<p style="text-align: center;">↓ Thermal energy / wafer ↓</p> <p>Example: Si Epi innovative temperature control technology</p> <ul style="list-style-type: none"> Turino CL enables faster temp ramp Faster chamber clean 50% energy reduction per wafer

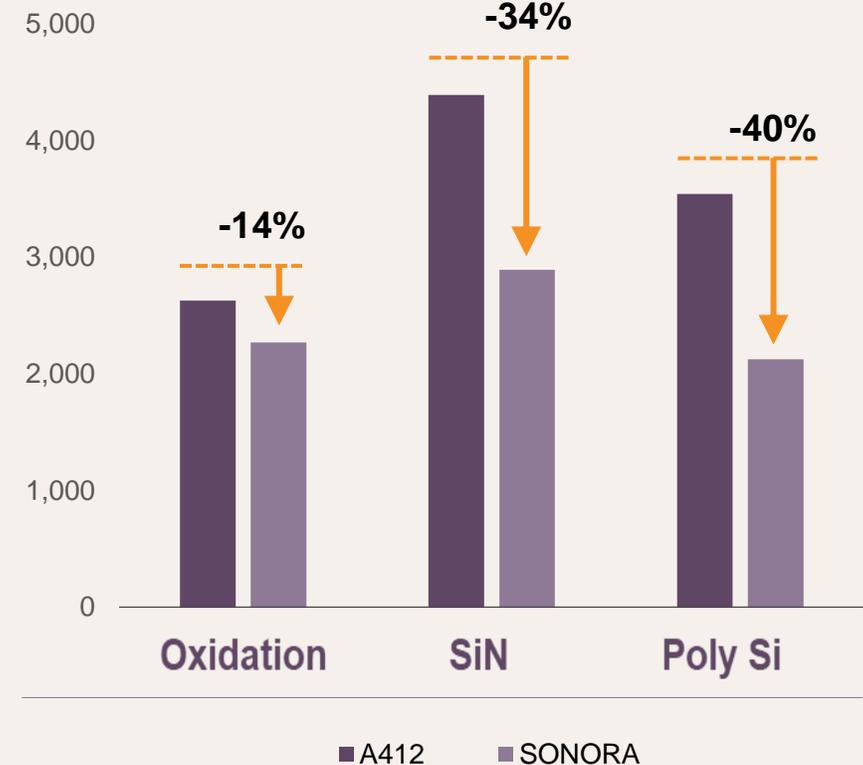
SONORA sustainability benefit

- **Higher throughput provides less energy consumption per wafer**
 - Platform throughput
 - Optimized process with increased load size
- **40% N₂-purge consumption reduction per wafer**
 - Reactor design → reduced volume, leak tight mini environment
- **50% cabinet exhaust reduction per wafer**
 - Process cabinet enhanced leak tight, with reactor specific exhaust
 - Reactor cabinet eliminated, replaced by point of use exhaust
 - Elimination of cooling function

**SONORA brings significant improvement over A412:
15 - 40% reduction in thermal energy/wafer**

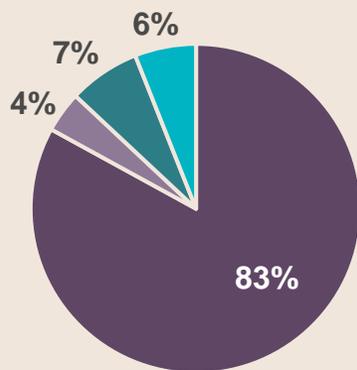
Energy consumption

kJ/wafer

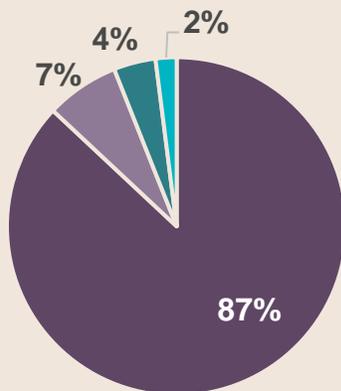


SONORA energy sources

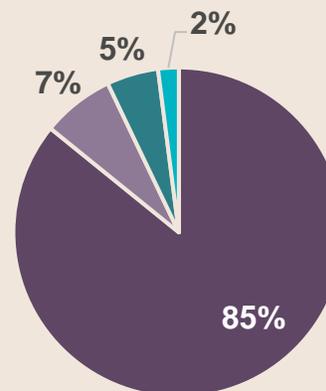
Oxidation



SiN

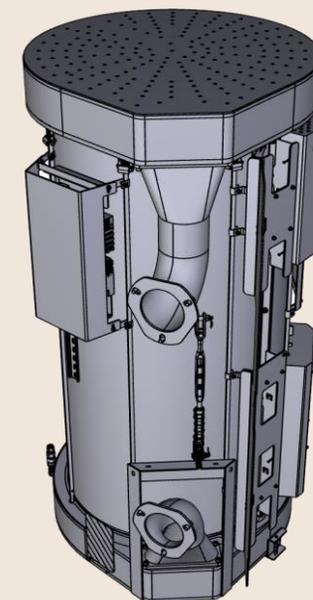
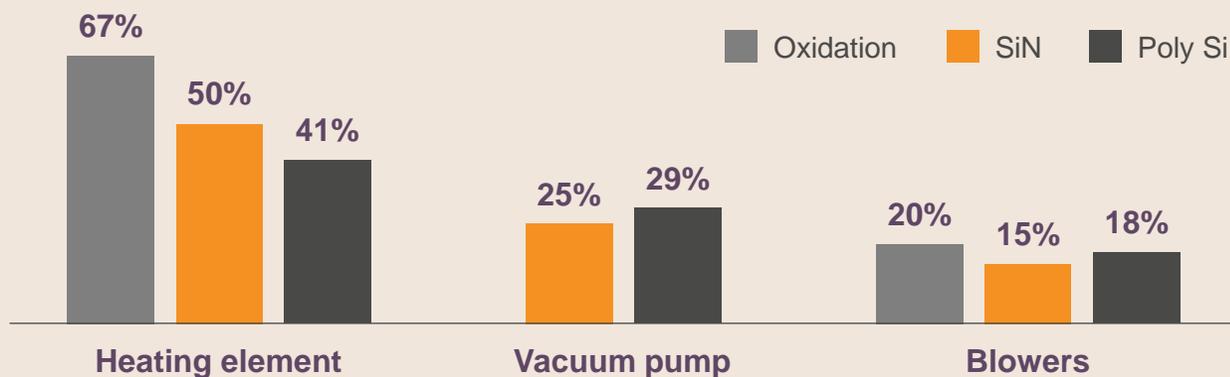


Poly Si



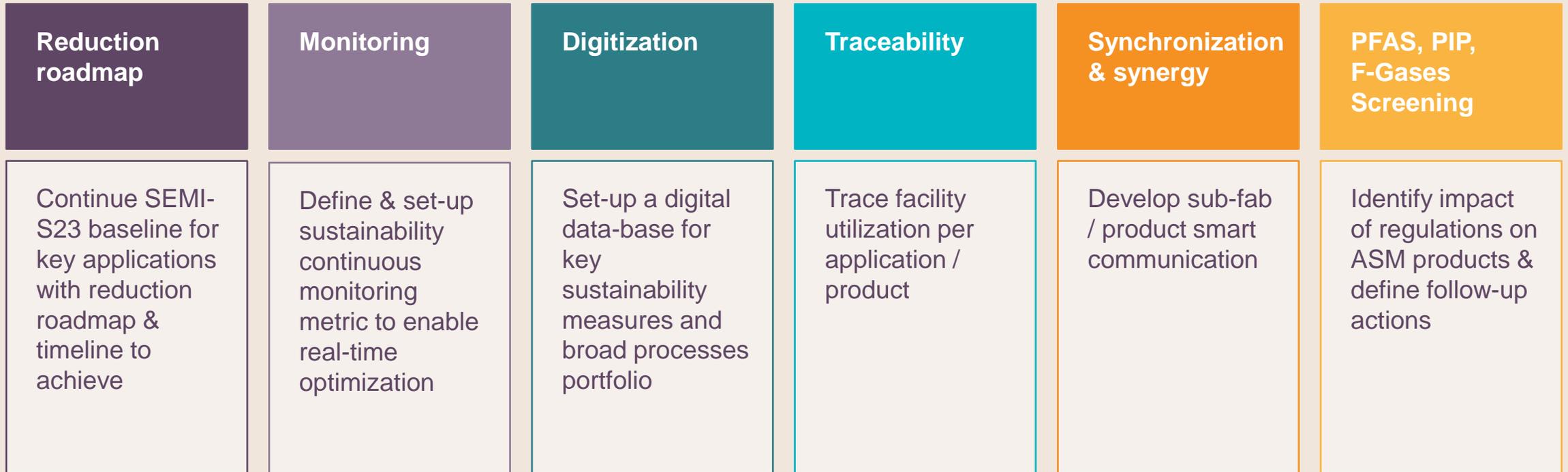
- Electricity
- Nitrogen
- Exhaust
- Cooling water

Top 3 electricity consumption



Heating element

Sustainability focus around product development



Key takeaways

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Growth through Innovation

Investor Day 2023

Creating sustainable value for all stakeholders

Paul Verhagen, CFO



Forward-looking statements

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Key takeaways

1

ASM Growth through Innovation strategy is creating significant value for all stakeholders.

2

ASM increases 2025 mid-term revenue targets to €3.0 - €3.6 billion with target range of gross and operating margins maintained.

3

ASM provides new updated mid-term guidance for 2027:

- ASM targets revenue of €4.0 - €5.0 billion, representing a 2022-2027 CAGR of 11%-16%
- Operating margin target ranging from 26% to 31% with upward trend expected in outer years
- Annual capex of €100 - €180 million (in 2024-2027) to support growth.

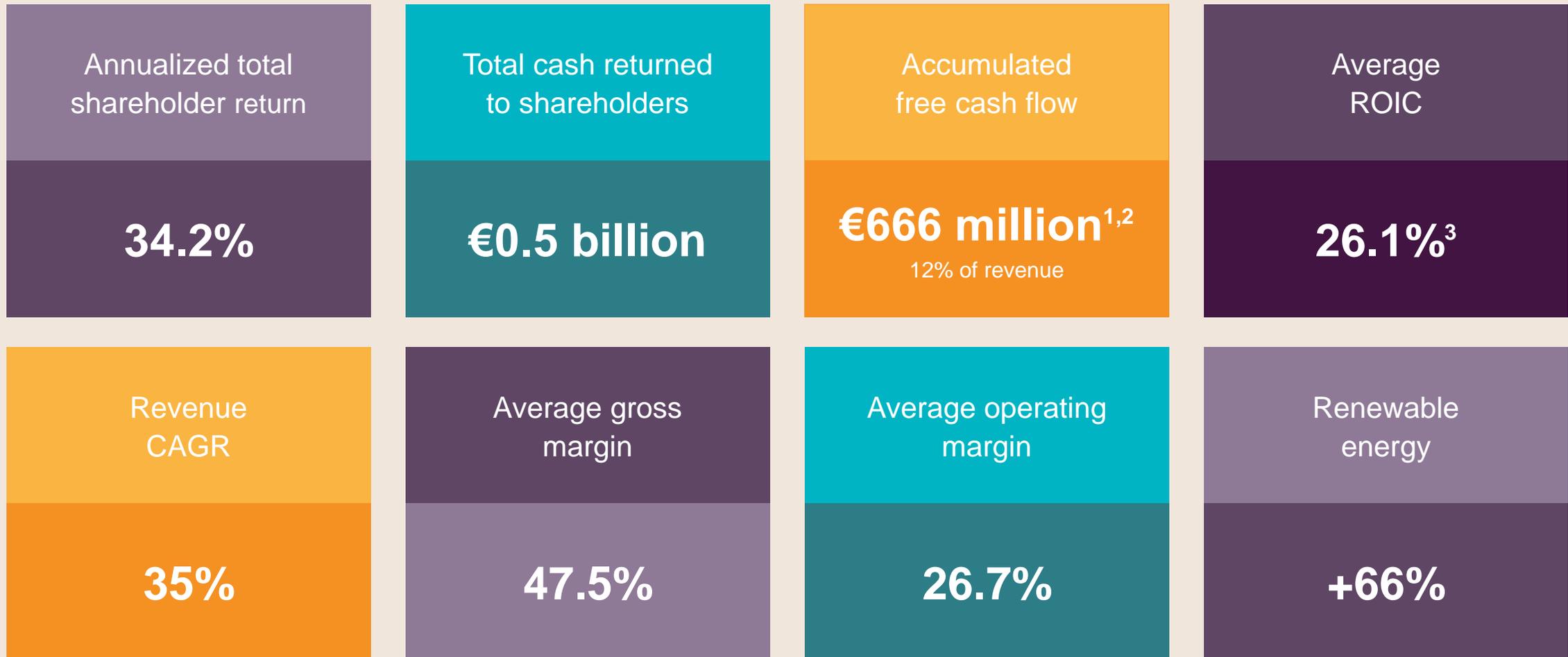
4

Capital allocation policy unchanged. Investment in growth remains the key priority with excess cash returned to shareholders.

5

Plan to achieve Net Zero target by 2035 verified by SBTi.

Growth through Innovation strategy is creating significant value over FY20 - FY22



1 Excluding ASMPT dividends and acquisitions

2 Accumulated FCF €996 million (18% of revenue excluding change in working capital)

3 Excluding share of income from ASMPT and equity value

Note: All numbers presented throughout this presentation are normalized numbers excluding fair value adjustments of purchase price allocations

Financial performance FY20-FY22 versus 2021 guidance



Strong total shareholder return

Total cumulative shareholder return

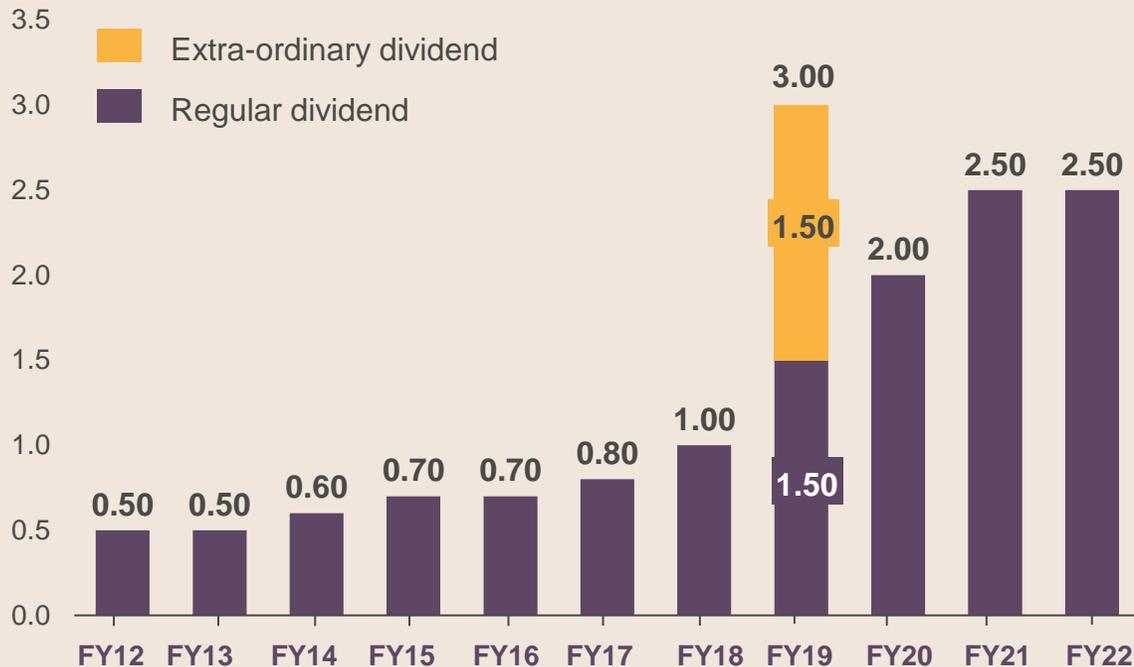


Indexed total return ASM vs. AEX and SOX as of January 2019 up to September 13, 2023

Excess cash returned to shareholders

Dividend per share

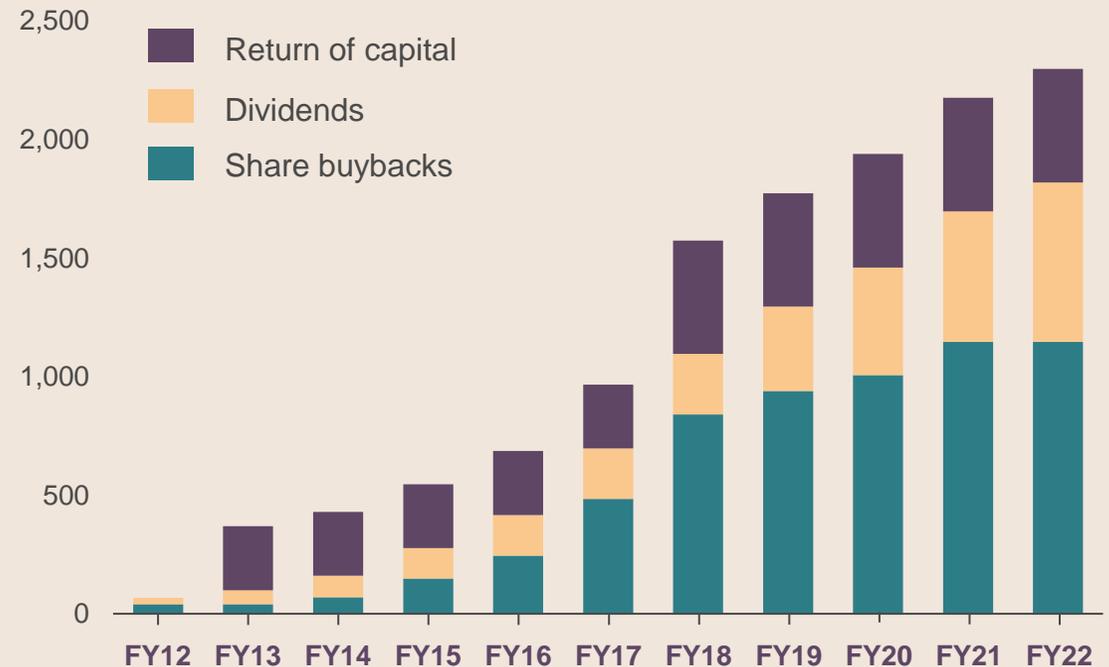
(in € paid over)



→ Dividends gradually increased from €0.50 per ordinary share in FY12 to €2.50 in FY22

Cumulative cash returned to market

(€ million)



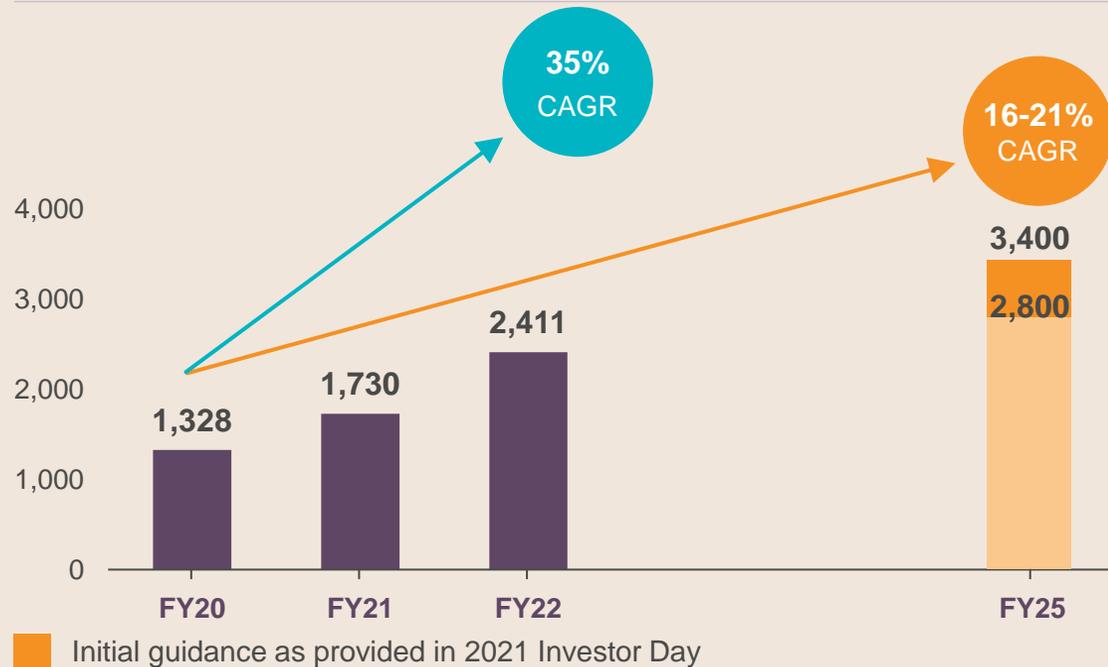
→ Cash returned to shareholders

- More than €2 billion cash returned since FY12 of which approx.:
 - €1.1 billion in share buyback
 - €0.7 billion in dividends
 - €0.5 billion in return of capital

Strong revenue growth outgrowing WFE

Revenue

(€ million)



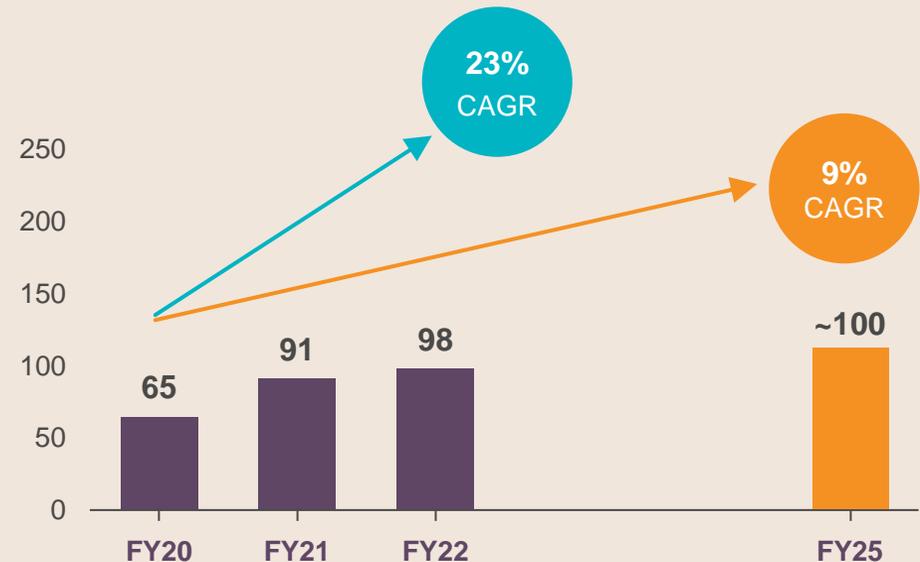
→ Revenue growth key drivers:

- Growth of end markets
- Growth and composition of WFE market
- Strong positions in growing segments - #1 in single-wafer ALD and #2 in Epi
- Selective growth in VF and PECVD
- Growth in spares and services

WFE market forecast

(US\$ billion)

Source: TechInsights (September 2023) and Gartner (July 2023)



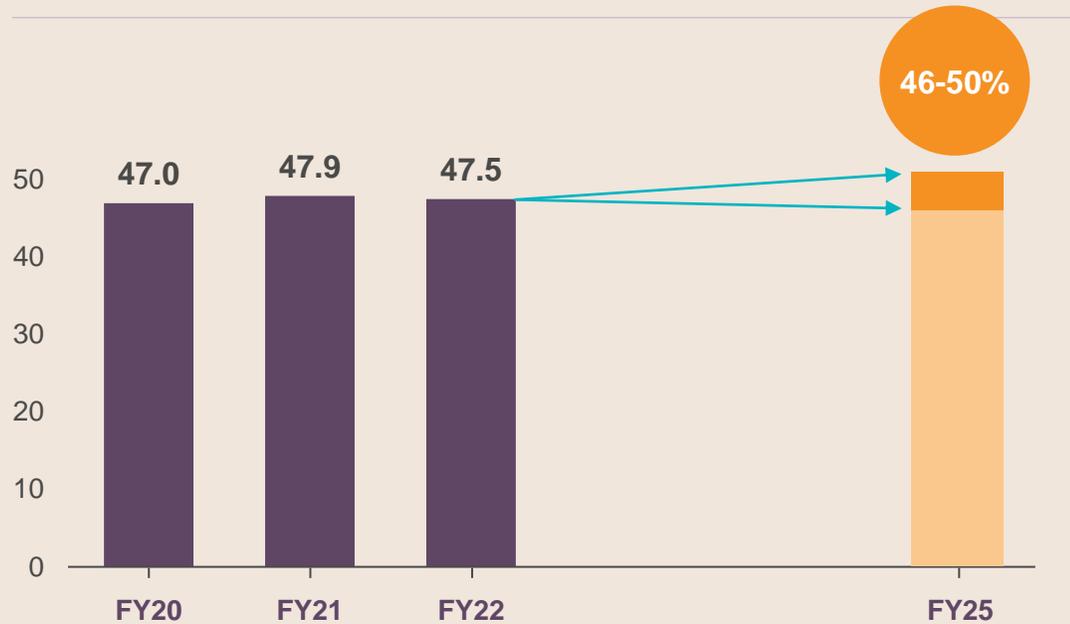
→ WFE market:

- ASM outgrew the WFE market over the last years
- Current WFE market forecast for FY25 remains similar to assumptions used in FY21 Investor Day

Sustained healthy margin and earnings

Gross margin

(%)

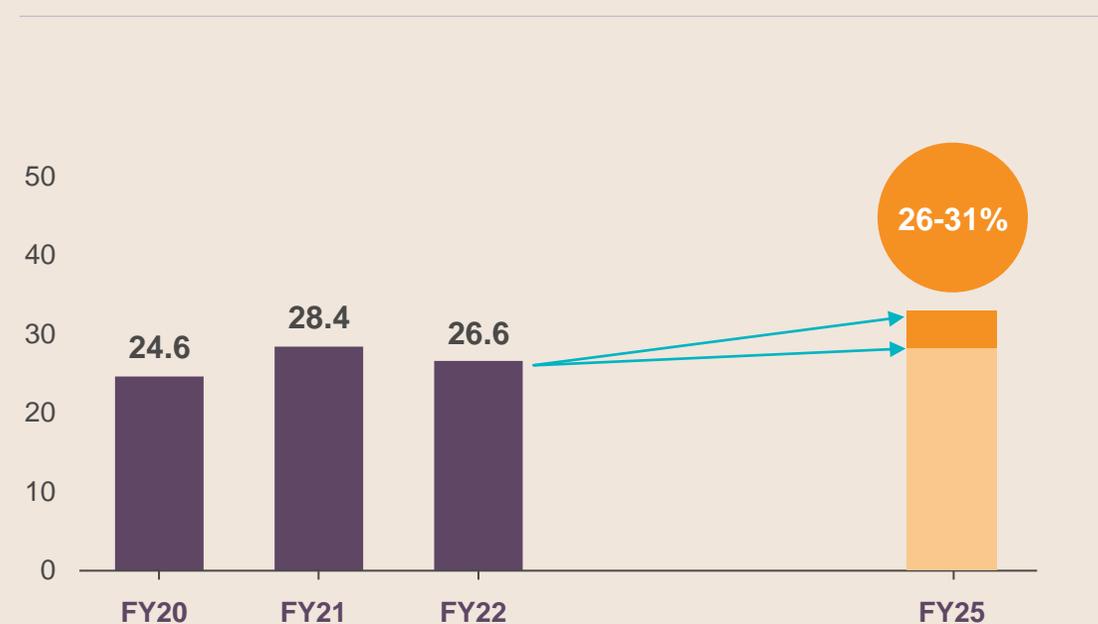


→ Gross margin key drivers:

- Application mix
- (Limited) operating leverage, productivity and supply chain improvements
- Value engineering customer improvement projects
- Sales price increases to offset inflationary pressure

Operating margin

(%)

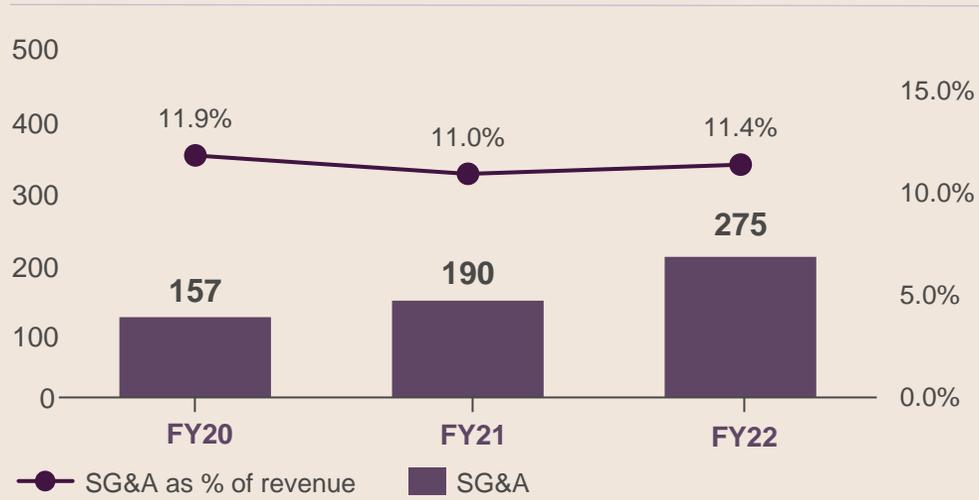


→ Operating margin key drivers:

- Development gross margin
- Limited impact from operating leverage thus far in 2021-2023 due to step up in investments in SG&A and R&D

SG&A leveling off after investments in 2021-2022

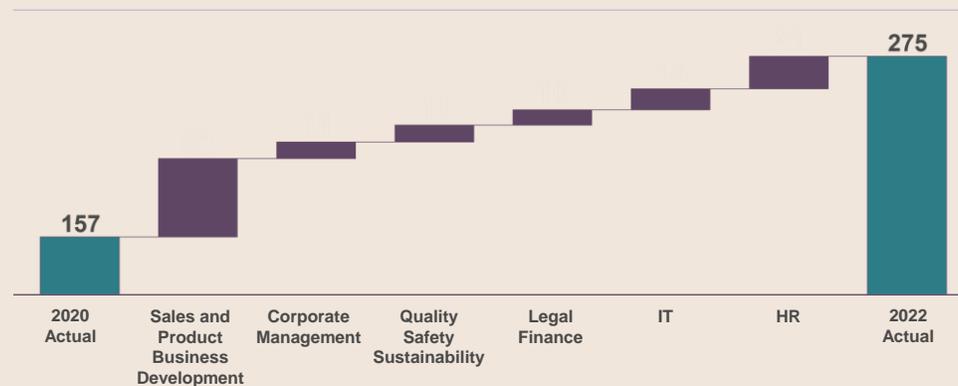
SG&A (annual) (€ million)



SG&A (half yearly) (€ million)



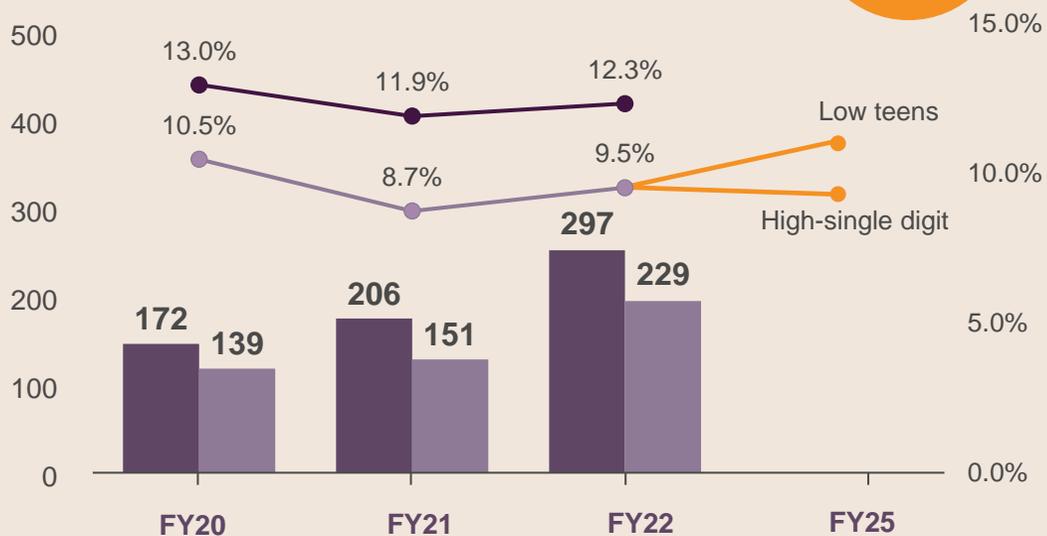
SG&A increase by function (2020-2022) (€ million)



Continued R&D investments to support growth opportunities

R&D expenses (annual)

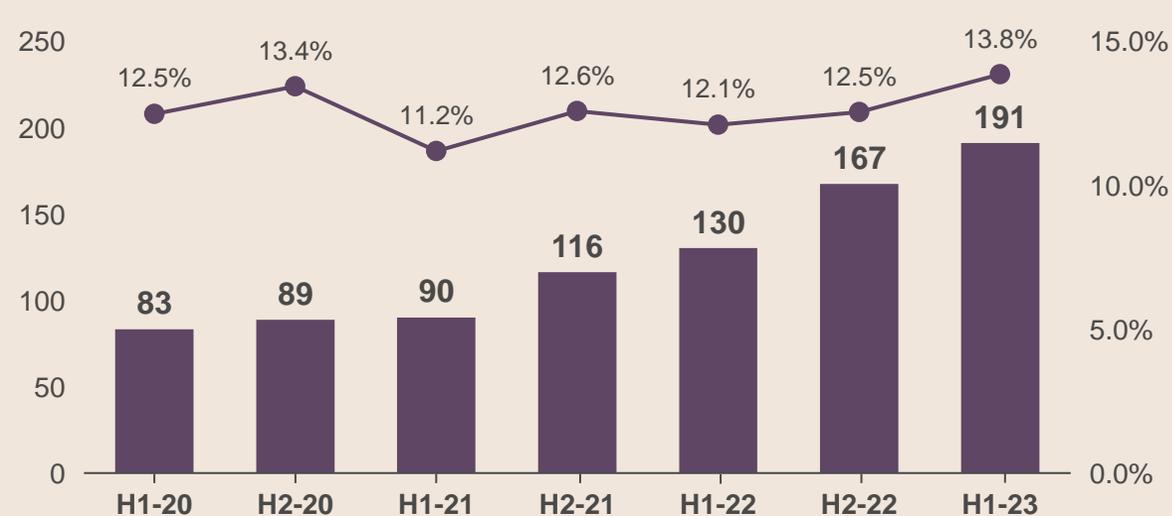
(€ million)



■ R&D (gross) ■ R&D (net) — R&D (net) guidance

Gross R&D expenses (half yearly)

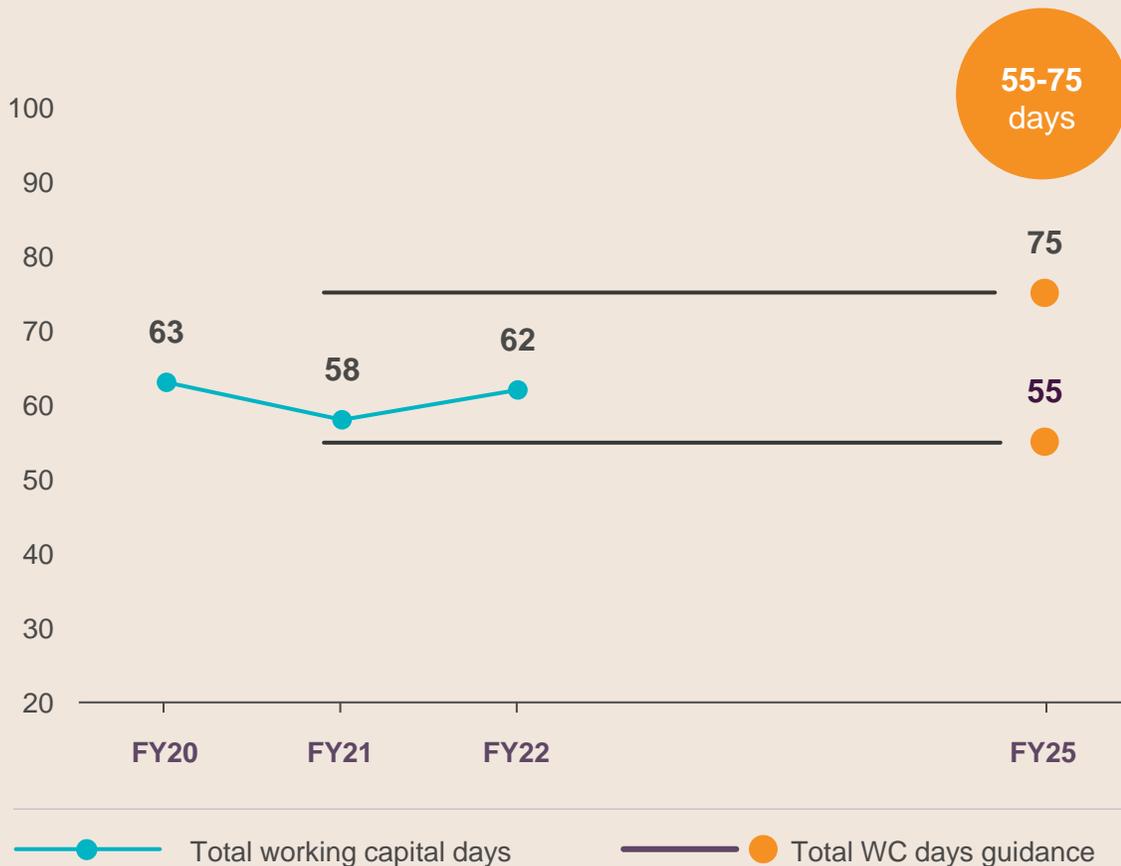
(€ million)



● R&D (gross) as a % of revenue ■ R&D (gross)

Increased working capital due to supply chain challenges and market environment

Working capital days



→ **Working capital well managed despite severe supply chain challenges**

- Conscious (temporary) increase of inventory due to advanced purchases and increased strategic buffer stock (DIO ranging from 39 to 67 days)
- Pressure on DSO due to challenging semiconductor market (DSO ranging from 72 to 82 days)
- Total working capital ranging from 58 to 63 days

LPE and Reno: value-creating bolt-on acquisitions

LPE acquisition closed on October 3, 2022, with purchase price of €471m and earn-out of up to €100m

Reno Sub-Systems acquisition closed on March 12, 2022, with purchase price of approximately €42m

→ **Strategic rationale:**

- Address the high-growth SiC semiconductor opportunity with accelerated time to market
- Acquired a team with 25 years of specialized experience
- Acquired key technology that contributes to sustainability, by enabling increased power efficiency in transportation and other markets
- Most attractive target in SiC epitaxy with compelling valuation
- Leverage highly synergistic ASM's epitaxy competencies and global footprint

→ **Strategic rationale:**

- New PEALD applications are driving more complex process solutions
- Solid state match enables instantaneous matching and reduces ALD cycle time improving throughput and energy consumption
- Reno has a leading, sustainable position in solid state RF matches with strong patent position
- Brings core, critical & difficult to find RF technology talent in house

2021 mid-term targets FY21-FY25



On track to previously (in 2021) communicated mid-term targets for 2025

	FY2025	On track
Revenue →	From €2.8 to €3.4 billion	
Revenue growth →	16 - 21% CAGR (FY20-FY25)	
Gross margin % →	46 - 50% (FY21-FY25)	
SG&A % revenue →	High single digit (FY25)	
R&D (net) % revenue →	High single digit to low teens (FY25)	
Operating margin % →	26-31% (FY21-FY25)	
→ Capex €60 - €100 million on average annually		
→ ETR¹ gradually increasing to high teens-low twenties		
→ Working capital: 55-75 days		

¹ETR refers to effective tax rate excluding share in income of ASMPT

Updated mid-term targets FY23-FY27



Updated financial targets FY25 and introducing FY27

		FY2022 ⁽¹⁾	FY2025
Revenue	→	€2.4 billion	Old: €2.8 - €3.4 billion New: €3.0 - €3.6 billion
Revenue growth	→	33% yoy ⁽²⁾	16 - 21% CAGR (FY20-FY25)
Gross margin %	→	47.5%	46 - 50% (FY21-FY25)
SG&A % revenue	→	11.4%	High single digit (FY25)
R&D (net) % revenue	→	9.5%	High single digit to low teens (FY25)
Operating margin %	→	26.6%	26-31% (FY21-FY25)
Capex	→	€101 million	Old: €60 - €100 million New: €100 - €180 million (FY25)
Effective Tax Rate	→	17.7% ⁽³⁾	High teens to low twenties (FY25)
Total working capital	→	62 days	55-75 days (FY25)

1 Refers to normalized numbers excluding purchase price allocation adjustments

2 Refers to constant currencies

3 Effective tax rate excludes impairment on, and net income of our investment in ASMPT

Updated financial targets FY25 and introducing FY27

		FY2022 ⁽¹⁾	FY2025	FY2027
Revenue	→	€2.4 billion	Old: €2.8 - €3.4 billion New: €3.0 - €3.6 billion	€4.0 - €5.0 billion
Revenue growth	→	33% yoy ⁽²⁾	16 - 21% CAGR (FY20-FY25)	11 - 16% CAGR (FY22-FY27)
Gross margin %	→	47.5%	46 - 50% (FY21-FY25)	46 - 50% (FY25-FY27)
SG&A % revenue	→	11.4%	High single digit (FY25)	High single digit (FY25-FY27)
R&D (net) % revenue	→	9.5%	High single digit to low teens (FY25)	High single digit to low teens (FY25-FY27)
Operating margin %	→	26.6%	26-31% (FY21-FY25)	26-31% (FY25-FY27)
Capex	→	€101 million	Old: €60 - €100 million New: €100 - €180 million (FY25)	€100 - €180 million (FY27)
Effective Tax Rate	→	17.7% ⁽³⁾	High teens to low twenties (FY25)	High teens to low twenties (FY25-FY27)
Total working capital	→	62 days	55-75 days (FY25)	55-75 days (FY25-FY27)

1 Refers to normalized numbers excluding purchase price allocation adjustments

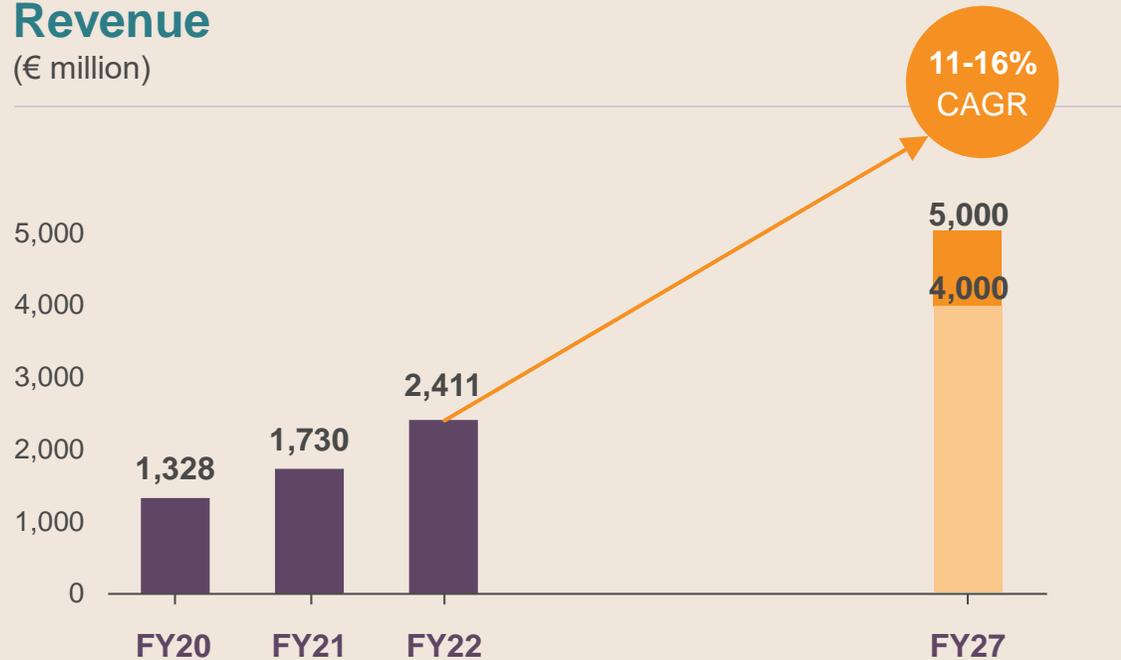
2 Refers to constant currencies

3 Effective tax rate excludes impairment on, and net income of our investment in ASMPT

Revenue target of €4.0 – €5.0B, outgrowing WFE market

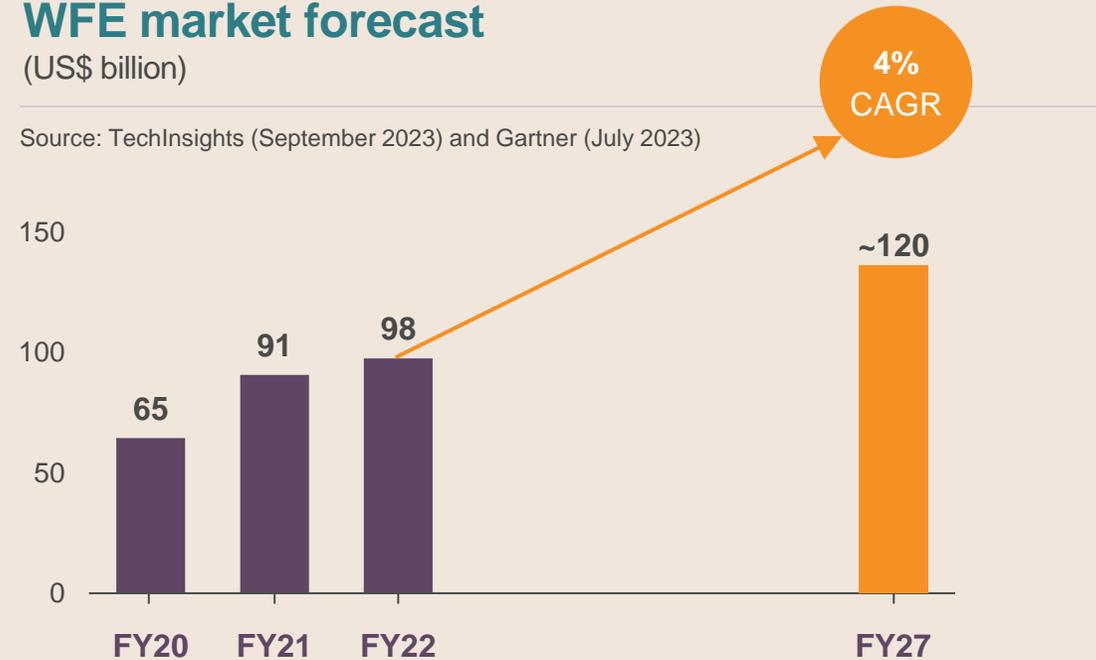
Revenue

(€ million)



WFE market forecast

(US\$ billion)



→ Growth drivers for period FY23 – FY27:

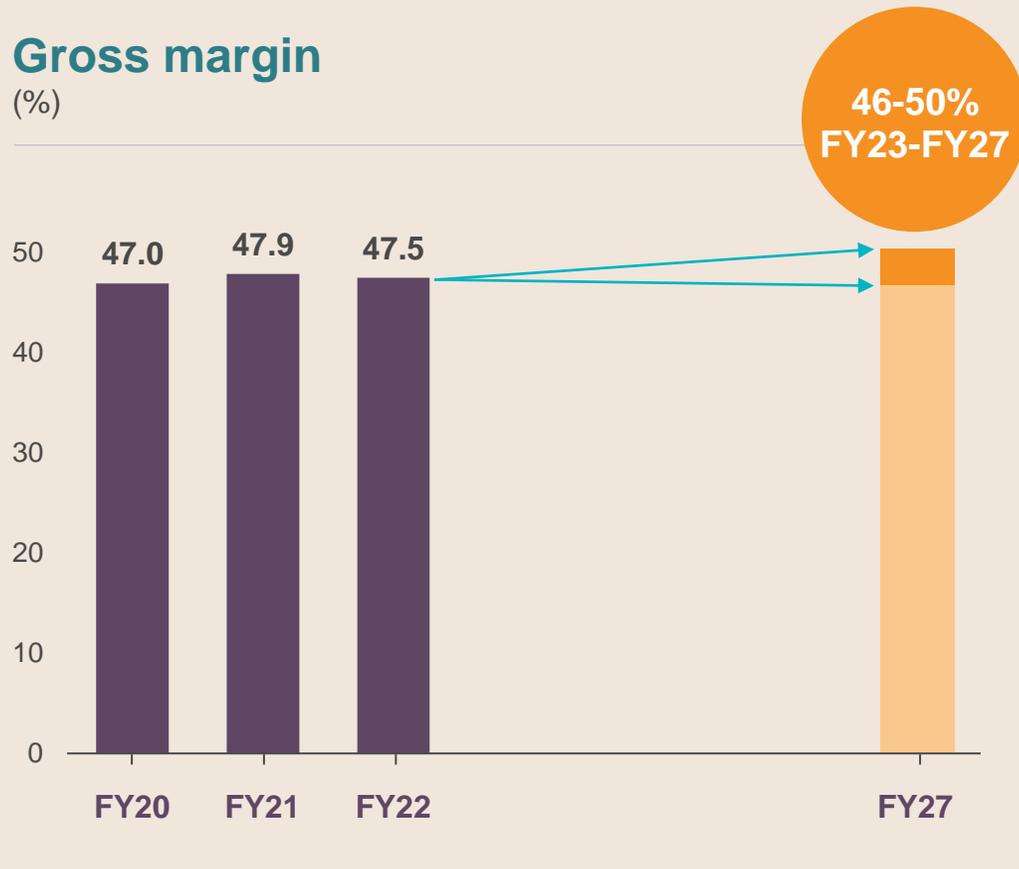
- Growth of end markets
- Growth and composition of WFE market
- ALD > Maintain market leadership in logic/foundry and grow memory
- Epi > Gain market share
- Spares and services > Grow outcome-based services
- PECVD and Vertical Furnaces > Selected growth

→ ASM expects to outgrow the WFE market over the next five years

Sustained healthy gross margin to support investment in technology and innovation

Gross margin

(%)



→ Factors affecting gross margin:



Sales price increase



Application mix



Cost efficiencies:

- Supply chain improvements
- Value engineering



Operating leverage

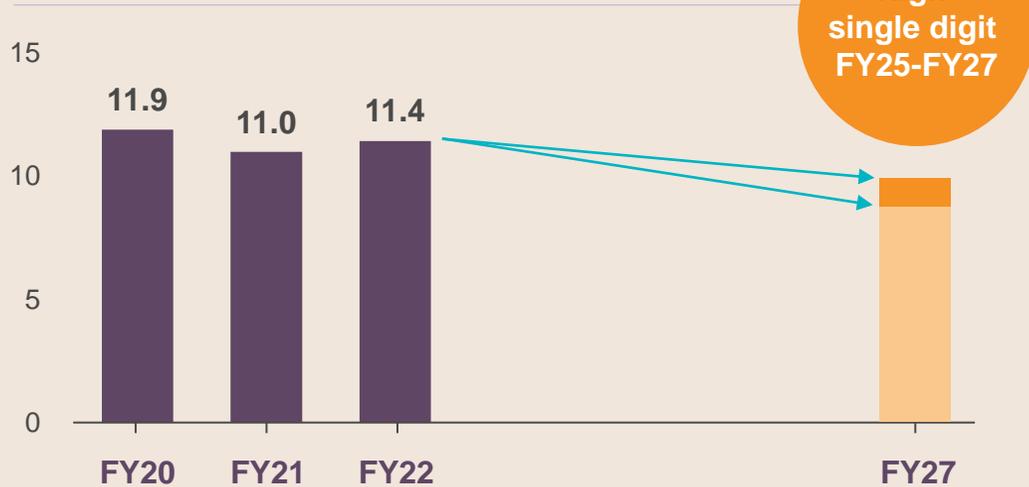
Negative impact from increased inflationary pressure

Initial negative impact from underutilized expanded manufacturing

Projected gradual decrease of SG&A as % of revenue and increased investments in R&D

SG&A

(as % of revenue)



Net R&D expenses

(as % of revenue)



→ SG&A as % of revenue gradually decrease

- Benefiting from operating leverage due to revenue growth and targeted productivity improvements
- Investments in SG&A to level off compared to step up in 2021 and 2022

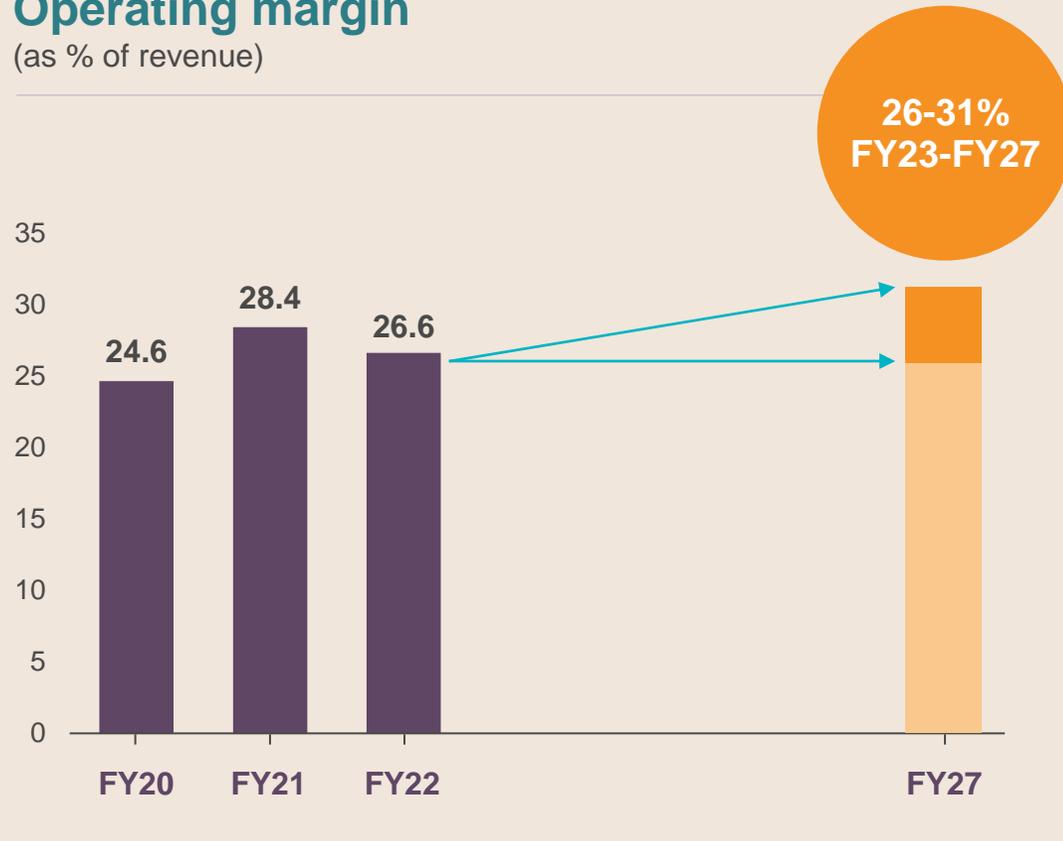
→ High-single digit to low teens depending on revenue growth

- R&D for coming inflections in logic/foundry and memory segments
- Lab expansions & equipment upgrades
- Continuous investments in R&D headcount
- Gross R&D investment is typically 2-3% higher than net investment

Operating margin guidance maintained with upward trend expected in outer years

Operating margin

(as % of revenue)



→ Key drivers for operating margin:

- Gross margin development
- SG&A operating leverage
- Productivity improvement

Tax rate to gradually increase over time

Effective tax rate¹ (ETR, %)



→ **ETR gradually increasing to high teens/low twenties:**

- The allocation of taxable profits moves in sync with ASM's business developments
- Global minimum taxation aims at a minimum 15% tax level per country and may affect tax incentives as of 2024
- Global business and tax developments are continuously monitored gauging their potential ETR impact

¹ETR refers to effective tax rate excluding ASMPT

Increased working capital and capex to support growth

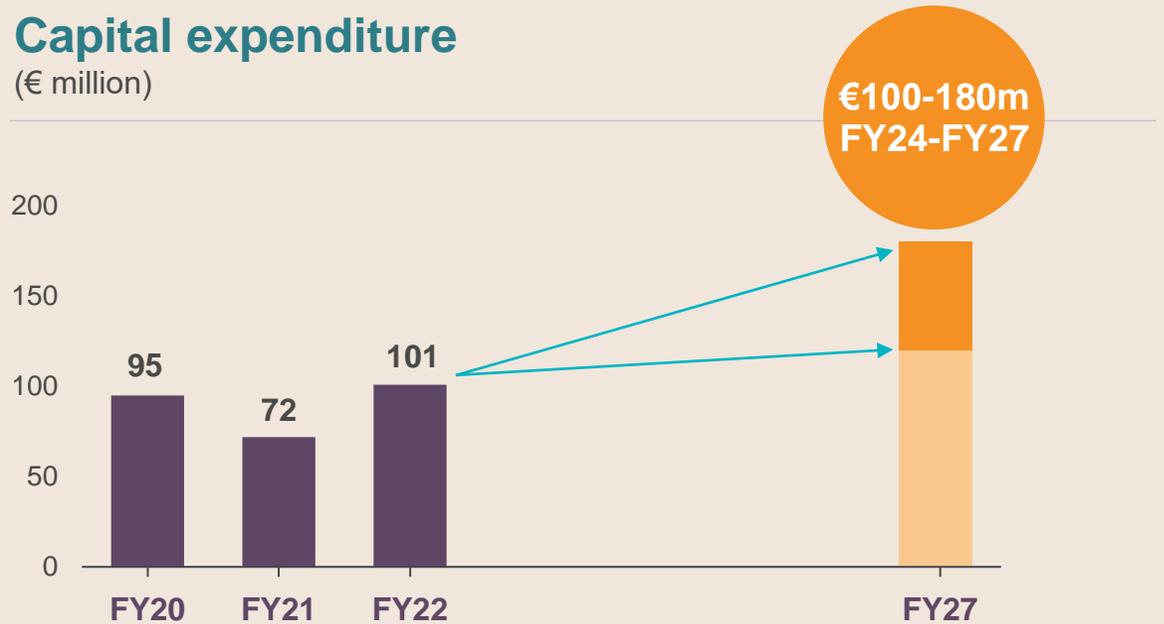
Working capital days



→ We expect working capital days to range from 55-75 days

Capital expenditure

(€ million)



→ Future capital expenditure spend increased mainly related to ongoing expansion ranging from €100 - €180 million annually

- Phoenix land purchase in 2022 for expansion and consolidation of R&D, Service and NPI manufacturing
- Increased investments in R&D and manufacturing in South Korea, future R&D expansion in Europe
- Continued investments in products and metrology to support innovation
- Capex 2023 is expected to be €150 - €200m

Capital allocation strategy unchanged

Priority 1:
Invest to support
future growth

- R&D
- Capex
- M&A

Priority 2:
Maintain a strong
balance sheet

- Minimum cash
position around
€600 million

Priority 3:
Sustainable dividend
payments

Priority 4:
Return of excess
cash to
shareholders
through share
buybacks

Net Zero targets



ASM targets Net Zero by 2035

ASM's strategy addresses these challenges

**Semi technology
critical to
addressing climate**



**Innovations
increase compute
power & efficiency**



**The industry must
accelerate its
decarbonization**



**~40% of emissions
are upstream of
device makers**



Target Net Zero by 2035



SBTi verified ASM Net Zero 2035 target in July 2023

- SBTi verified Net Zero target



Target 100% renewable electricity (RE) by 2024

- Already 100% RE at 5 key sites



Scope 3 use of our products is the majority of our GHG footprint

- Product sustainability fully incorporated in the product development and improvement process



Originator, founding member, and chair of Semiconductor Climate Consortium

- Recognized through inaugural SEMI Sustainability Leadership Award at SEMICON West 2023

Key near-term Net Zero actions

<p>Scope 1 and 2 <0.1%</p>	<p>→ Scope 1 and 2 emissions (<1% of footprint)</p> <ul style="list-style-type: none"> • Continue RE sourcing to reach 100% by 2024 – estimate 90% absolute Scope 1 and 2 reduction • Q3 2023 energy audits of key sites to maximize energy efficiency
<p>Scope 3 >99%</p>	<p>→ Downstream emissions – Customers (59%* of footprint)</p> <ul style="list-style-type: none"> • Focus on product sustainability innovation • Engage with key customers to collaboratively advance
	<p>→ Upstream emissions – Suppliers (33%* of footprint)</p> <ul style="list-style-type: none"> • Facilitating renewable energy access in our supply base • Since 2022 key suppliers required to disclose through CDP Supply Chain, 2023 ≥81% disclosed • Collaborate with suppliers to advance sustainability

← Engaged in Semiconductor Climate Consortium for all scopes →

* Based on 2022 emissions

Key takeaways

1

ASM Growth through Innovation strategy is creating significant value for all stakeholders.

2

ASM increases 2025 mid-term revenue targets to €3.0 - €3.6 billion with target range of gross and operating margins maintained.

3

ASM provides new updated mid-term guidance for 2027:

- ASM targets revenue of €4.0 - €5.0 billion, representing a 2022-2027 CAGR of 11%-16%
- Operating margin target ranging from 26% to 31% with upward trend expected in outer years
- Annual capex of €100 - €180 million (in 2024-2027) to support growth.

4

Capital allocation policy unchanged. Investment in growth remains the key priority with excess cash returned to shareholders.

5

Plan to achieve Net Zero target by 2035 verified by SBTi.