

# Investor Day 2025

We explore atoms,  
so others can explore space



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**Hichem M'Saad**  
CEO



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Corporate VP, Technology  
Innovation and Market Research



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Key Product Unit Head



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CFO







# Forward-looking statements

## Cautionary note regarding forward-looking statements

This presentation contains “forward-looking statements”. All verbal and written statements in ASM’s Investor Day 2025 presentations and Q&A, 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 ASM’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. ASM 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.

# Atoms to action: Our growth strategy to 2030

**Hichem M'Saad**

CEO





# Key takeaways



## 1 Past strategic objectives

ASM delivered on its strategic objectives. Outgrew WFE market. Maintained and expanded ALD and Epi share in transition from FinFET to GAA. Grew spares and services business.

## 2 ALD product portfolio

Many new ALD products, including clustered multi-process applications like area selective deposition (ASD), are in production at the 2nm GAA node.

## 3 Upcoming technology inflections

Well positioned in ALD and Epi for upcoming technology inflections in GAA (2<sup>nd</sup>/3<sup>rd</sup> Gen & CFET) and DRAM (4F<sup>2</sup> & 3D-DRAM). AI/ML common platform to accelerate innovation and ensure manufacturing excellence.

## 4 Advanced packaging

Advanced packaging (AP) is another mid-term growth area. Applications in AP will benefit from chemistry innovation and interface engineering where ASM excels.

## 5 Scaling for growth

Scaling the company through focus on talent development, product commonality, flexible manufacturing footprint, and upgraded ERP/PLM digital foundation for improved operational efficiency.

## 6 Sustainability fully integrated

Sustainability fully integrated into our way of working leading to lower total cost of ownership (TCO) for our customers.

## 7 Target

Targeting 2030 revenue > €5.7B, operating margin >30% with free cash flow > €1B.

Note: All numbers presented throughout this presentation are adjusted numbers excluding purchase price allocation adjustment

# From vision to value: Our journey since 2021





# Strategic objectives

2021/2023

1

**Maintain leading ALD share in logic/foundry, expand in memory**

2

**Increase Epi market share**

3

**Grow selectively in vertical furnace and PECVD niches**

4

**Grow spares and services business**

5

**Accelerate progress in sustainability**

6

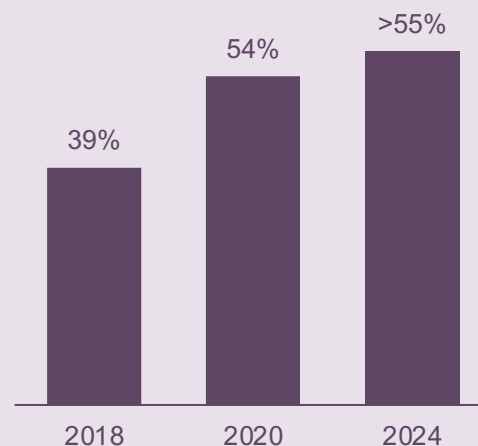
**Drive continued strong financial performance**

# Maintain leading ALD share in logic/foundry and expand in memory

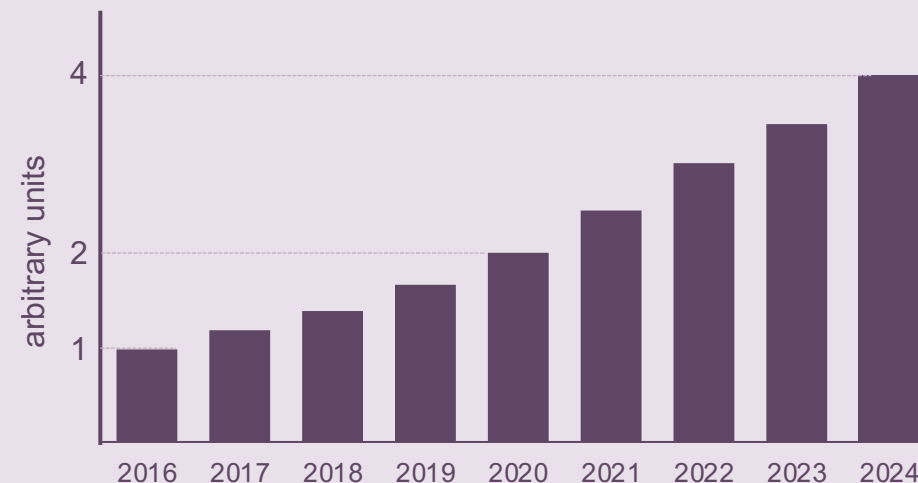


ALD market share increased to >55% in 2024

## ALD market share



## ALD installed base (ALD reactors)



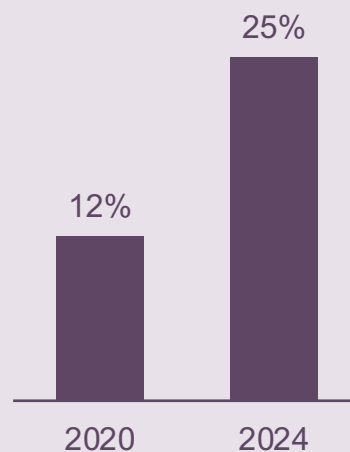
Source: ASM internal analysis and TechInsights



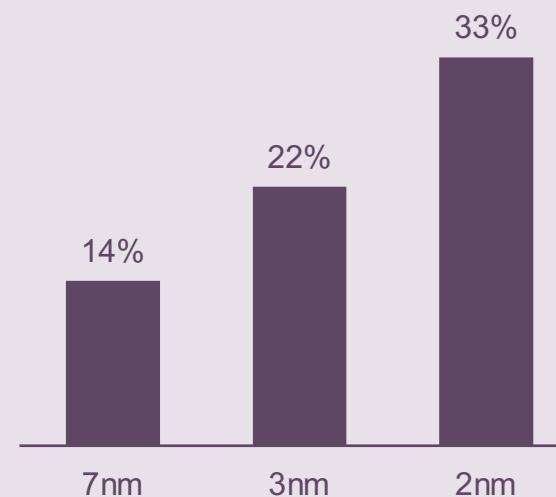


Leading-edge  
Epi share  
increased to  
25% in 2024

Leading-edge  
Epi market share



Share of ASM layers in leading-edge  
logic/foundry



Source: ASM internal analysis

# Grow selectively in vertical furnace (VF) and PECVD niches



## Expanded VF position in power/wafer/analog

VF sales driven by new products, and, in 2022/2023, by cyclical market upturn in power/wafer/analog

ASM VF revenue  
(indexed to 2020)



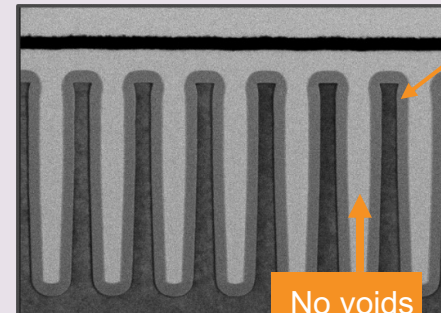
ASM PECVD revenue  
(indexed to 2020)



Source: ASM internal analysis

## New growth opportunities in PECVD

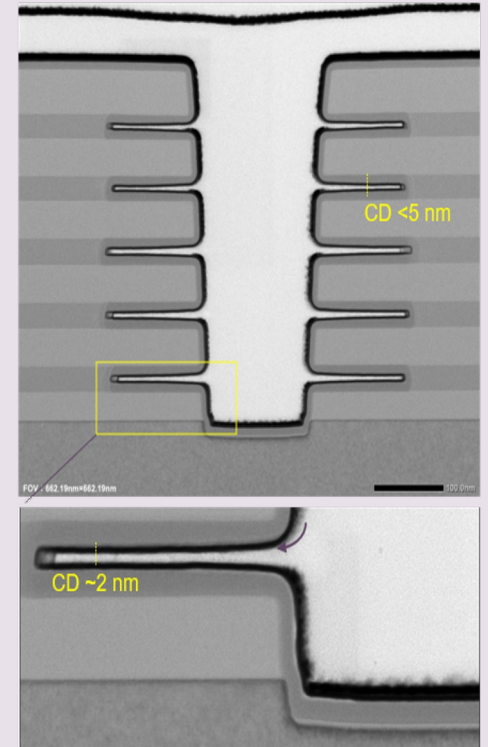
PECVD flowable carbon



Good planarity

No voids

Lateral CD <5nm

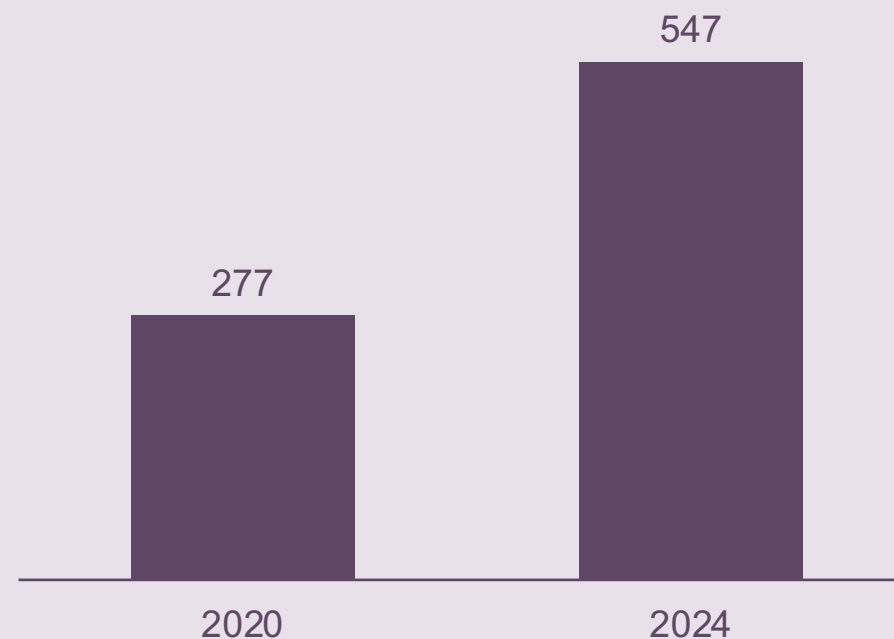






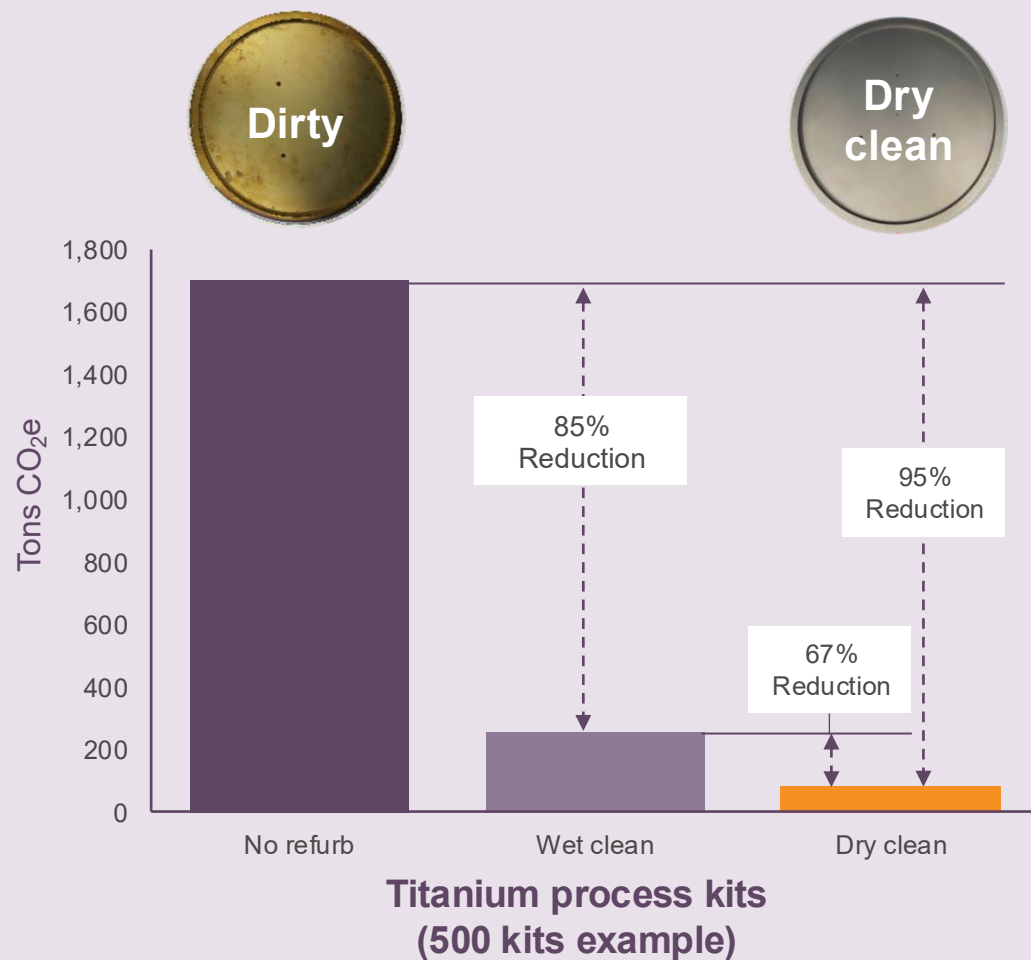
19% CAGR service revenue growth from 2020 to 2024 through successful release of Outcome-based products

Spares and Services business revenue  
(€M)

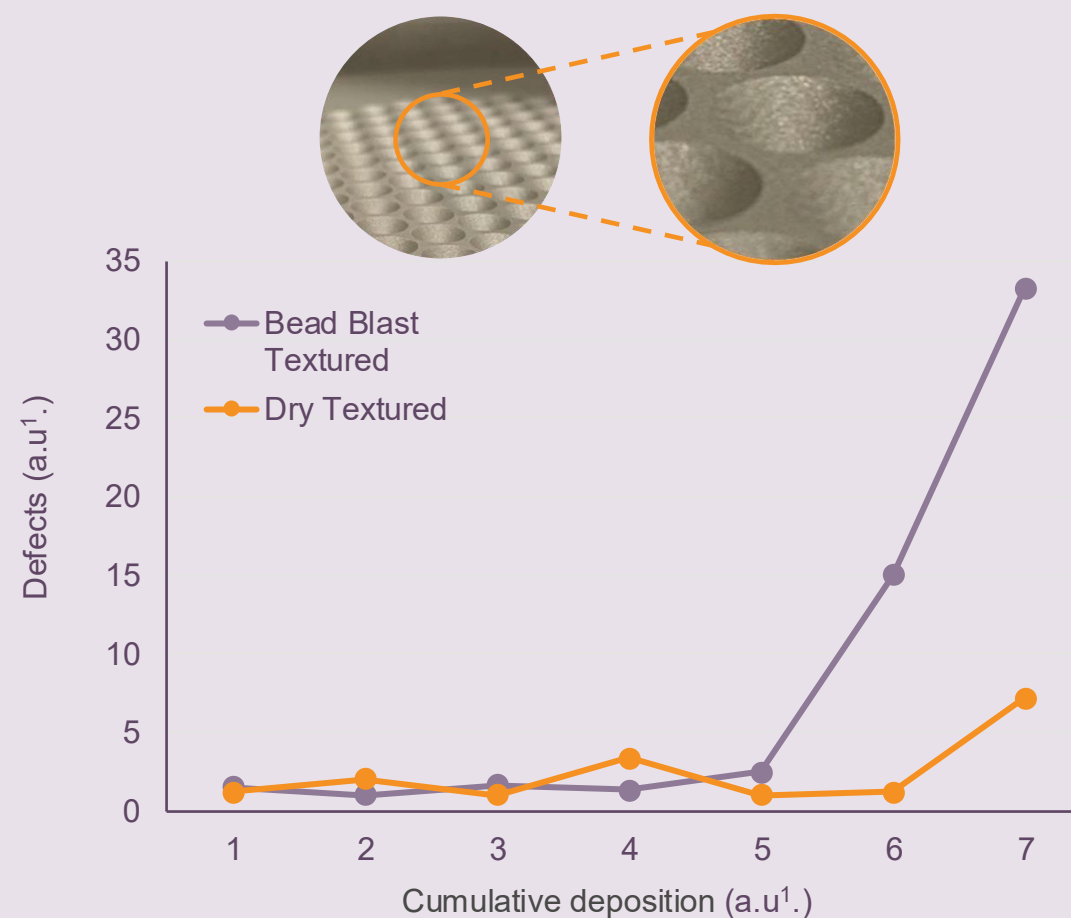




## Cost reduction and sustainability



## Performance enhancement and sustainability



1) Arbitrary units



## Recognized leader in sustainability

### CDP Climate Change and Water Security

A / A



↑ First time on A list

### RE100

Best Newcomer  
Award 2024

RE 100

Joined RE100 in 2023

### Sustainalytics (Risk rating)

7.6

(negligible risk)



↑ Improved from 2024

### TIME

TIME recognition  
world's most  
sustainable  
companies 2025

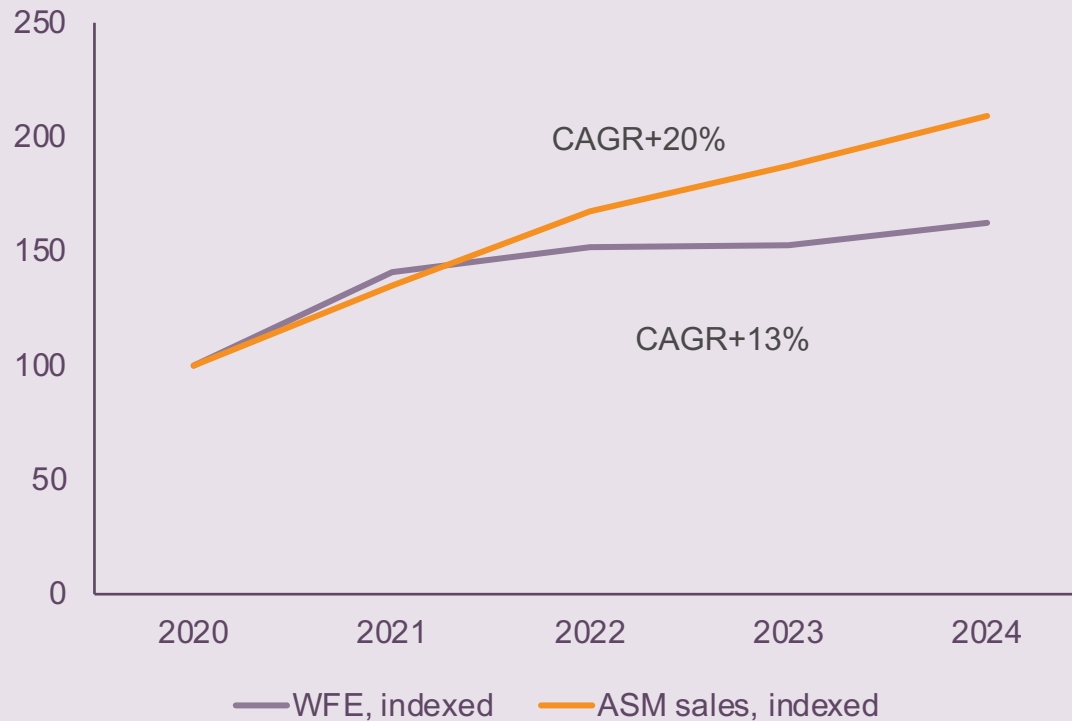
TIME

ASM featured in TIME's global ranking



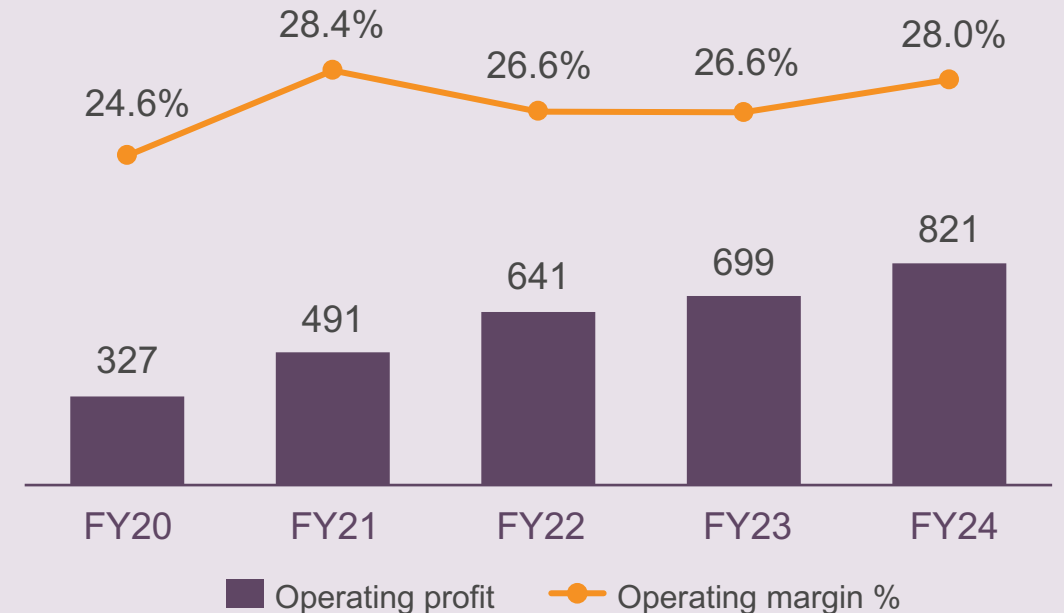
## ASM equipment growth vs. WFE market growth

(indexed to 2020)



## Operating profit and operating margin

(€ M and %)



Source: WFE market data: TechInsights March 2025

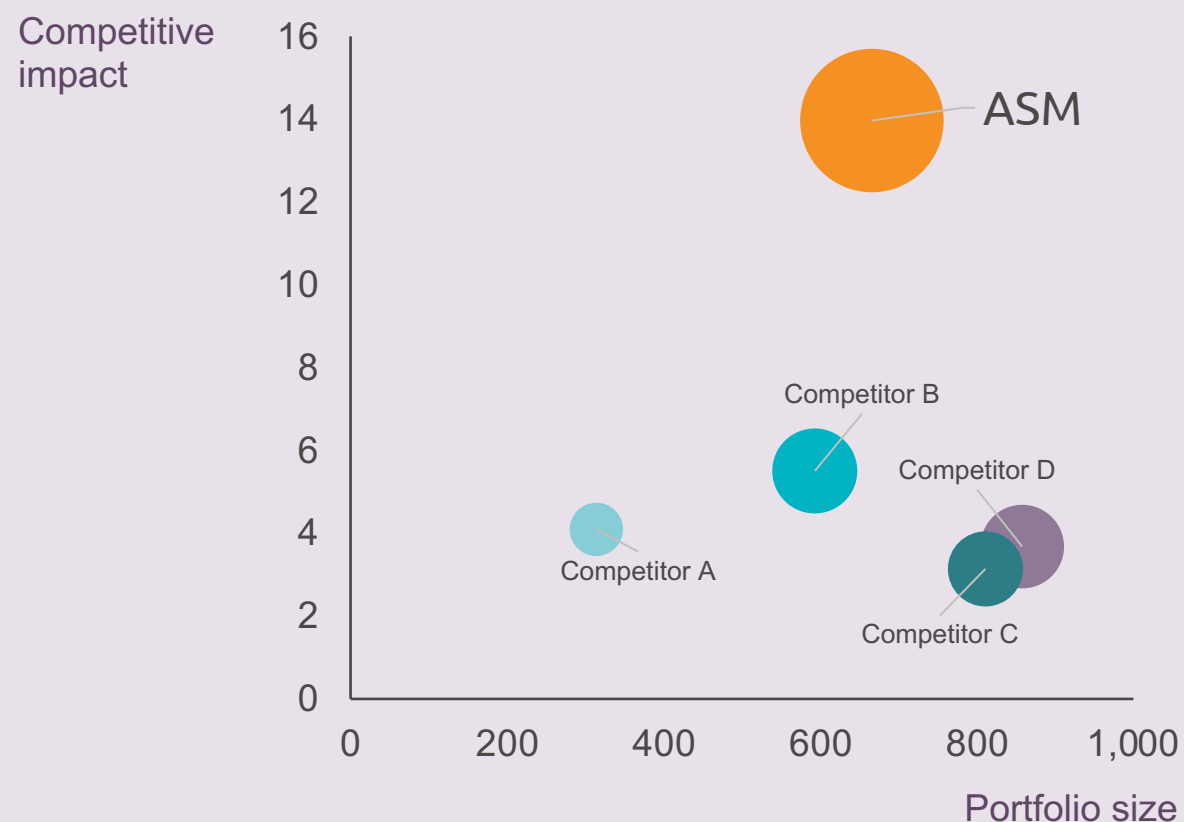


# Ahead in every layer

# Strongest patent portfolio in ALD



Continuing the rich history of chemistry and process innovation, with a long history in ALD



Source: LexisNexis® PatentSight® (November 2024), for more information, please visit <https://www.lexisnexisip.com/resources/atomic-layer-deposition-thin-layers-are-a-big-thing/>

# Strong global footprint close to all customers





# Continued investment in manufacturing and innovation



## Korea Dongtan 2

Grand opening Q4, 2025

Expanded manufacturing and innovation capabilities. Anchoring excellence through breakthroughs and new possibilities













# Continued investment in Research & Development



## US Scottsdale

Opening Q1, 2027

Bringing core research, technology development, design and engineering capabilities all under one roof













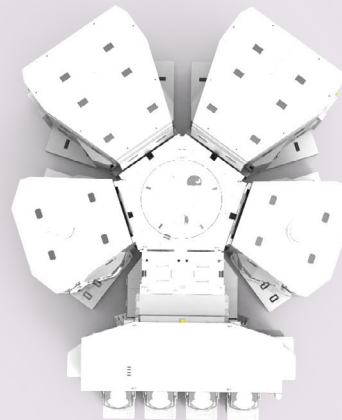
# Extending our flagship XP8 platform to advanced ALD and CVD applications



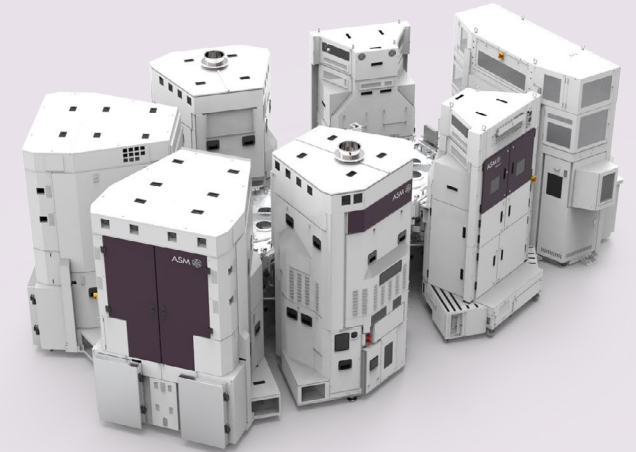
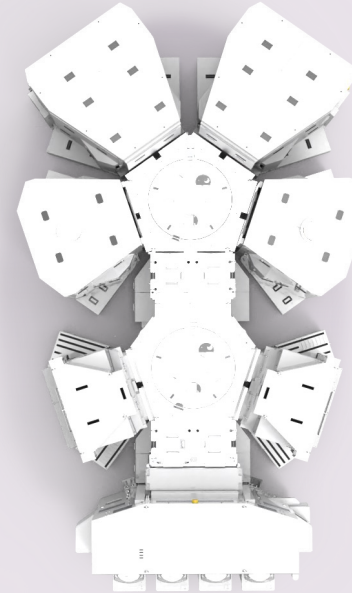
## XP8E®

XP8E® common platform allows the integration of processes like surface cleans and modification, selective etch, treatments etc to enable advanced ALD and CVD applications

XP8®



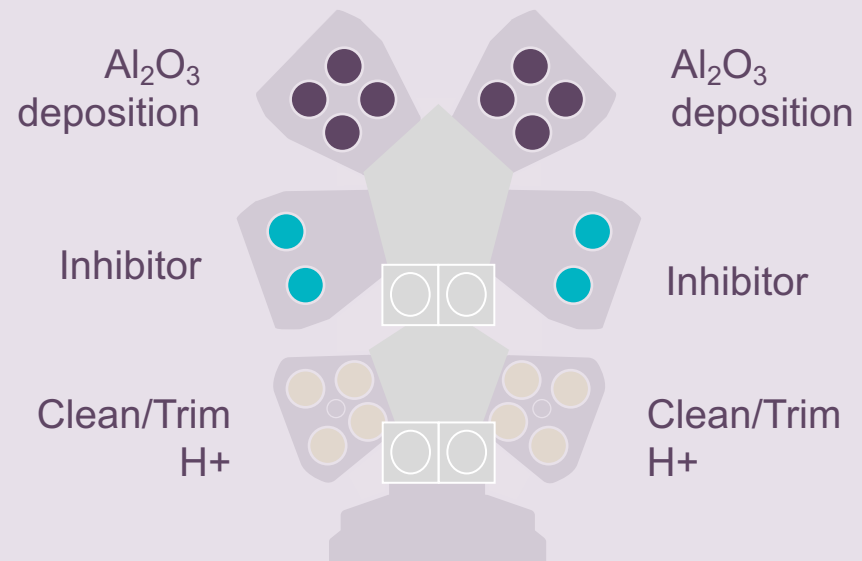
XP8E®



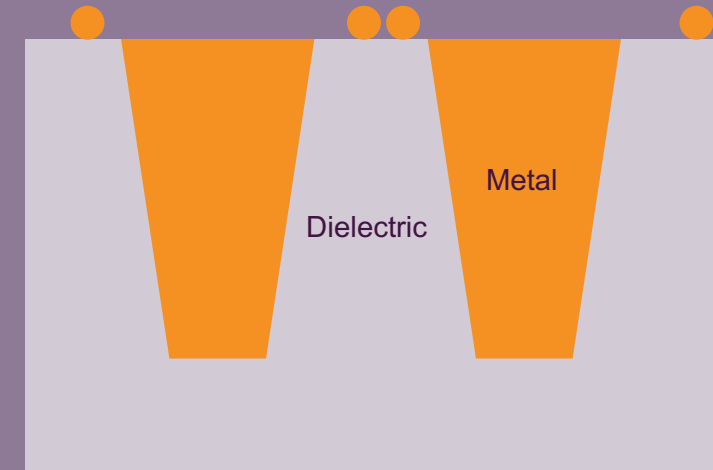


# Area selective deposition: Dielectric on dielectric

XP8E®



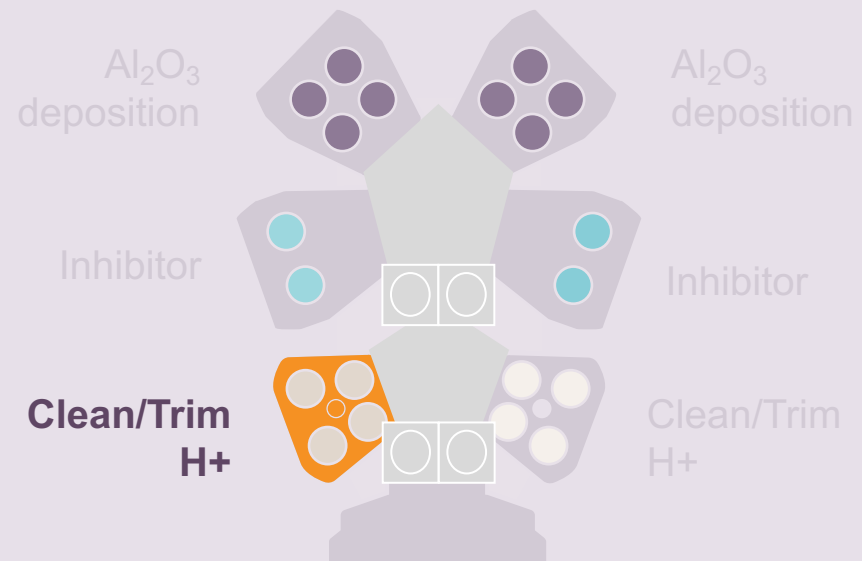
Incoming wafer





# Area selective deposition: Dielectric on dielectric

XP8E®



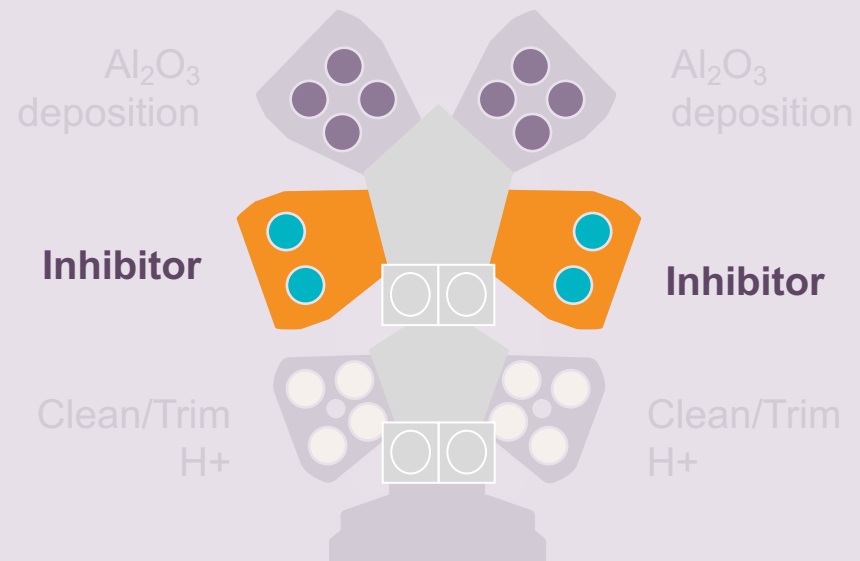
Surface  
clean





# Area selective deposition: Dielectric on dielectric

XP8E®



Selective deposition of ALD inhibition layer

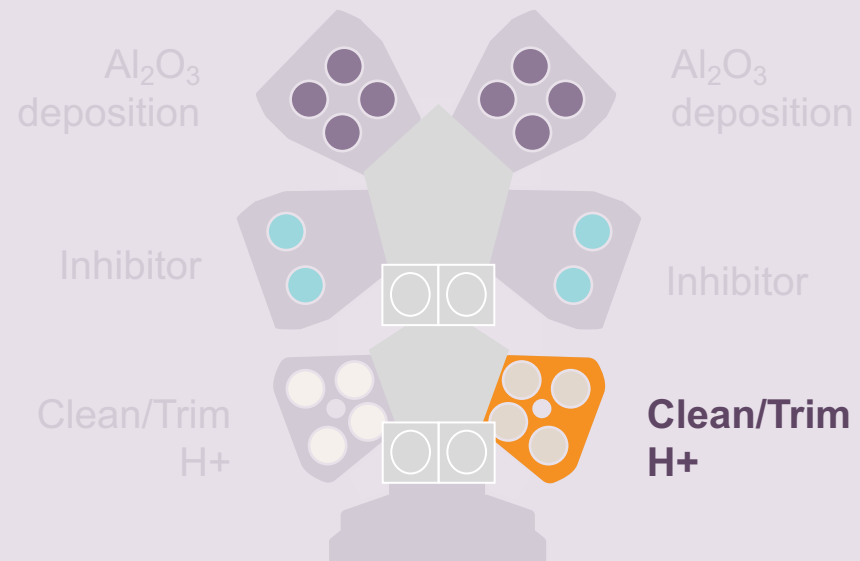






# Area selective deposition: Dielectric on dielectric

XP8E®



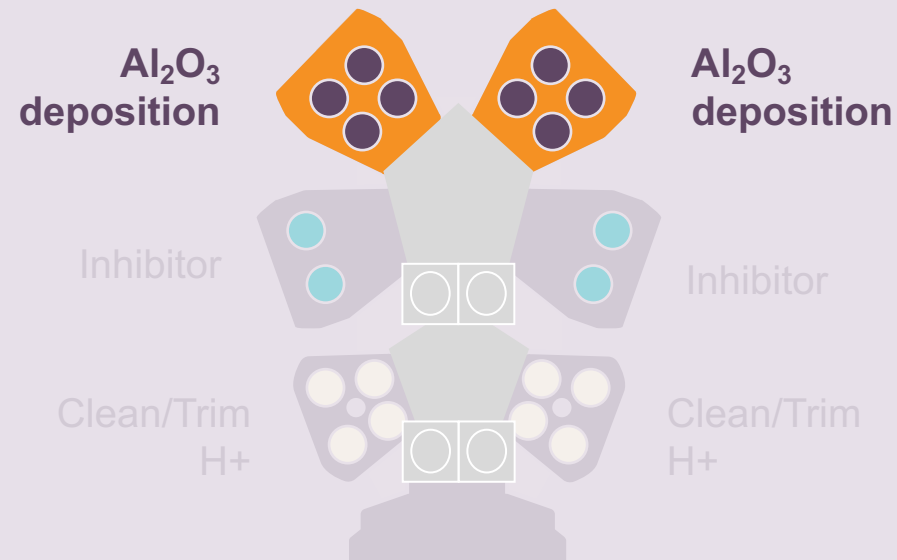
Trim





# Area selective deposition: Dielectric on dielectric

XP8E®



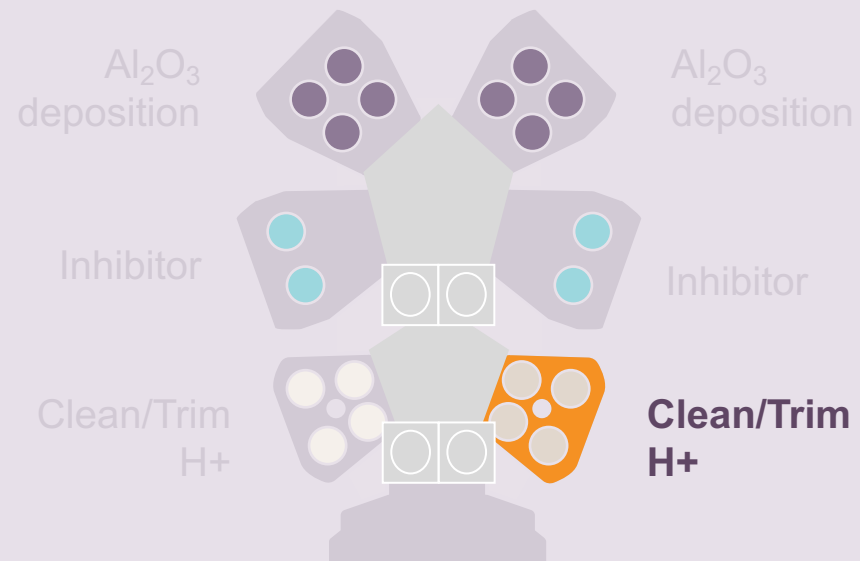
Al<sub>2</sub>O<sub>3</sub> deposition



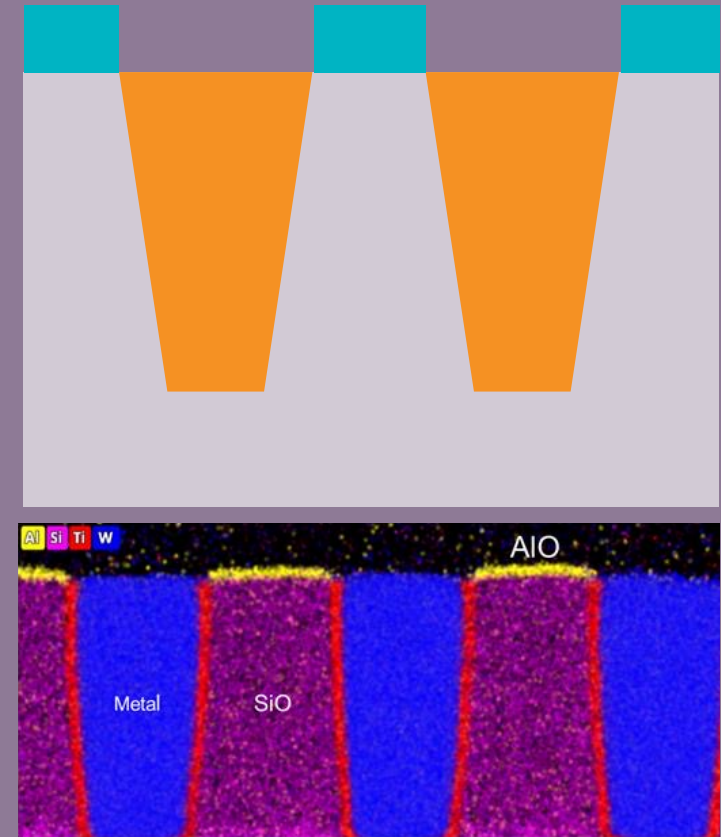


# Area selective deposition: Dielectric on dielectric

XP8E®



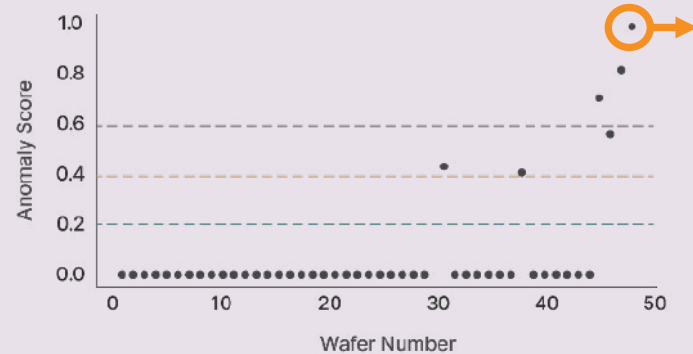
Remove  
inhibition  
layer



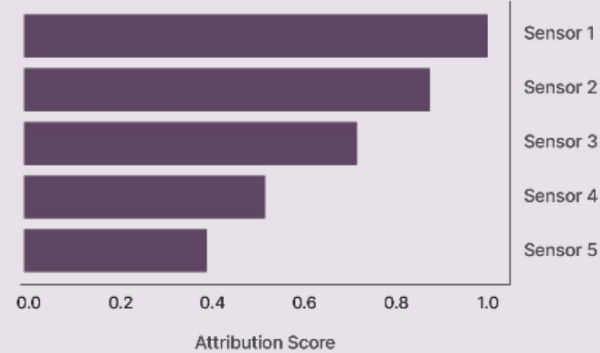


# AI/ML in HVM: Anomaly detection provides insight into process performance

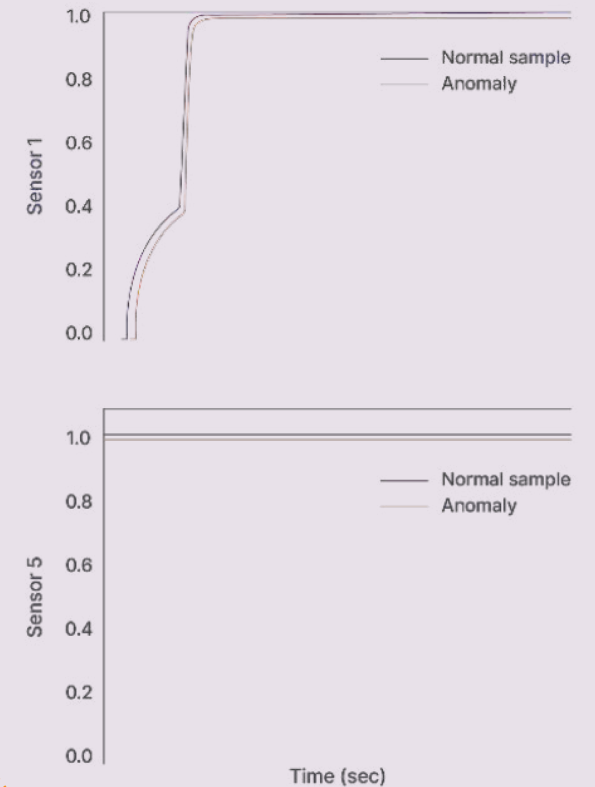
## Real-time anomaly detection monitoring



## Identify top 5 contributors to an anomaly



## Ability to detect subtle changes in sensors







# Strategic long-term partnerships with leading universities and research institutions





# Winning customer trust in HVM

## Customer awards



**SAMSUNG**  
Outstanding  
Collaboration  
2024





# Scaling the future: ASM's 2030 technology trajectory





# Looking forward to 2030

## Market

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Driven by high-performance computing and memory for AI

## 3D scaling

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3D vertical scaling in logic (GAA in 2025, CFET in 2031) and DRAM (4F<sup>2</sup> in 2028 and 3D-DRAM in 2032+)

## Device scaling and DTCO

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Channel Epi, dipoles for multi-V<sub>t</sub>, new metal interconnects, contacts, and DTCO (backside power, MIMCAP) becoming key drivers

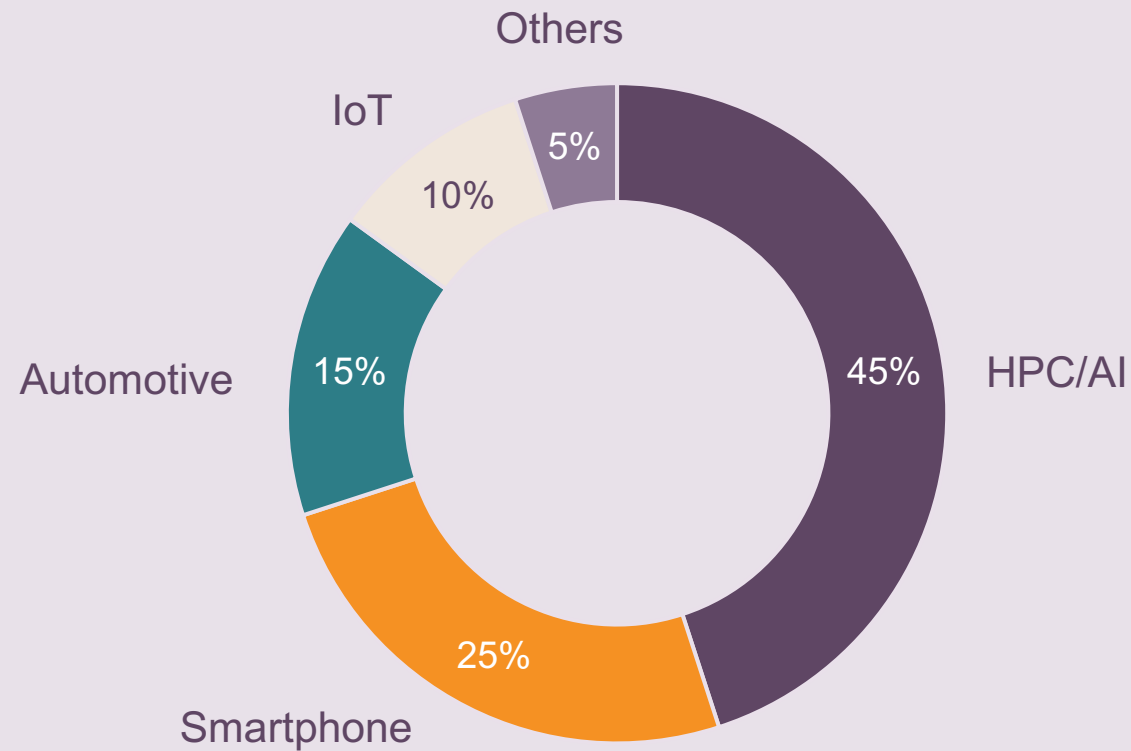
## Advanced packaging

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A key enabler and growth opportunity



# Evolving technology landscape providing new growth areas



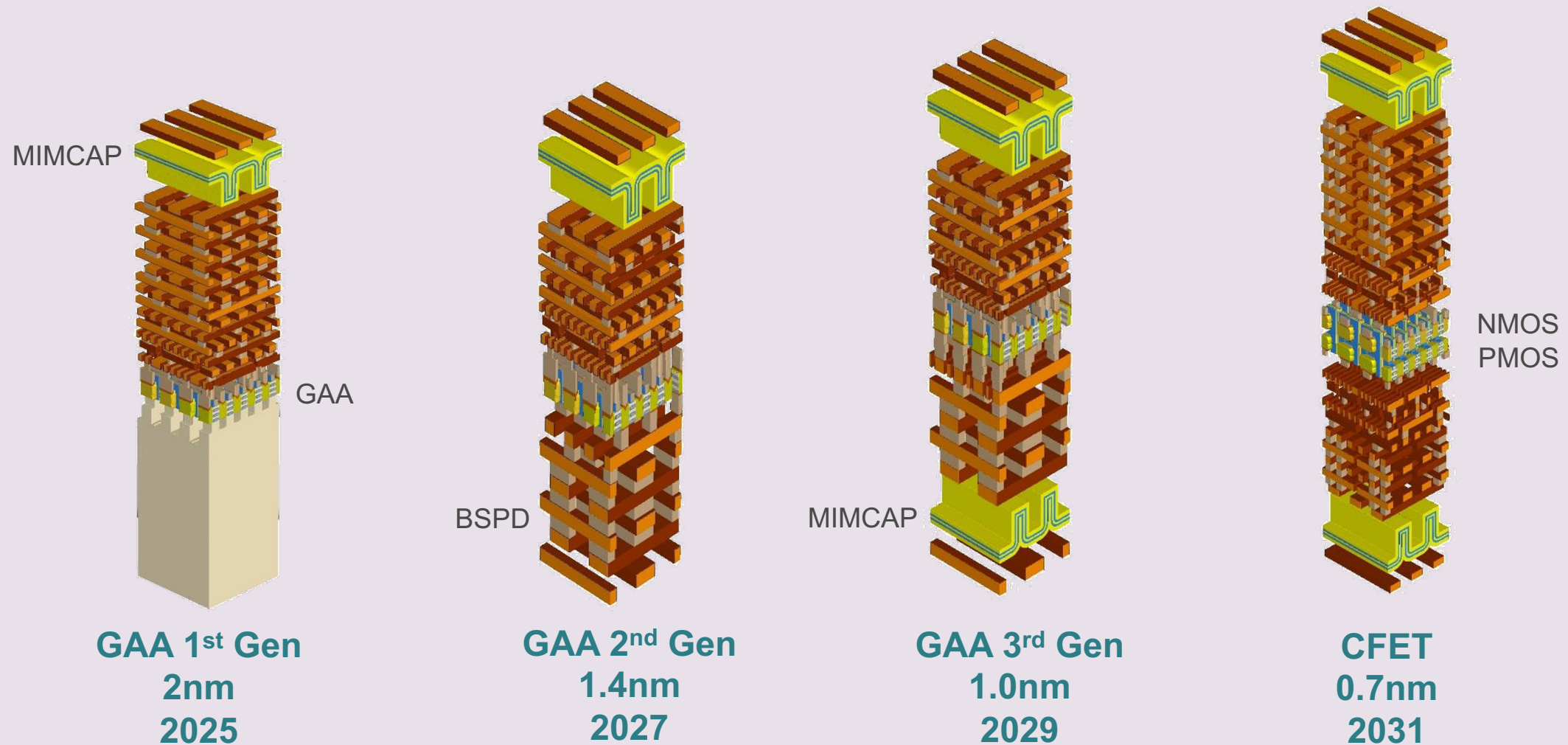
**>70%** of US\$1 trillion semiconductor market in 2030 driven by leading-edge logic and memory technologies

Source: TSMC North America Technology Symposium – April, 2025





# Evolving technology landscape providing new growth areas





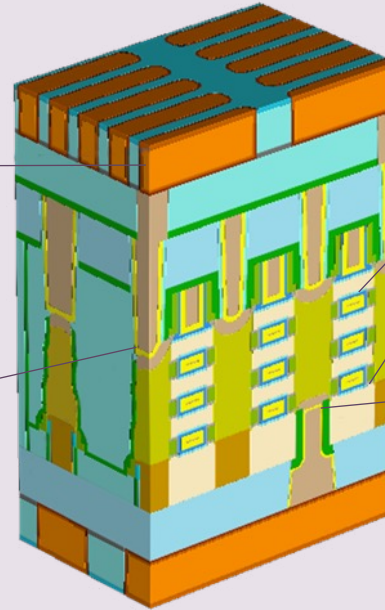
# Leading position in transistor (FEOL)

## BEOL

- PVD/CVD to ALD metal gapfill

## Contacts

- ALD silicides
- ASD



## Transistor

- High-K gate dielectric
- Dipoles
- Work function metals
- Patterning materials
- Dielectric gapfill

## Backside power:

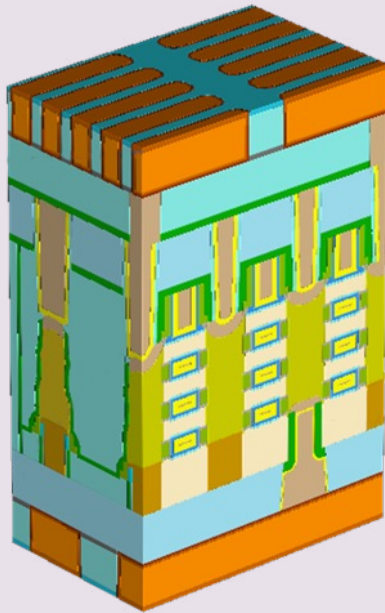
- Liners
- ALD metal gapfill

**ASM internal emulation of  
GAA structure with  
backside power**

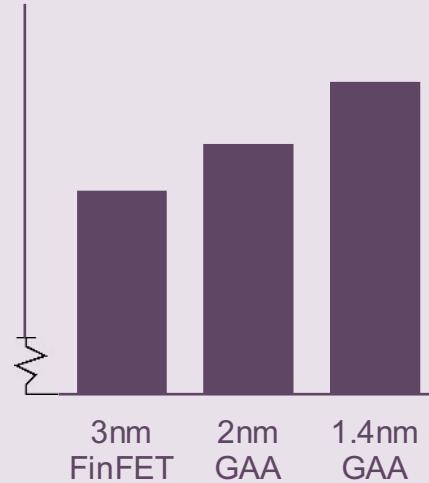
**We're in the heart of every device**



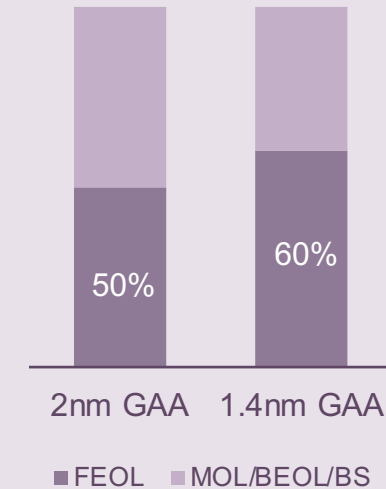
# FEOL: highest number of ALD layers and growth



## SW ALD layer count by node



## Mix of ALD layers



We're in the heart of every device

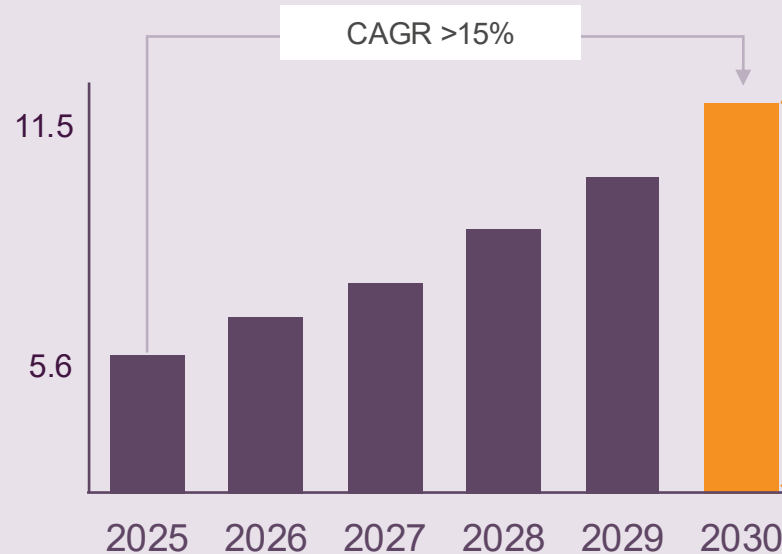




# Advanced packaging (AP): Convergence of FE and BE processing

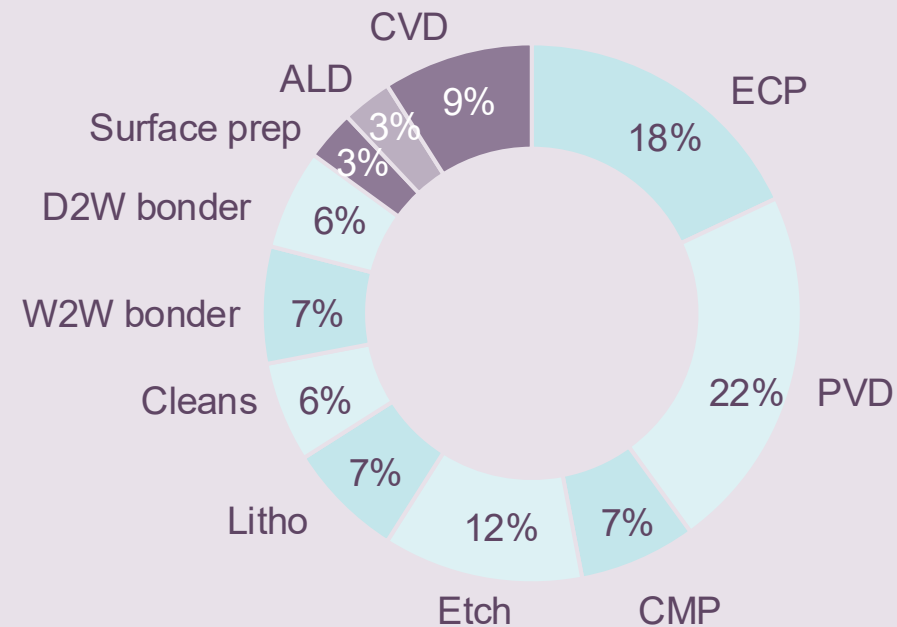
## AP WFE market

(US\$B)



## AP total available market (TAM) 2030

(US\$11.5B)



Double our SAM to >30% of the TAM by 2030

Source: Technights and ASM analysis

# Leading ahead to what's next: The road to 2030

# Growth through Innovation strategy for the next 5 years



## Strategic objectives

1

**Maintain leading share in ALD for logic/foundry and grow share in DRAM/HBM memory**

**How?**

AI/ML enabled common platform coupled with novel chemistries to accelerate innovation and ensure manufacturing excellence

2

**Continue to grow in Epi**

**How?**

Capture new Epi inflections in logic/foundry and DRAM

3

**Grow applications in advanced packaging market**

**How?**

Grow organically in PECVD, ALD and surface prep, leveraging our strength in chemistry innovation and surface engineering

4

**Grow high value Outcome-based services**

**How?**

Innovate in environmentally friendly solutions while delivering greater performance and value to our customers

5

**Accelerate progress in sustainability**

**How?**

Focusing on chemical effectiveness and reduced precursor consumption

6

**Drive operational excellence, flexible footprint and strong financial performance**

**How?**

Targeting revenue >€5.7B and operating margin >30% by 2030



# Key takeaways



## 1 Past strategic objectives

ASM delivered on its strategic objectives. Outgrew WFE market. Maintained and expanded ALD and Epi share in transition from FinFET to GAA. Grew spares and services business.

## 2 ALD product portfolio

Many new ALD products, including clustered multi-process applications like area selective deposition (ASD), are in production at the 2nm GAA node.

## 3 Upcoming technology inflections

Well positioned in ALD and Epi for upcoming technology inflections in GAA (2<sup>nd</sup>/3<sup>rd</sup> Gen & CFET) and DRAM (4F<sup>2</sup> & 3D-DRAM). AI/ML common platform to accelerate innovation and ensure manufacturing excellence.

## 4 Advanced packaging

Advanced packaging (AP) is another mid-term growth area. Applications in AP will benefit from chemistry innovation and interface engineering where ASM excels.

## 5 Scaling for growth

Scaling the company through focus on talent development, product commonality, flexible manufacturing footprint, and upgraded ERP/PLM digital foundation for improved operational efficiency.

## 6 Sustainability fully integrated

Sustainability fully integrated into our way of working leading to lower total cost of ownership (TCO) for our customers.

## 7 Target

Targeting 2030 revenue > €5.7B, operating margin >30% with free cash flow > €1B.

Note: All numbers presented throughout this presentation are adjusted numbers excluding purchase price allocation adjustment

# From layers to landscape: Opportunities and growth through technology inflections

**Vamsi Paruchuri**

Corporate VP, Technology Innovation and  
Market Research

# Key takeaways



## 1 Secular growth trends

Secular growth trends are intact for US\$1T semiconductor market by 2030 mainly driven by AI and related leading-edge logic and DRAM technologies.

## 2 Technology scaling increasingly enabled by materials and vertical structures

Logic and DRAM technology scaling is increasingly dependent on materials and adoption of more complex 3D structures, necessitating more ALD and Epi processes.

## 3 ALD is expected to outgrow the WFE market

The market for ALD is expected to outgrow the WFE market, to a range of US\$5.1-6.1 billion by 2030<sup>1</sup> reflecting a CAGR of 9% to 13%.

## 4 The Si Epi market is expected to grow

The Si Epi market is expected to grow to a range of US\$2.5-3.2 billion by 2030<sup>1</sup> reflecting a CAGR of 9% to 13%.

## 5 ASM benefits from significant SAM increase in GAA 2<sup>nd</sup> gen and with upcoming DRAM inflections

ASM remains well-positioned to benefit from significant ALD & Epi SAM increases:

- US\$450M - 500M nodal SAM increase from GAA 2nm to GAA 1.4nm in logic/foundry
- US\$400M - 450M nodal SAM increase with DRAM cell transition from 6F<sup>2</sup> to 4F<sup>2</sup> and CMOS peri transition from planar to FinFET

## 6 Advanced packaging provides additional growth

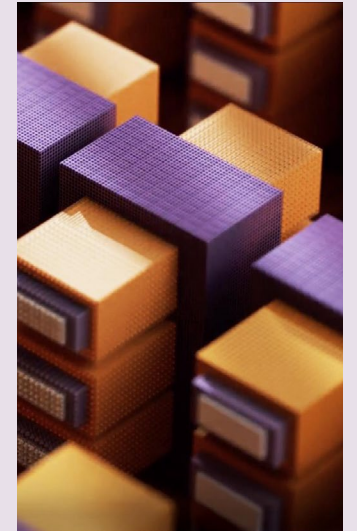
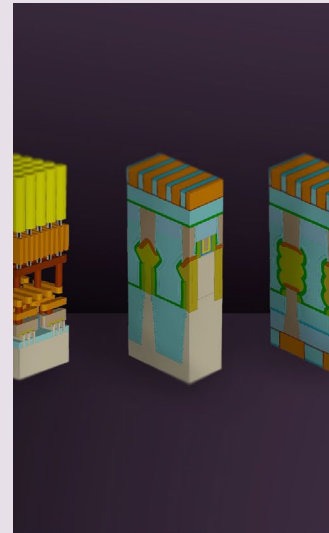
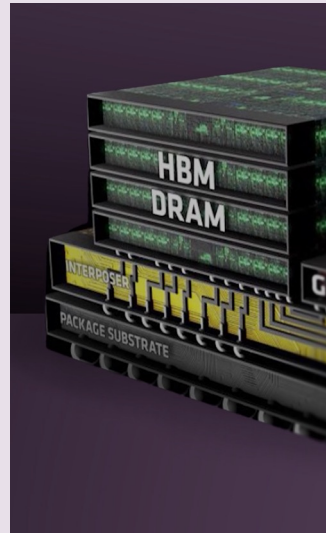
Advanced packaging (AP) is another mid-term growth area. Applications in AP will benefit from chemistry innovation and interface engineering where ASM excels.

1) 2030 wafer fab equipment (WFE) investments at US\$155B



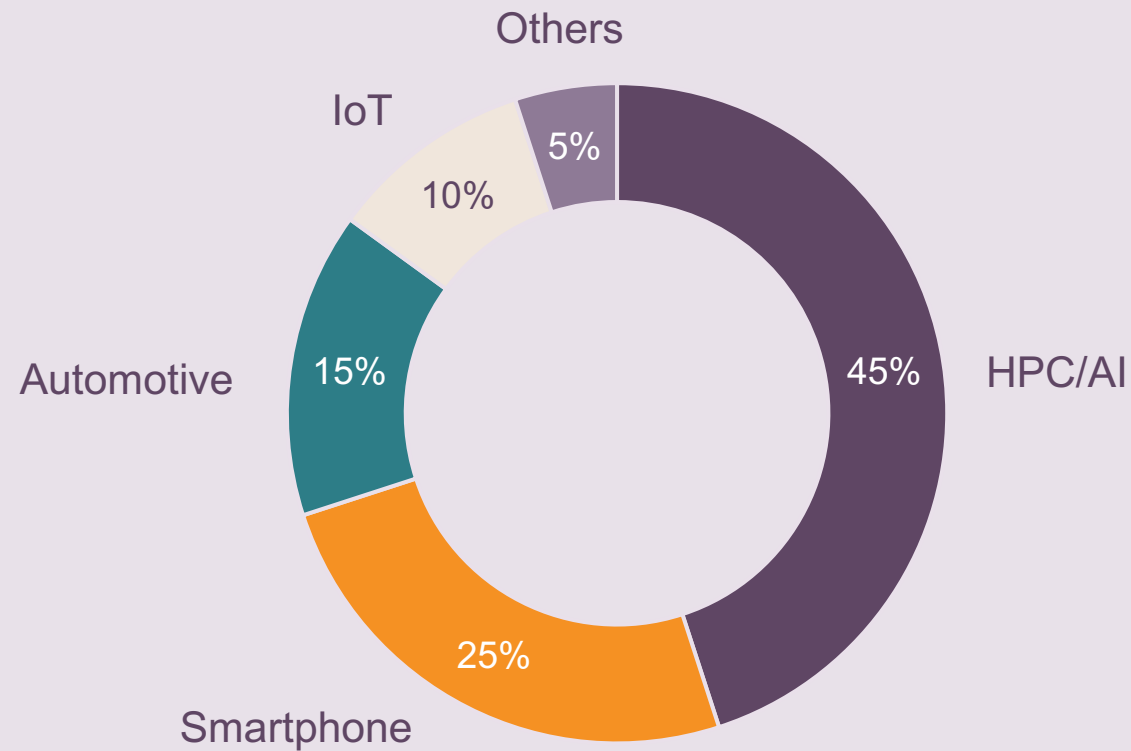
# Industry, market, and technology outlook







# US\$1 trillion semiconductor market predominantly driven by leading-edge technology nodes

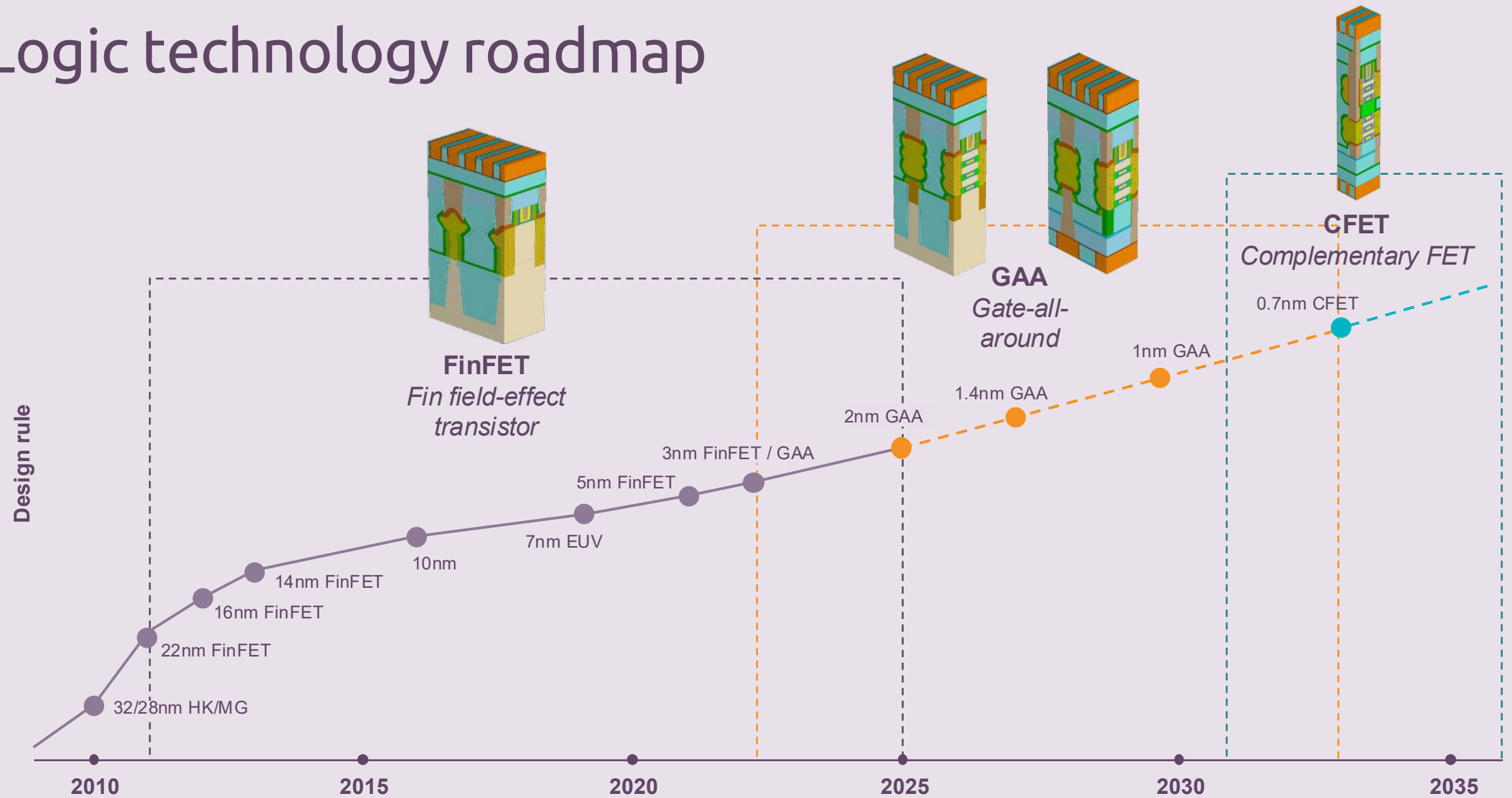


**>70%** of US\$1 trillion semiconductor market in 2030 driven by leading-edge logic and memory technologies

Source: TSMC North America Technology Symposium – April, 2025

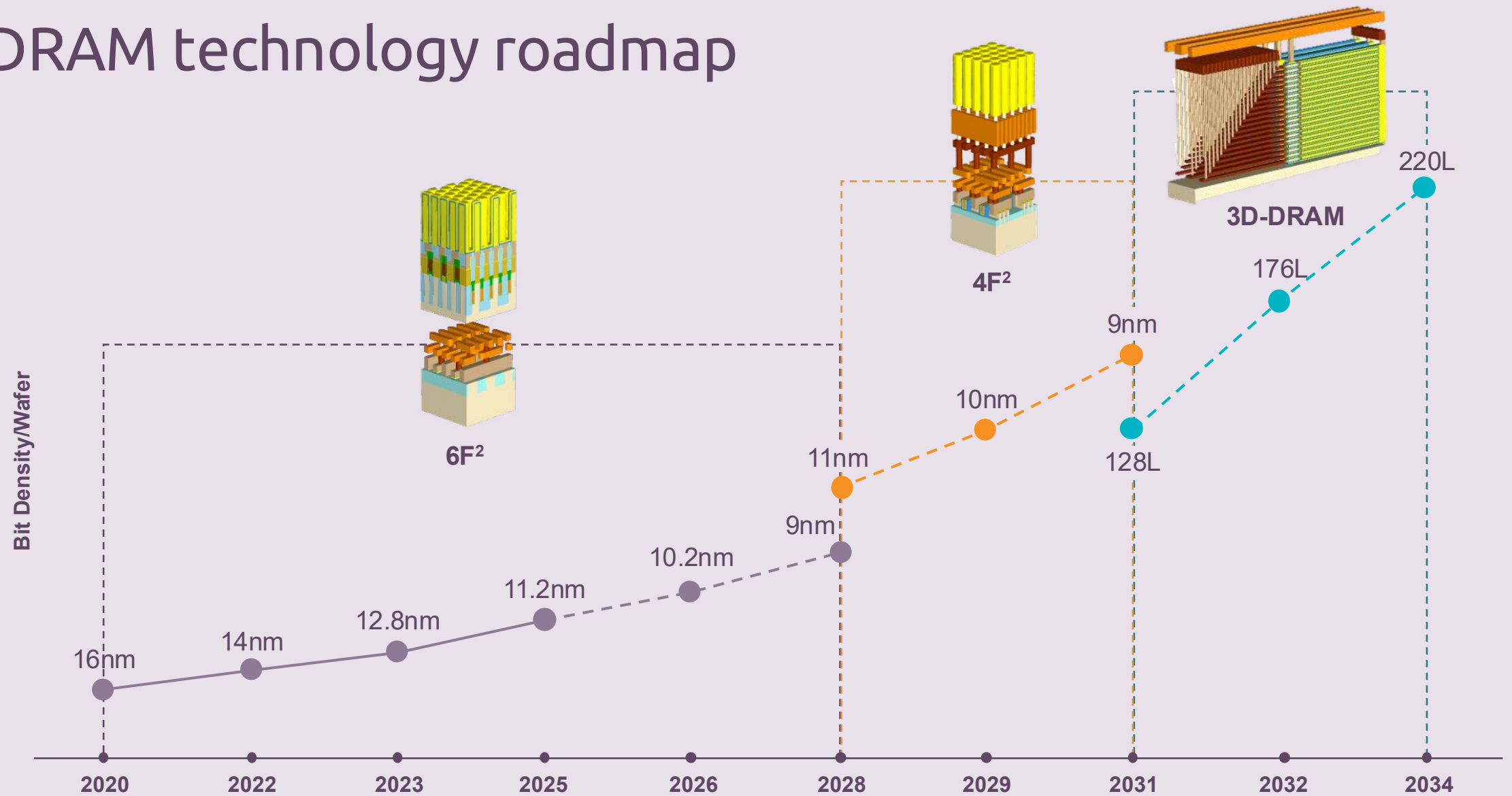


# Logic technology roadmap



Source: Compilation from several public sources

# DRAM technology roadmap



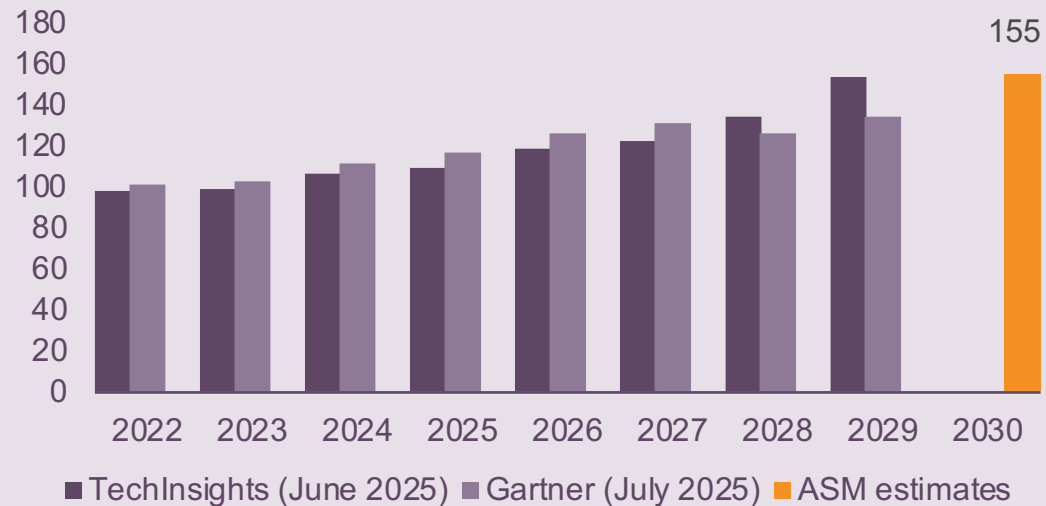
Source: Compilation from several public sources



# WFE growth driven by leading-edge logic/foundry and DRAM

## WFE Outlook

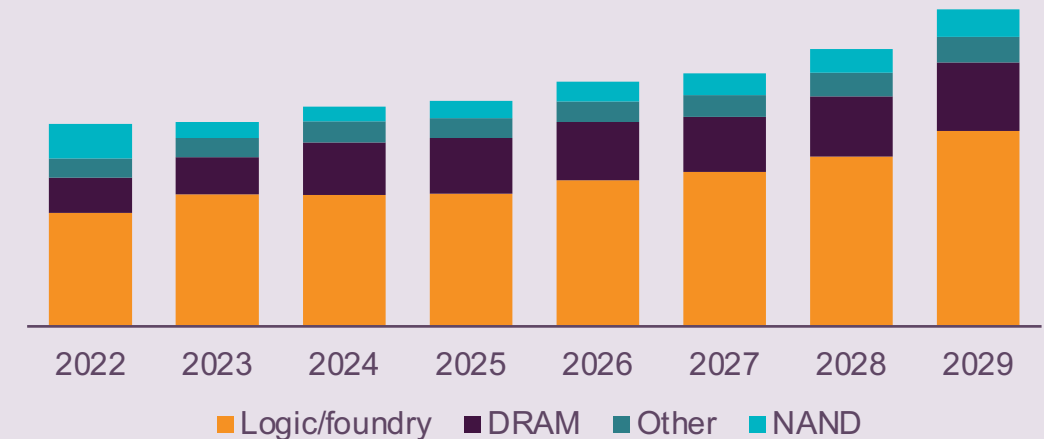
(US\$ billion)



- WFE market '24-'30 CAGR: ~6%

## WFE by segment

(US\$ billion)



- Growth largely in leading-edge logic/foundry and DRAM
- China investments assumed to gradually normalize to around <20% of total WFE

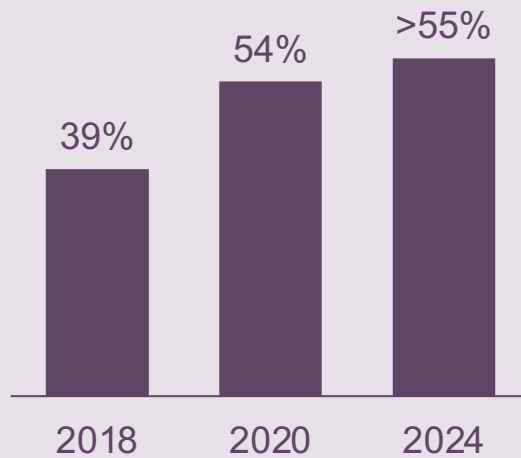
Source: TechInsights



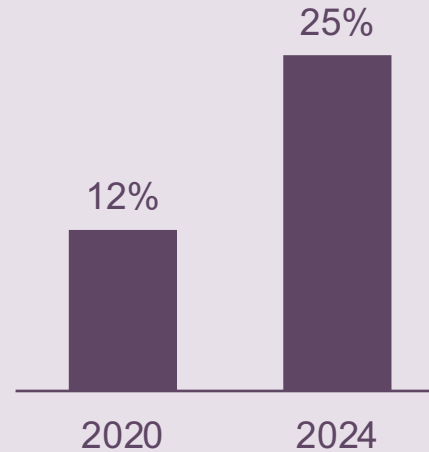
# Maintained leading market share in ALD and increased share in leading-edge Epi



## Single-wafer ALD market share



## Leading-edge Epi market share



### ALD market:

We grew our total ALD market share to >55% in 2024

We maintained our leading ALD market share in transition from FinFET to GAA

### Epi market:

We grew leading-edge Epi market share from 12% in 2020 to 25% in 2024, capturing all GAA channel layers

Source: ASM internal analysis and TechInsights

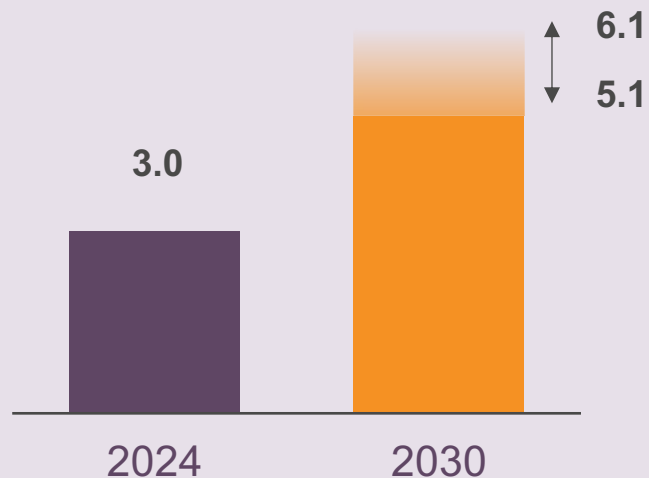
# Technology inflections driving single-wafer ALD and Epi markets

# Single-wafer ALD market forecasted to outgrow WFE



## Single-wafer ALD market outlook

(US\$ billion)



### Single-wafer ALD market:

SW ALD market '24-'30 CAGR: 9-13%

WFE CAGR: 6% (2024: US\$110B, 2030: US\$155B)

### Growth drivers:

Increased number of layers in leading-edge logic/foundry and additional complexity

Increased number of layers in leading-edge DRAM, both in cell and CMOS peri

### 2030 outlook:

Maintain market share > 55%

- Maintain leading market share in logic/foundry
- Gain share in memory

Source: Historical market data: ASM | Future market data: ASM

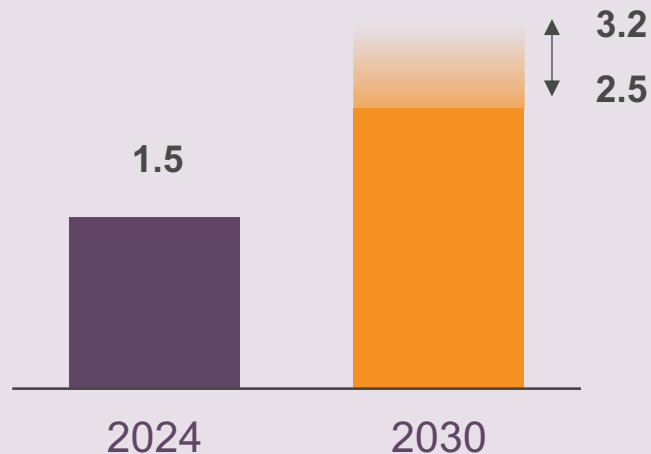




# Epi market forecasted to outgrow WFE

## Epi market outlook

(US\$ billion)



### Epi market:

Epi market '24-'30 CAGR: 9%-13%

WFE CAGR: 6% (2024: US\$110B, 2030: US\$155B)

### Growth drivers:

New Epi applications in next generations GAA and additional complexity

Increased number of layers in leading-edge DRAM transition from 6F<sup>2</sup> to 4F<sup>2</sup> and in CMOS peri

### 2030 outlook:

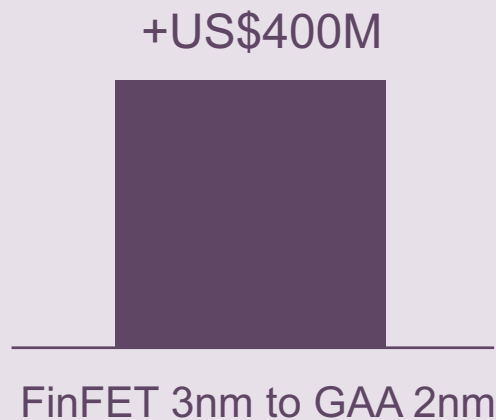
Further expand leading-edge market share

Source: Historical market data: ASM | Future market data: ASM

# Continued growth in leading-edge logic/foundry



# From FinFET to GAA 2nm, our ALD and Epi nodal SAM increased by US\$ 400M



2023 Investor Day: Combined ALD and Epi SAM increase from FinFET to GAA US\$ 400million per 100k WSPM

With 2nm GAA ramping in HVM, we confirm that nodal SAM increase is within range of our 2023 forecast

And we at least maintained share in ALD and gained share in Epi through this transition

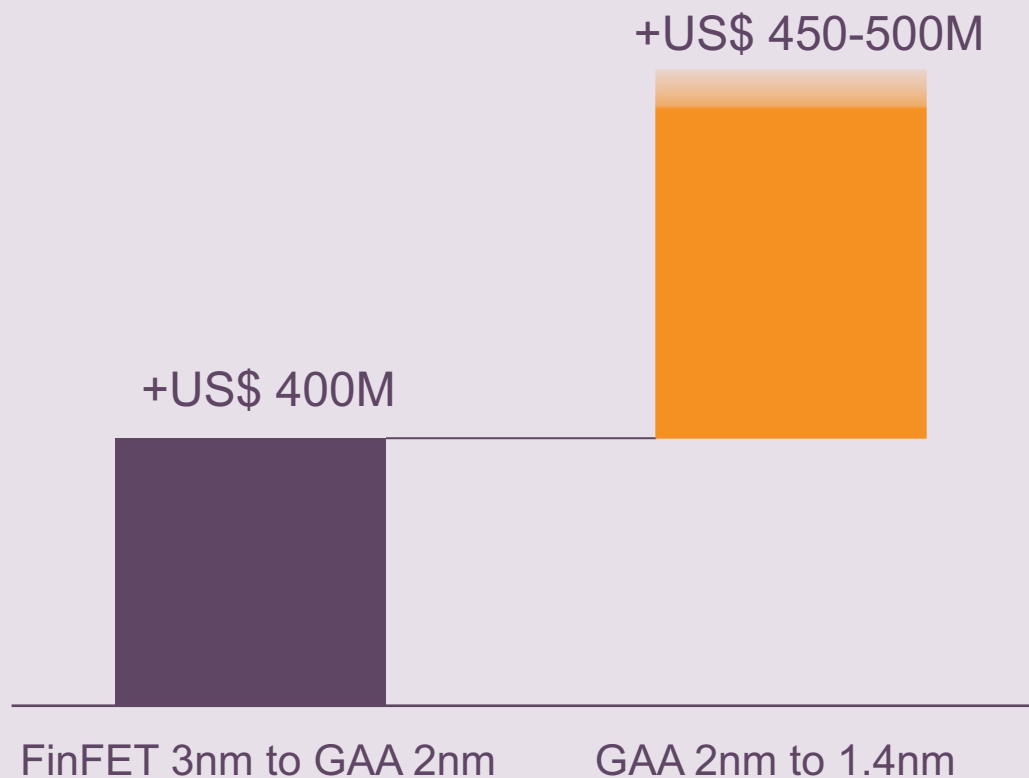
Source: Historical market data: ASM | Future market data: ASM





# Significant increase in ALD and Epi SAM with move from GAA 2nm to 1.4nm

Increased SAM for ASM by US\$ 450M to US\$ 500M per 100k wafer starts per month



## Higher number of ALD and Epi layers and increased complexity

### Wafer frontside :

- Advanced High-k
- Additional dipoles for multi- $V_t$
- Work function metals
- Patterning materials
- Area selective deposition – DoD, DoM
- ALD Molybdenum
- Channel Epi
- Source/drain and contact Epi
- Dielectric gapfills

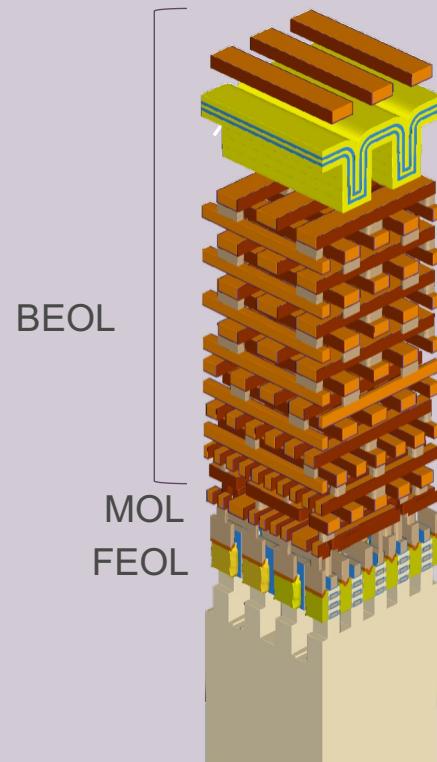
### Wafer backside:

- Low temp Epi
- Dielectric liners
- ALD Molybdenum

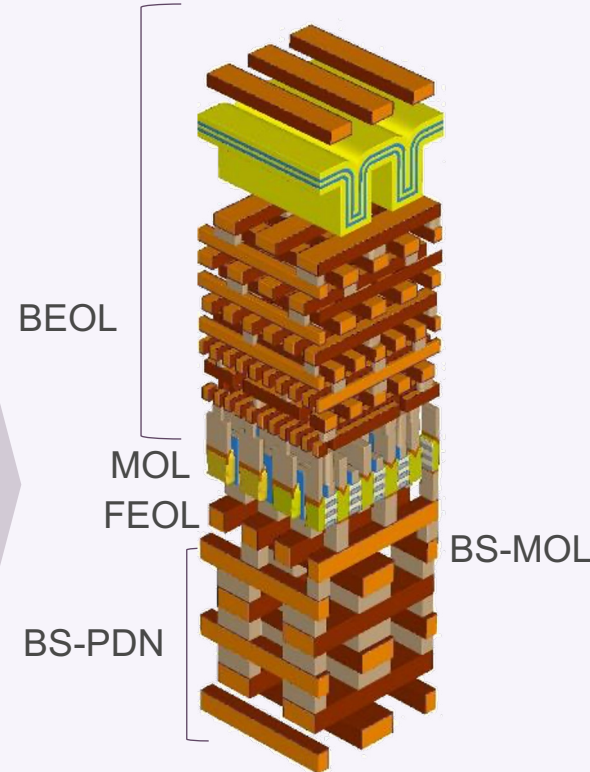
Source: Historical market data: ASM | Future market data: ASM



# GAA 2nm to GAA 1.4nm



GAA 2nm



GAA 1.4nm

## GAA 2nm to 1.4nm

Increased, more complex, or new layers:

### Wafer frontside :

- High(er)-k
- Dipoles for multi- $V_t$
- Work function metals
- Patterning materials
- Area selective deposition – DoD, DoM
- ALD Molybdenum
- Channel Epi
- Source/drain and contact Epi
- Dielectric gapfills

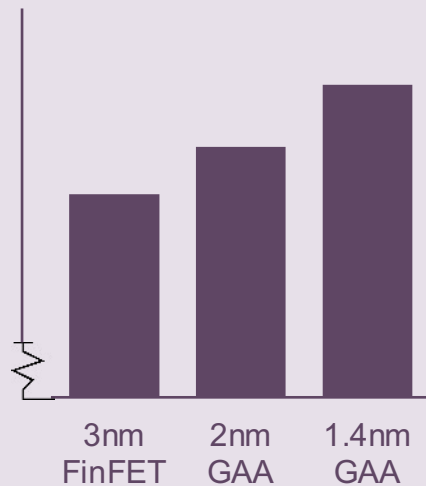
### Wafer backside:

- Low temp Epi
- Dielectric liners
- ALD Molybdenum

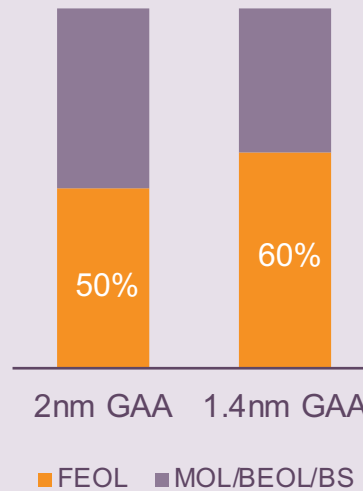


# FEOL ALD layers<sup>1</sup> see largest growth in transition from GAA 2nm to 1.4nm

## SW ALD layer count by node



## Mix of ALD layers



## From GAA 2nm to 1.4nm

With GAA device architecture remaining similar, performance and DTCO elements drive scaling

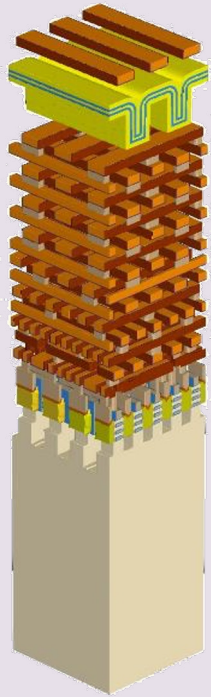
The number of layers in FEOL around transistor continues to increase more than in MOL and BEOL

FEOL layers account for 60% of the total number of ALD layers in 1.4nm GAA

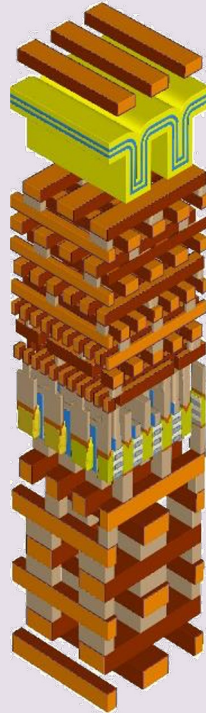
1) Weighted average of multiple customers



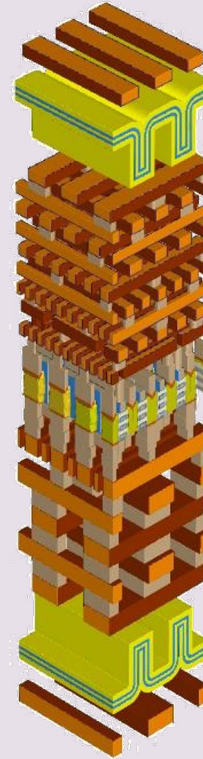
# Continued growth in ALD and Epi with transition to CFET devices



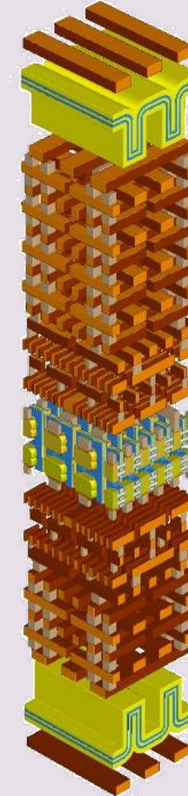
**GAA 1<sup>st</sup> Gen**  
**2nm**  
**2025**



**GAA 2<sup>nd</sup> Gen**  
**1.4nm**  
**2027**



**GAA 3<sup>rd</sup> Gen**  
**1.0nm**  
**2029**

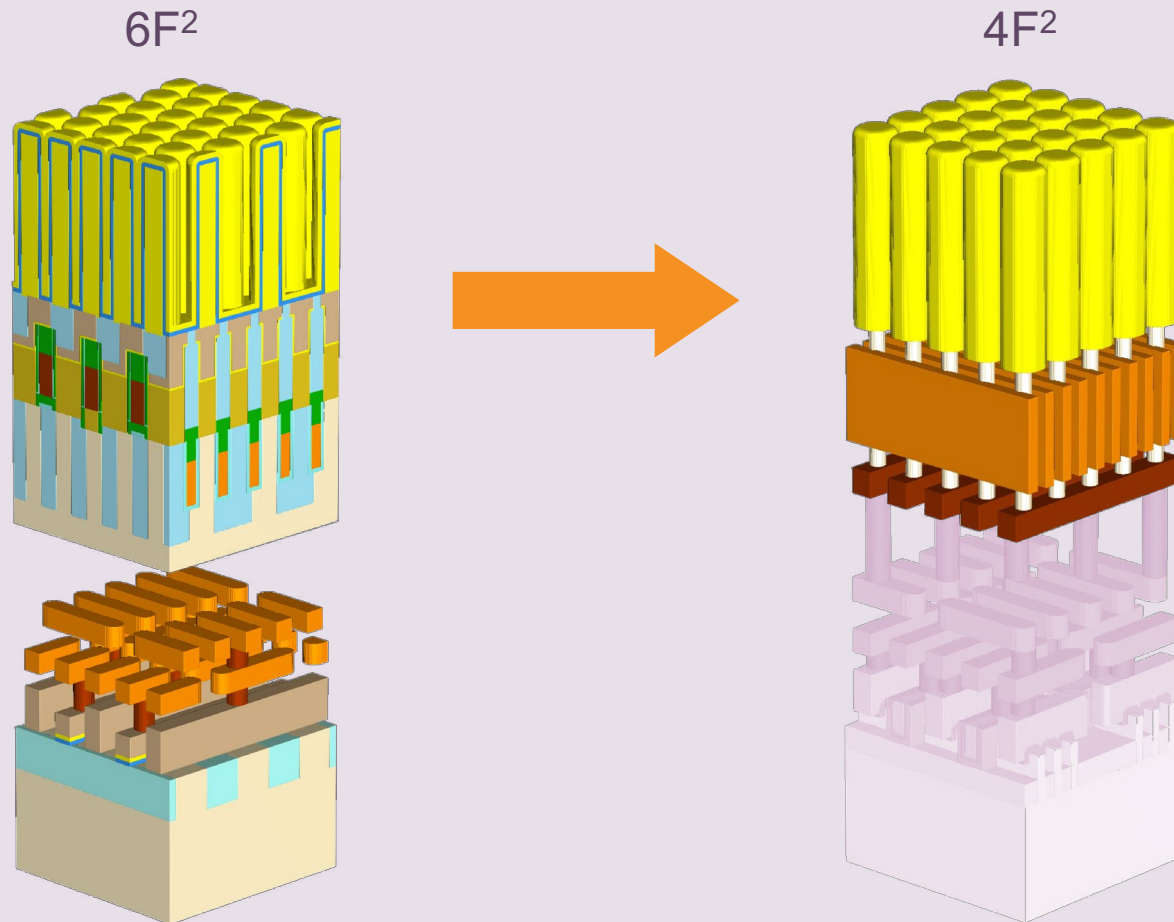


**CFET**  
**0.7nm**  
**2031**

# Accelerated opportunities in leading-edge DRAM



# DRAM inflections: 6F<sup>2</sup> to 4F<sup>2</sup> cell

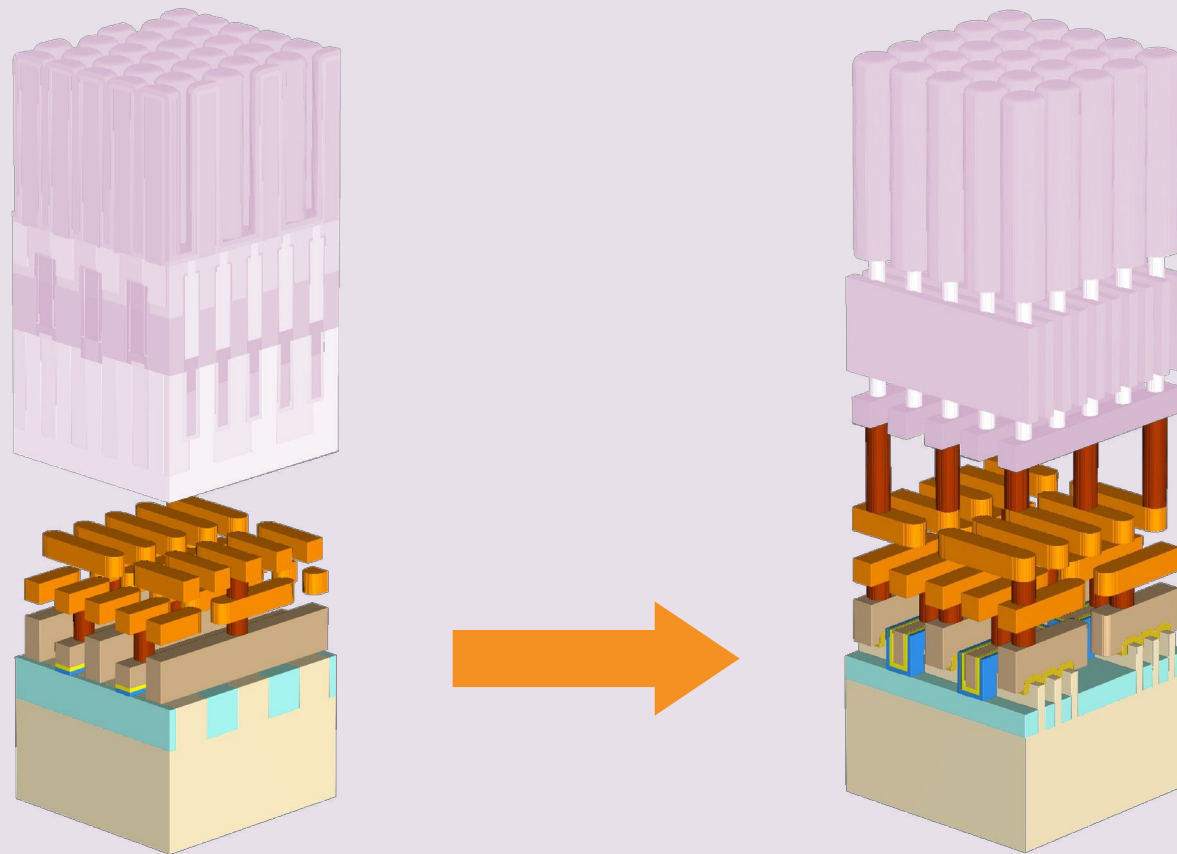


Significant increase in ALD and Epi intensity with DRAM cell transition from 6F<sup>2</sup> to 4F<sup>2</sup>

- Channel Epi
- Contact Epi
- Low temp. ALD oxides and nitrides
- ALD dielectric gapfill
- Back gate and front gate metals



# DRAM inflections: CMOS peri from planar to FinFET



Planar CMOS

FinFET CMOS

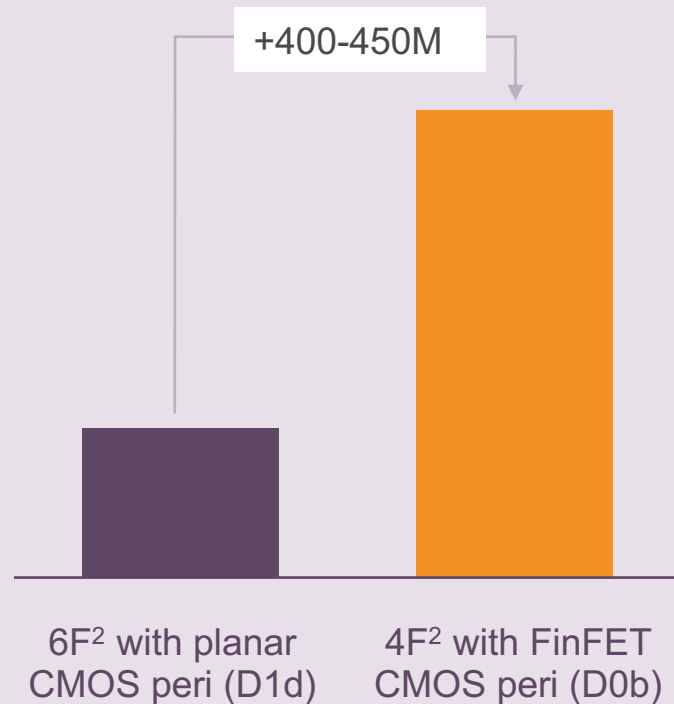
Significant increase in ALD and Epi intensity with peri transitioning from planar CMOS to FinFET CMOS peri

- ALD High-k
- ALD dipoles
- ALD work function metals
- ALD patterning materials and spacers
- Epi source/drain



# Increasing DRAM SAM with 4F<sup>2</sup> and with CMOS peri transitioning from planar to FinFET

## ASM ALD and Epi SAM expansion for 100k WSPM (US\$ million)



## Higher number of ALD and Epi layers and increased complexity

DRAM cell transition from 6F<sup>2</sup> to 4F<sup>2</sup>:

- Channel Epi
- Contact Epi
- New ALD oxides and nitrides
- Dielectric gapfills
- Back gate and front gate

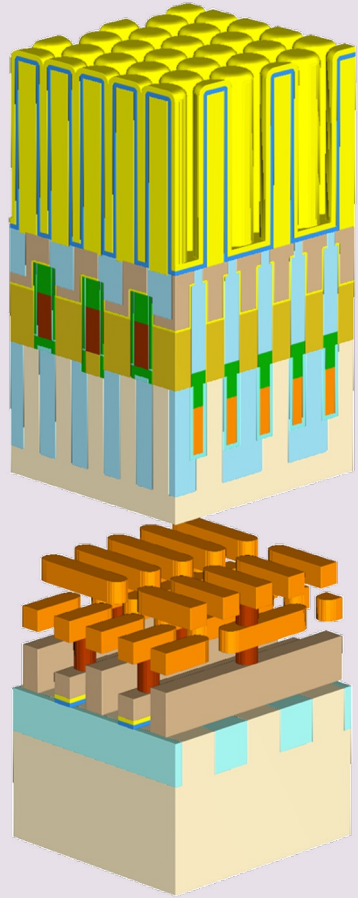
Planar CMOS to FinFET CMOS peri:

- ALD High-k
- ALD dipoles
- ALD work function metals
- ALD patterning materials and spacers
- Epi source/drain

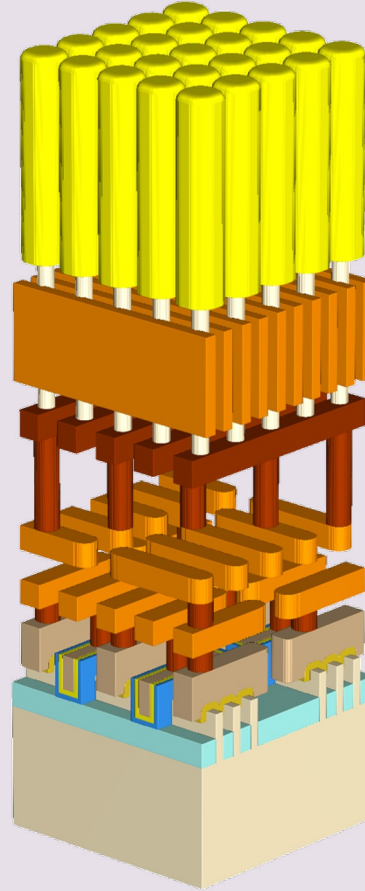
Early adoption expected to begin with D0a node and complete adoption by all leading-edge DRAM makers by D0b node

Source: ASM internal market data, figure not to scale

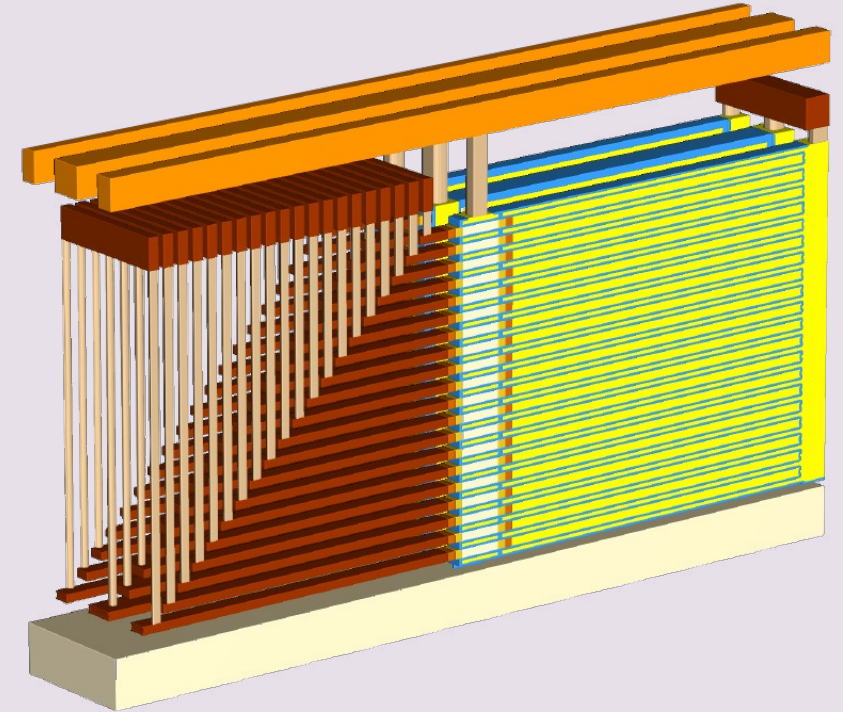
# Continued growth in ALD and Epi with transition to 3D-DRAM beyond 2032



6F<sup>2</sup>



4F<sup>2</sup>



3D-DRAM



# Advanced packaging

## ASM products and technologies

Deposition tech  
(tALD, PEALD,

process modules



XP8 JQCM  
(300 mm)



XP8 QCM  
(300 mm)

Epitaxy and preclean



XP4 Intrepid ES/ESA  
with Preview  
(300 mm)



Epsilon 2000  
(200 mm)

SiC Epi



PE208  
(8"/200 mm)

Diffusion, oxidation and low-pressure chemical vapor  
deposition – batch vertical furnace



SONORA  
(300 mm)



A400 DUO  
(200 mm)

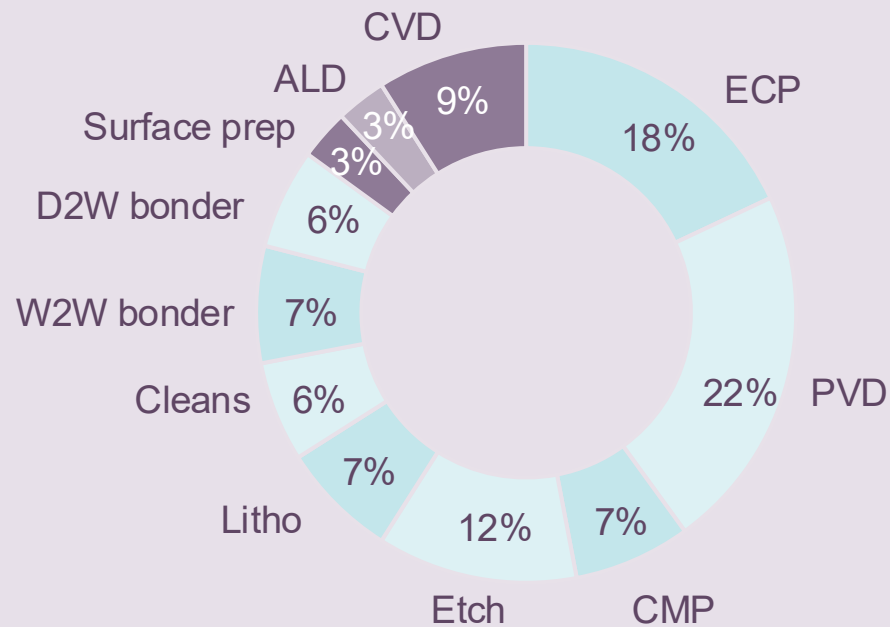
Date | ASM proprietary and confidential information | 40



# Advanced packaging (AP): Another mid-term growth area

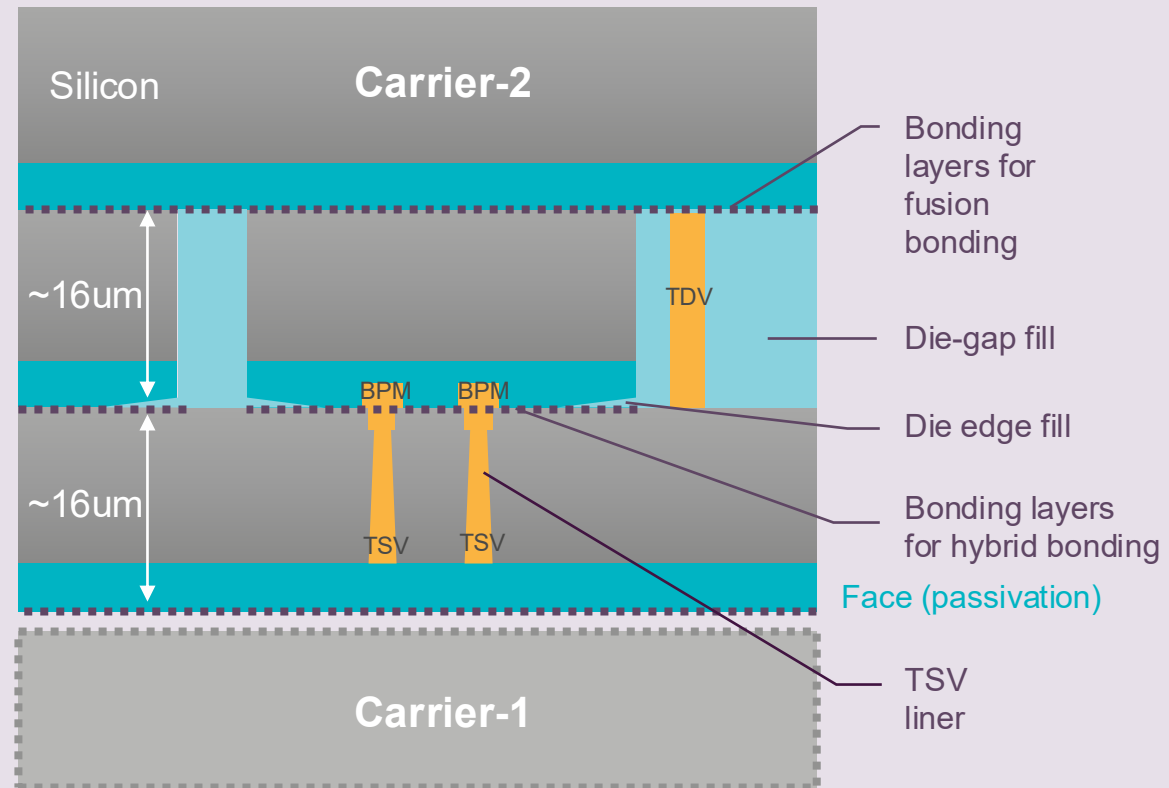
## AP total available market (TAM) 2030

(US\$11.5B)



## AP applications example: SoIC

(System on IC)



Double our SAM to >30% of the TAM by 2030



# Key takeaways



## 1 Secular growth trends

Secular growth trends are intact for US\$1T semiconductor market by 2030 mainly driven by AI and related leading-edge logic and DRAM technologies.

## 2 Technology scaling increasingly enabled by materials and vertical structures

Logic and DRAM technology scaling is increasingly dependent on materials and adoption of more complex 3D structures, necessitating more ALD and Epi processes.

## 3 ALD is expected to outgrow the WFE market

The market for ALD is expected to outgrow the WFE market, to a range of US\$5.1-6.1 billion by 2030<sup>1</sup> reflecting a CAGR of 9% to 13%.

## 4 The Si Epi market is expected to grow

The Si Epi market is expected to grow to a range of US\$2.5-3.2 billion by 2030<sup>1</sup> reflecting a CAGR of 9% to 13%.

## 5 ASM benefits from significant SAM increase in GAA 2<sup>nd</sup> gen and with upcoming DRAM inflections

ASM remains well-positioned to benefit from significant ALD & Epi SAM increases:

- US\$450M - 500M nodal SAM increase from GAA 2nm to GAA 1.4nm in logic/foundry
- US\$400M - 450M nodal SAM increase with DRAM cell transition from 6F<sup>2</sup> to 4F<sup>2</sup> and CMOS peri transition from planar to FinFET

## 6 Advanced packaging provides additional growth

Advanced packaging (AP) is another mid-term growth area. Applications in AP will benefit from chemistry innovation and interface engineering where ASM excels.

1) 2030 wafer fab equipment (WFE) investments at US\$155B



# Enabling customers with Angstrom precision through service innovation and automation

**Jason Foster**

Corporate VP, Spares and Service  
Business Unit, Global Quality  
and Technical Training



# Key takeaways

## 1 Innovation

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Innovation in our spares and service business has delivered Outcome-based solutions, creating measurable value for customers and drives growth.

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## 2 Leverages our core competencies in chemistry

---

Our core competencies in chemistry and surface engineering is being applied to spares and services products to deliver Outcome-based solutions.

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## 3 Outcome-based services

---

Delivers guaranteed performance such as tool availability and improved on wafer results through innovative environmentally friendly solutions.

---

## 4 New dry-cleaning Solutions

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New technology that enables 10x selectivity which extends the usable part lifetime while driving sustainable manufacturing solutions.

---

## 5 Automation

To achieve Angstrom-level control in ALD and Epi requires micron-level control in part placement necessitating automation in maintenance.



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Empowering our customers with  
innovative environmentally  
friendly solutions that deliver  
high tool availability and  
better performance

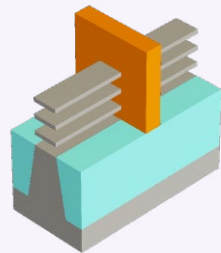
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# Continuous innovation in spares & services required for increased precision and complexity in next tech nodes



## Process complexity

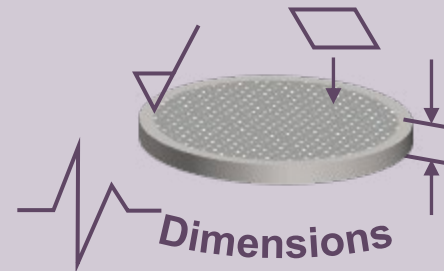


**GAA**

Gate-all-around

Increasingly complex semiconductor processes such as 2nm GAA

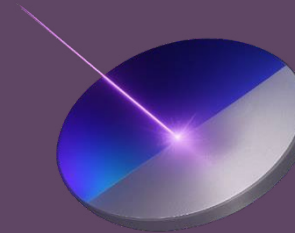
## Critical process kits



Requires stringent demands on system hardware, with unprecedented precision in critical process kit components

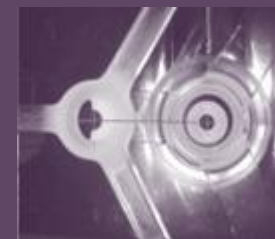
## Innovative service products

### Dry cleaning



Transitioning from traditional wet cleaning and sand blasting of spare parts, our dry cleaning solutions deliver superior defectivity performance, improved selectivity, and extended part life, while enhancing sustainability

### Service automation



Leveraging advanced automation, we address both green-to-green efficiency and chamber-to-chamber matching, achieving micron-level part placement precision that is required for angstrom level on wafer thickness control

# Spares and service: product portfolio



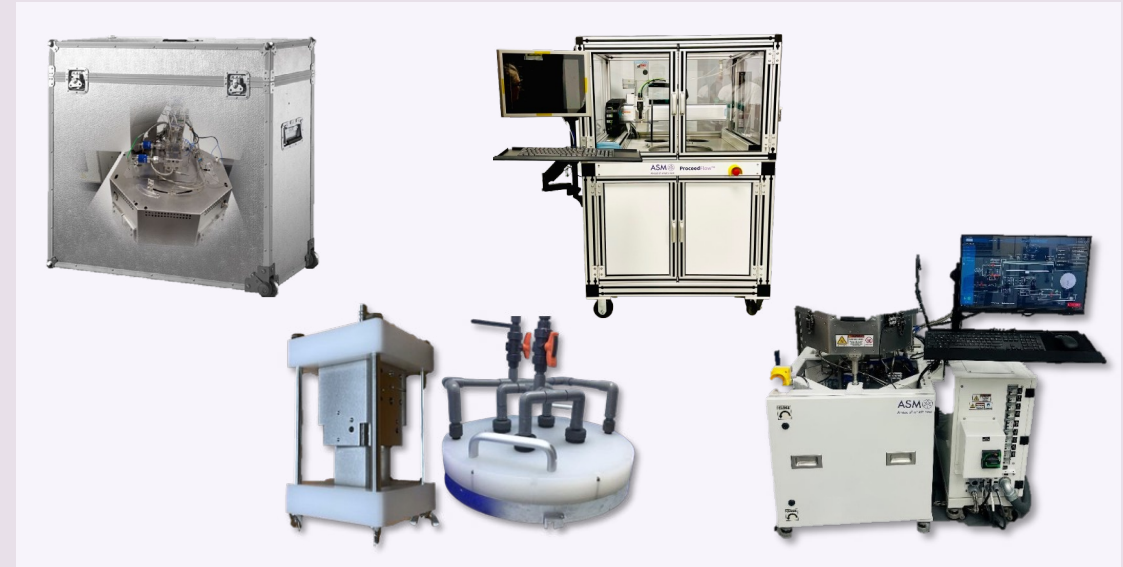
## Transactional



### Foundation of support

- Transactional spares (delivered on demand, available when needed)
- Standard service labor

## Outcome-based



### Outcome-based results

- Reduce, reuse and recycle
- Guaranteed performance:  
Reduced variation, predictable output



# Innovation in Outcome-based services

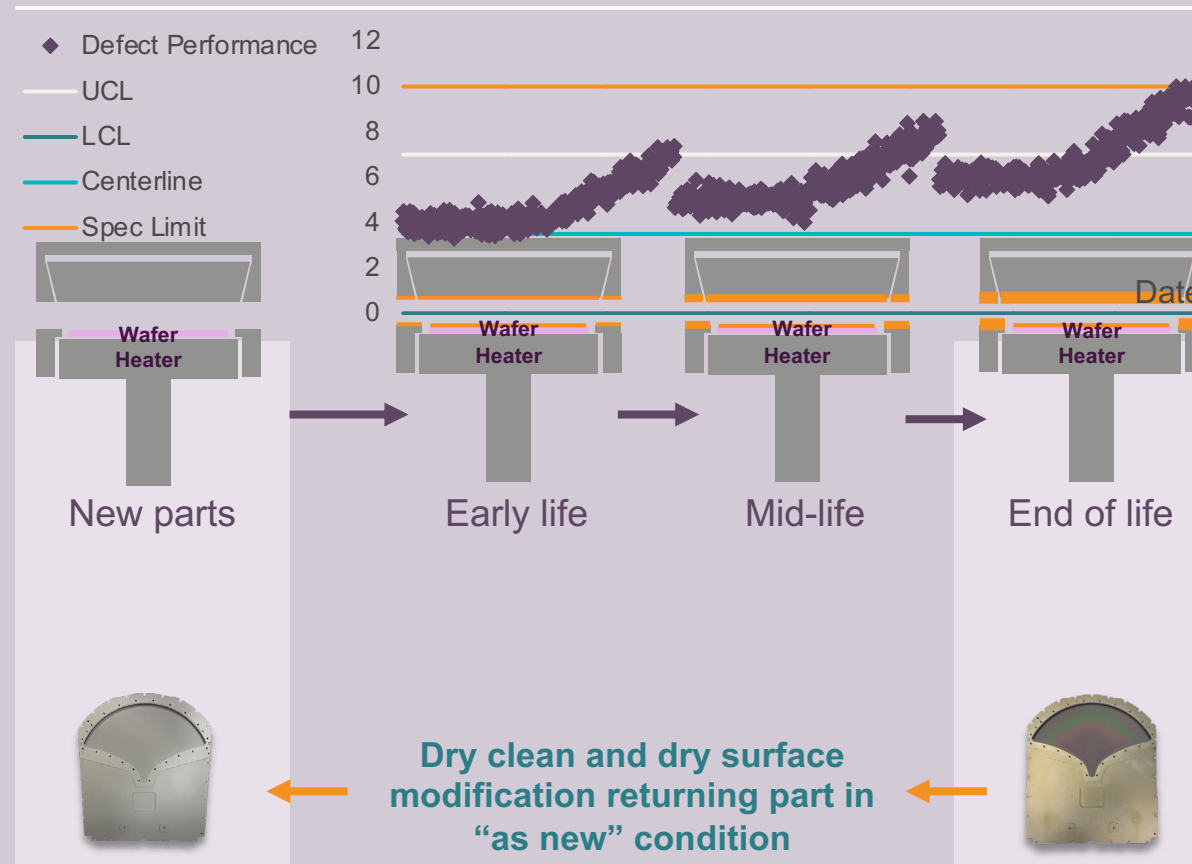




# Spares and service value creation through surface technologies

ALD film deposits on the wafer and reactor parts, eventually leading to out of spec condition

## Defect count



## Benefits of Outcome-based services:

Improved on-wafer performance (fewer defects)

Better availability (tool uptime)

Improved sustainability (better parts that last longer)

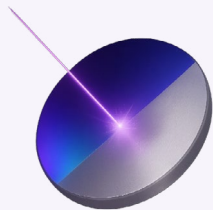
Lower cost of ownership by restoring used parts to "as new" conditions

# New innovative surface technologies solutions

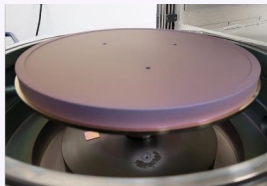


## Cleaning and coatings

Dry cleaning



ALD coatings

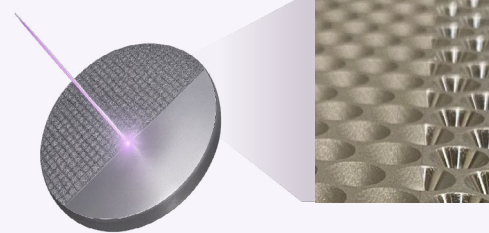


### High selectivity cleans

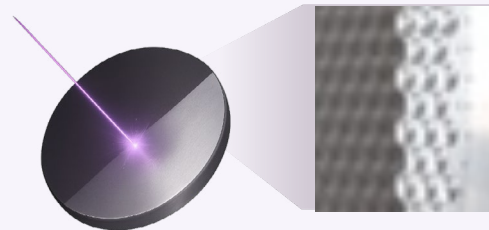
- Cleaner: dry cleaning
- Selective: ALD barrier films
- Enabling refurb and reuse

## Surface modification

Adhesion control



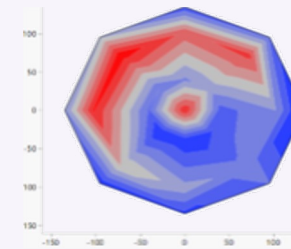
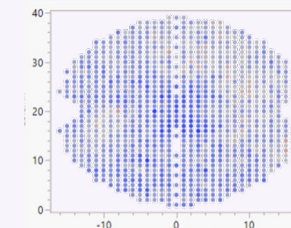
Thermal control



### Adhesion and thermal control

- Reduced green-to-green
- Improved productivity

## Quality control



### Verify “as new” condition

- First time right
- Reduced green-to-green
- Matched kits

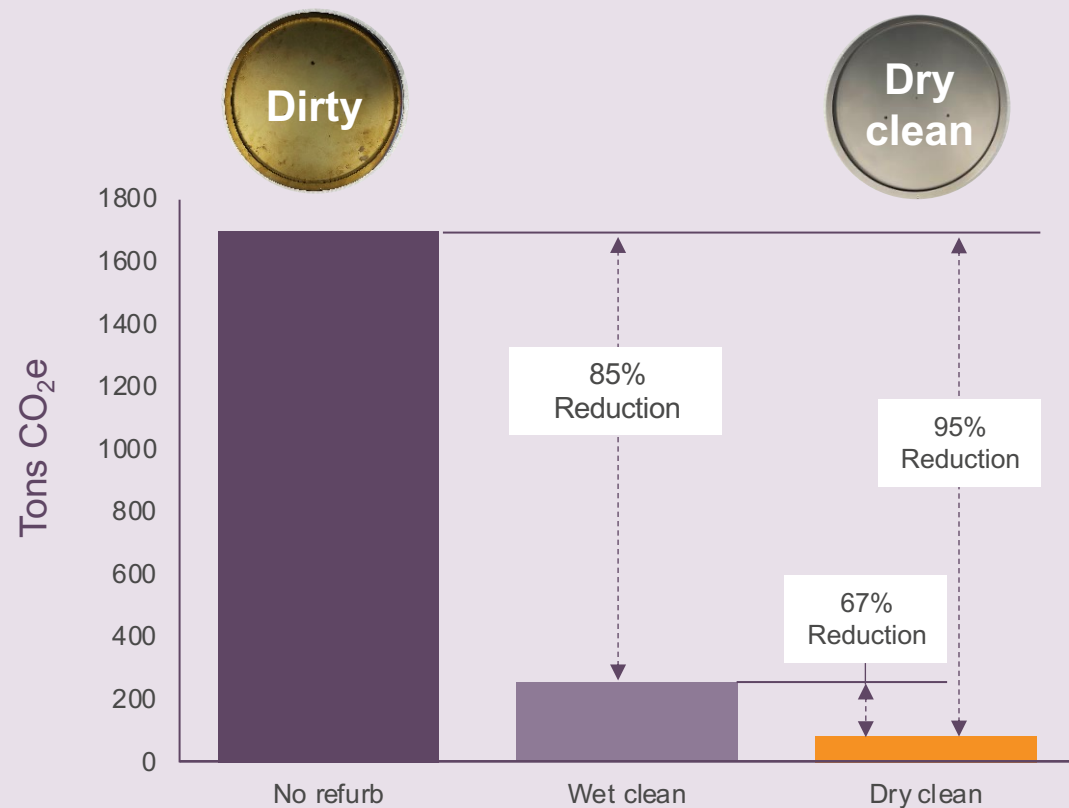
## Outcomes-Based services:

Minimizing part-to-part variability, preserves process integrity, and extends component lifetime



# Dry cleaning technologies offers significant business and sustainability benefits

## Titanium process kits (500 kits example)



### Parts cleaning

Wet etch is the standard today. Dry clean is a novel technology enabling sub-Angstrom precision that is critical to device performance and yield – in ALD *Every Monolayer Matters*

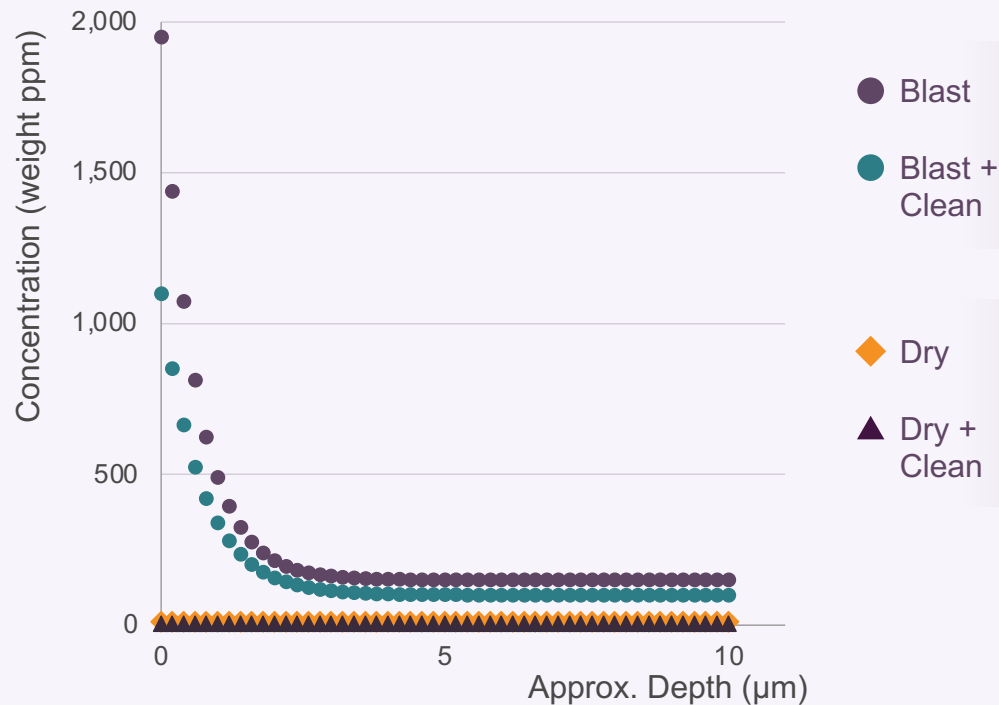
| Parameter                  | Dry clean vs Wet clean               |
|----------------------------|--------------------------------------|
| Substrate selectivity      | 10x improvement                      |
| Part lifetime              | 5x longer                            |
| Critical dimension control | 5x improvement                       |
| Chemical usage             | No highly toxic/hazardous acids used |
| Sustainability impact      | >95% reduction                       |
| Business impact            | >2x reduction in Cost of Ownership   |



# Dry cleaning: precision and sustainability



## Contamination (sodium ppm)



## Current cleaning method:



**Blast clean – ceramic media**  
Considerable byproduct

## Novel cleaning method:



**Dry clean – zero media**  
Minimal byproduct

## Dry cleaning enables:

Precision selectivity = extending usable part lifetime by maintaining part critical dimensions clean after clean

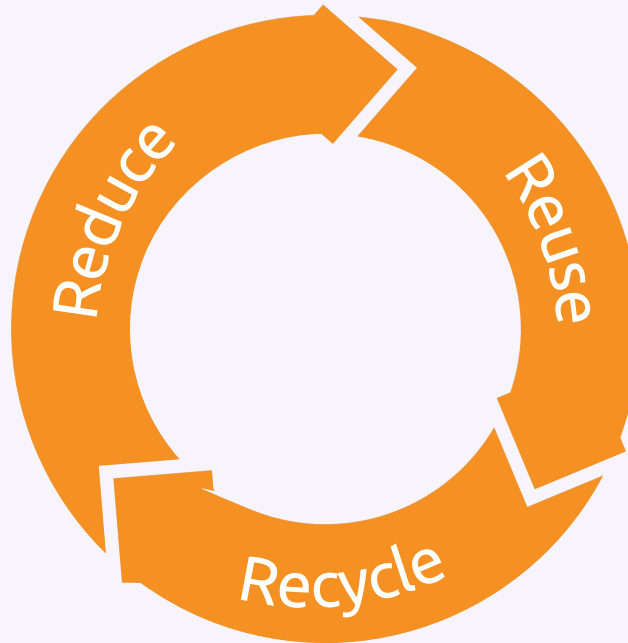
Selectivity is becoming critical as we transition to more complicated ALD films. Moving away from single element to 4, 5 or even 6 element films

Sustainable cleaning solution – no hazardous acids needed



# Accelerating sustainability by reduce, reuse and recycle

- Chemicals
- DI water
- Blast media
- Bulk materials



- Parts
- Byproduct

- Parts
- Scrap
- Drop-off
- Waste

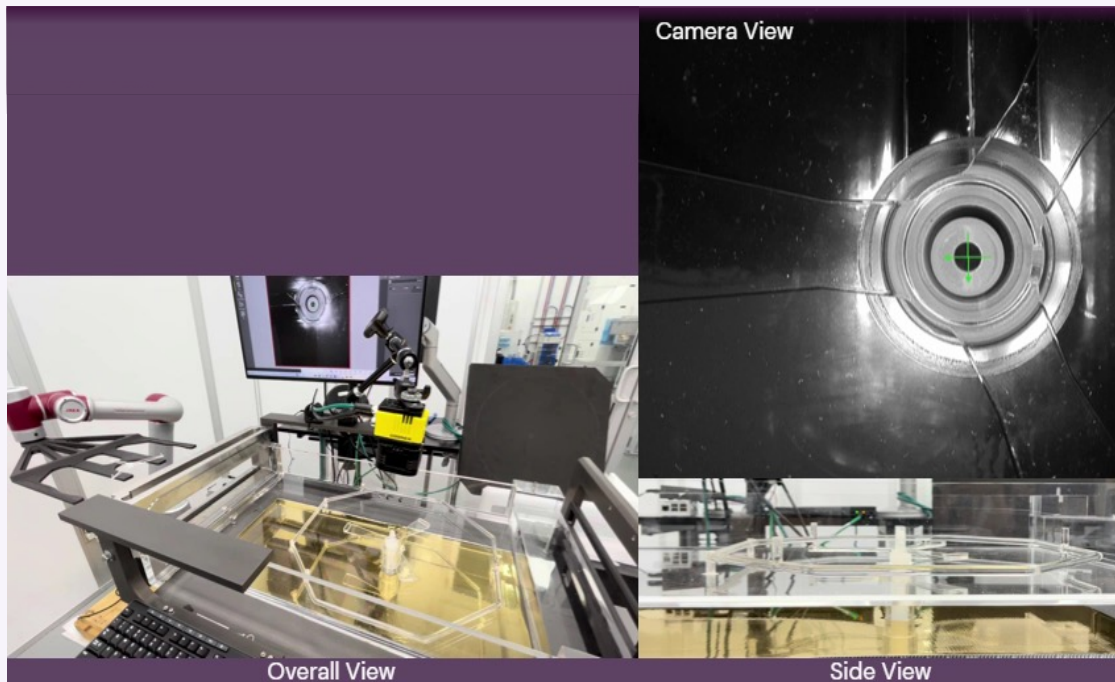
## How

- Dry cleaning
- HQ coatings
- HS cleaning
- Metrology



# Automation in maintenance to manage micron-level part placement control

**PM-Bot system integrates a closed-loop vision system and advanced robotics**



## Automation in maintenance vs Manual operation

|                         |                         |
|-------------------------|-------------------------|
| <b>Green-to-green</b>   | 25% better              |
| <b>First time right</b> | 50% reduction in errors |
| <b>Precision</b>        | 100% better precision   |

- Improved precision and repeatability needed for advanced technology nodes
- Accelerating overall maintenance efficiency through improved green-to-green and better first-time-right performance

Achieving micron-level part placement precision that is required for sub-Angstrom level on wafer thickness control



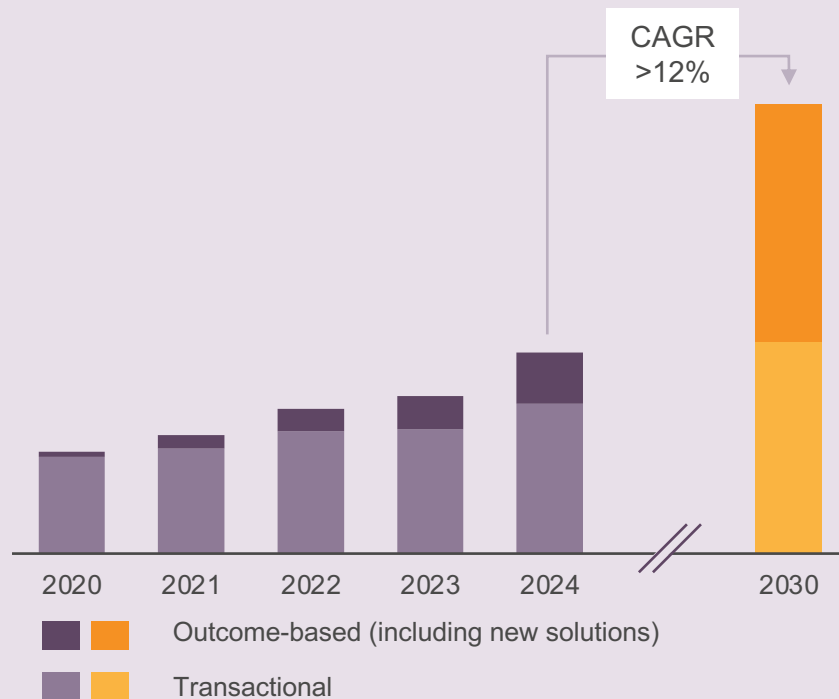
# Spares and Services sales: growth driven by Outcome-based



# Targeting continued growth in spares & services: >12% CAGR 2024-2030

## Spares and Services revenue

(€ million)



## Business growth drivers

Continued growth of our installed base – higher share of Outcome-based services on new products

>50% business coming from Outcome-based services by 2030

# Key takeaways



## 1 Innovation

---

Innovation in our spares and service business has delivered Outcome-based solutions, creating measurable value for customers and drives growth.

---

## 2 Leverages our core competencies in chemistry

---

Our core competencies in chemistry and surface engineering is being applied to spares and services products to deliver Outcome-based solutions.

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## 3 Outcome-based services

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Delivers guaranteed performance such as tool availability and improved on wafer results through innovative environmentally friendly solutions.

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## 4 New dry-cleaning Solutions

---

New technology that enables 10x selectivity which extends the usable part lifetime while driving sustainable manufacturing solutions.

---

## 5 Automation

To achieve Angstrom-level control in ALD and Epi requires micron-level control in part placement necessitating automation in maintenance.



# The art of atomic layering

**Eric Shero**

Vice President and ALD  
Key Product Unit Head





# Key takeaways

## 1 Essential

ALD is essential technology for advanced, 3D structures.

## 2 Growth

Single-wafer ALD set to grow at 9-13% CAGR, outpacing WFE (6%)  
Leading logic/foundry inflections and expanding in memory.

## 3 Legacy

Unparalleled legacy in ALD (50+ years).

## 4 Innovation

ASM leads ALD market and continuously innovates to stay ahead of what's next.

## 5 Clustering

New common platform drives enhanced clustering & productivity:  
Couples surface clean and deposition solutions.

## 6 ALD+

ALD+ means advanced materials, chemical and technology solutions,  
tackling high value problems.

# 3D scaling accelerating in logic and memory



## Increasing device complexity

- **Increasing A/R**  
(Aspect ratio)
- **Increasing SAE**  
(Surface area enhancement)
- **Smaller CD**  
(Critical dimension)
- **Narrowing process window**
  - Tighter thickness uniformity
  - Tighter composition control
  - Tighter electrical specifications

Industry moving towards ASM's ALD technology to solve scaling challenges

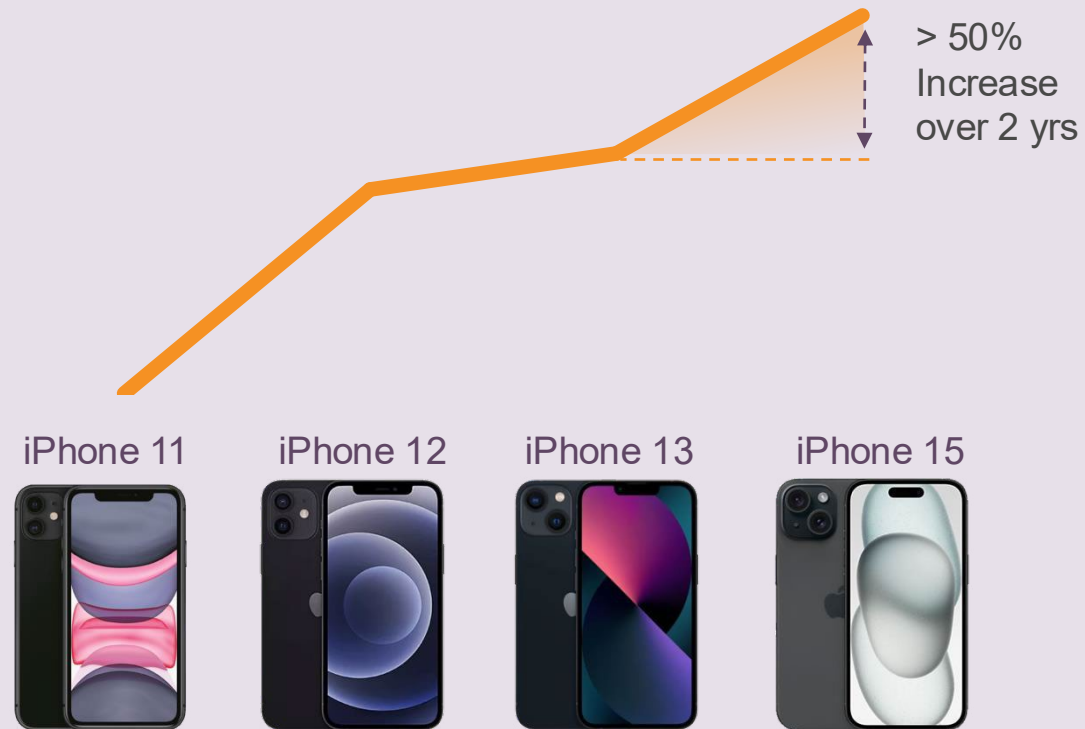




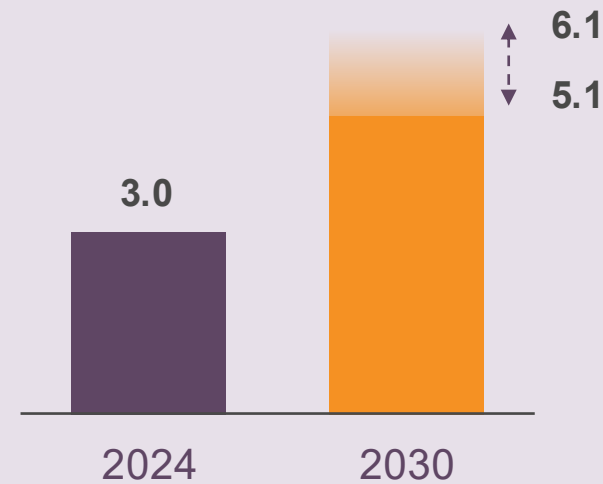
# ALD adoption increasing

Increasing complexity in logic and memory boosts ALD demand

## ALD layers<sup>1</sup> (#)



## Single-wafer ALD market outlook (US\$ billion)



Single-wafer ALD market growth:

SW ALD market '24-'30 CAGR: 9-13%

WFE CAGR: 6% (2024: US\$110 billion, 2030: US\$155 billion)

1) Data sourced from ASM internal analysis and illustrative example only



# Key steps in ALD cycle

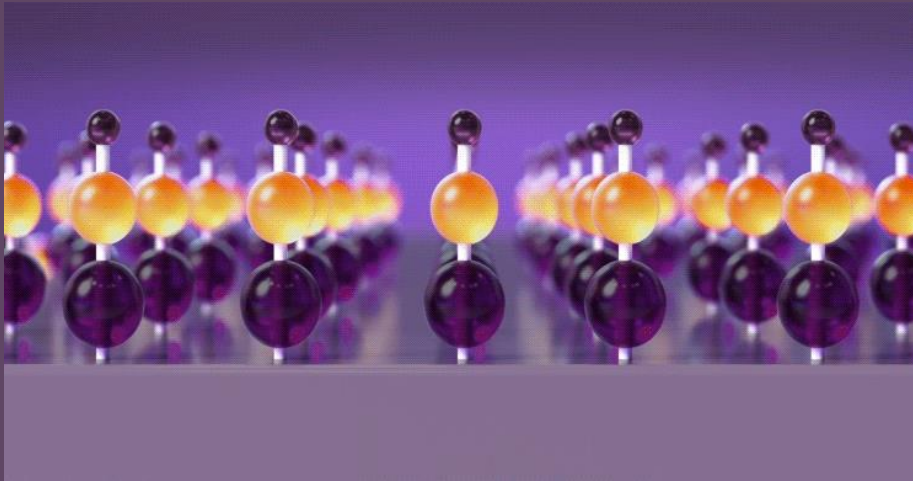
ALD is a surface-controlled, layer-by-layer process that deposits thin films one atomic layer at a time



**Step 0**

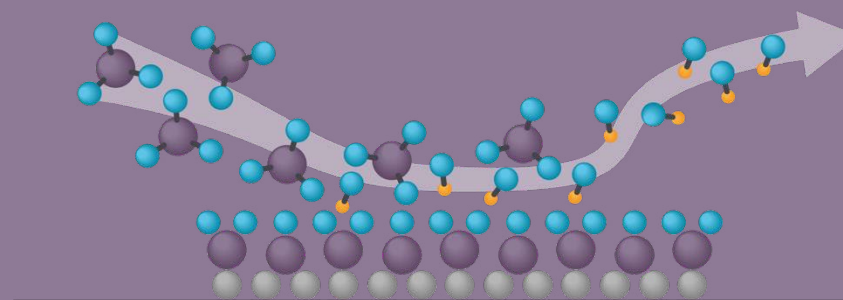
Start with a controlled surface

# Key steps in ALD cycle



Precursor

By-products



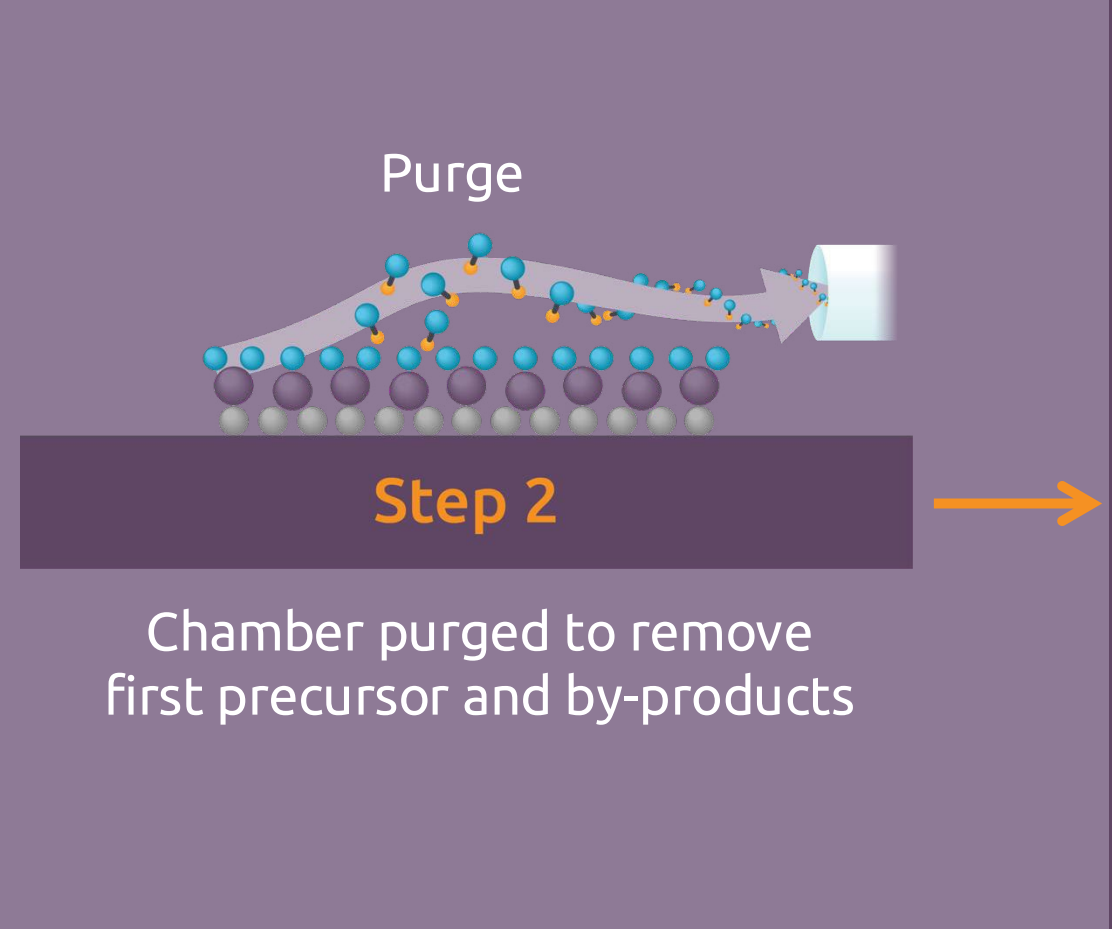
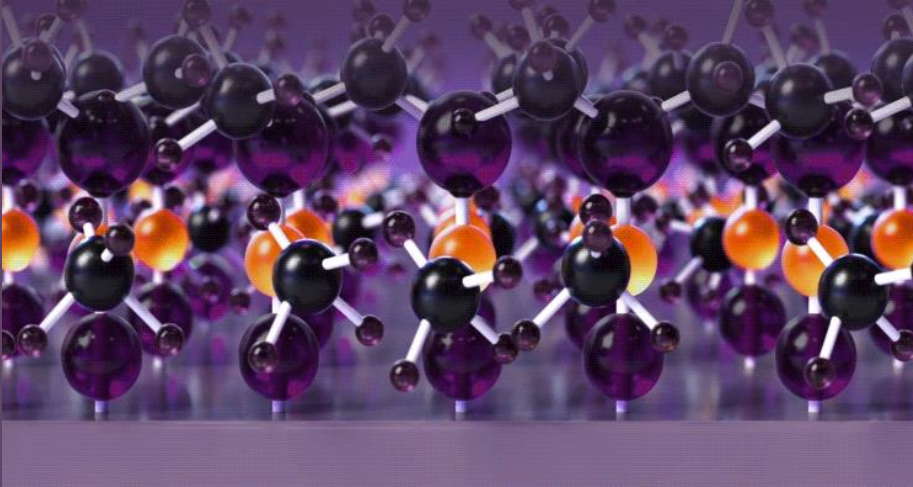
Step 1



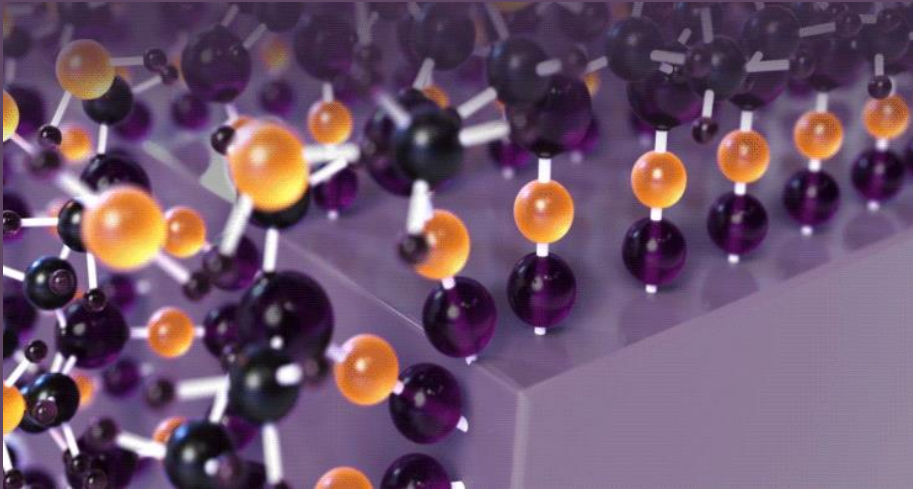
Expose substrate to first precursor “pulse”  
Precursor reacts with surface species  
and attaches



# Key steps in ALD cycle

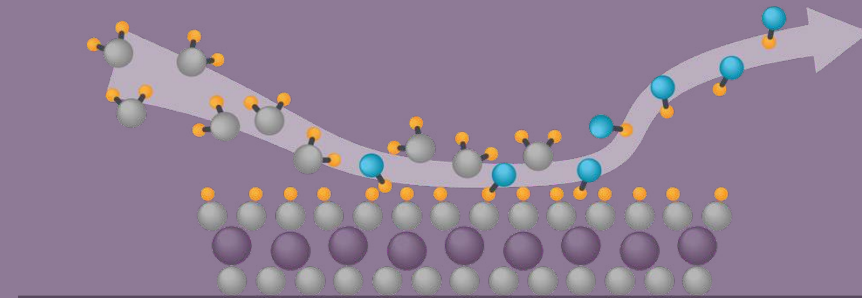


# Key steps in ALD cycle



Co-reactants

By-products

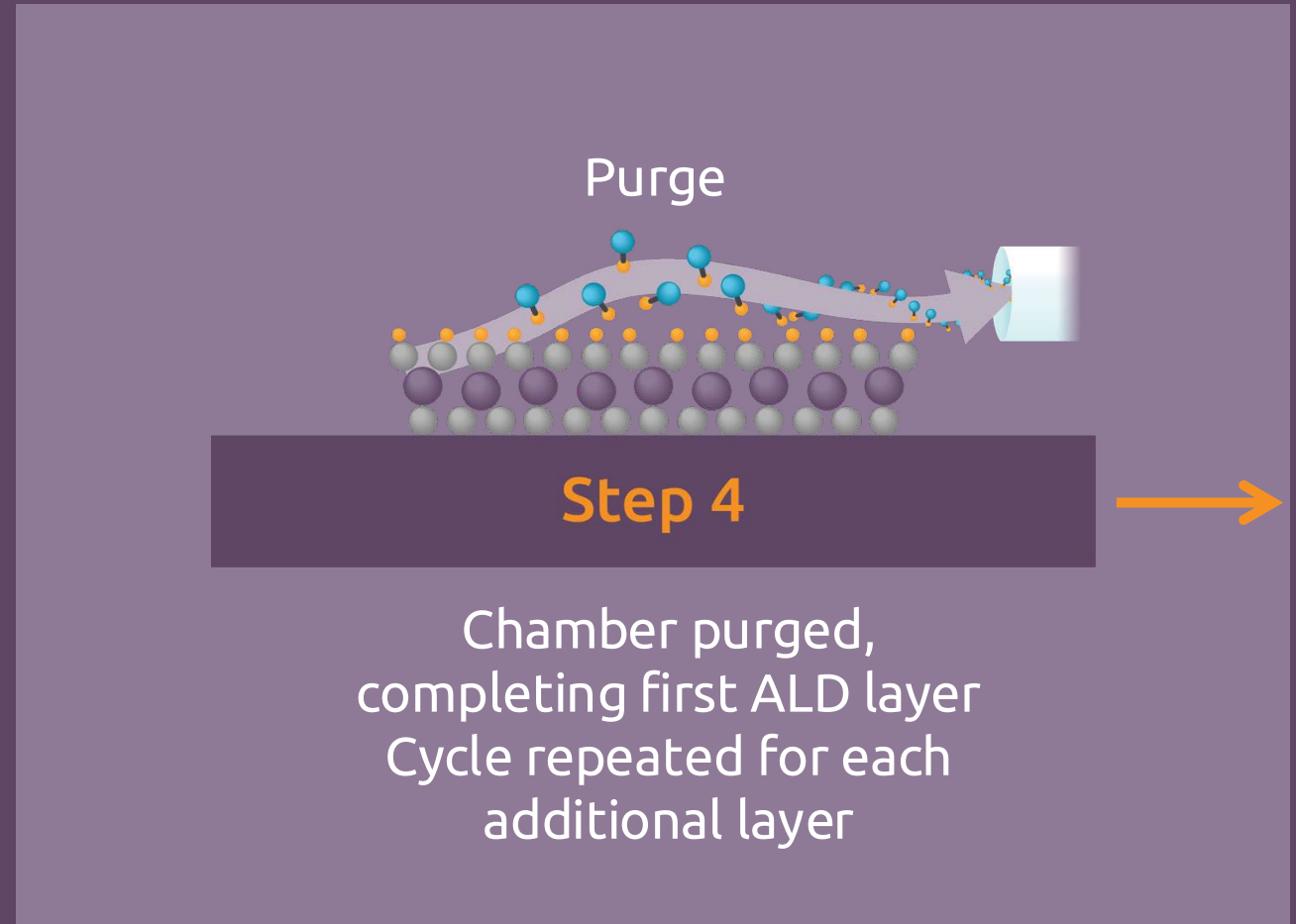
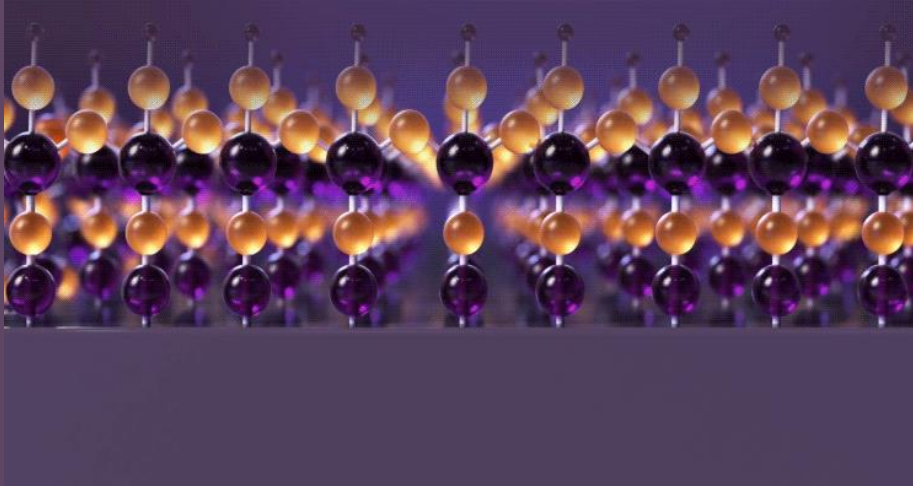


Step 3



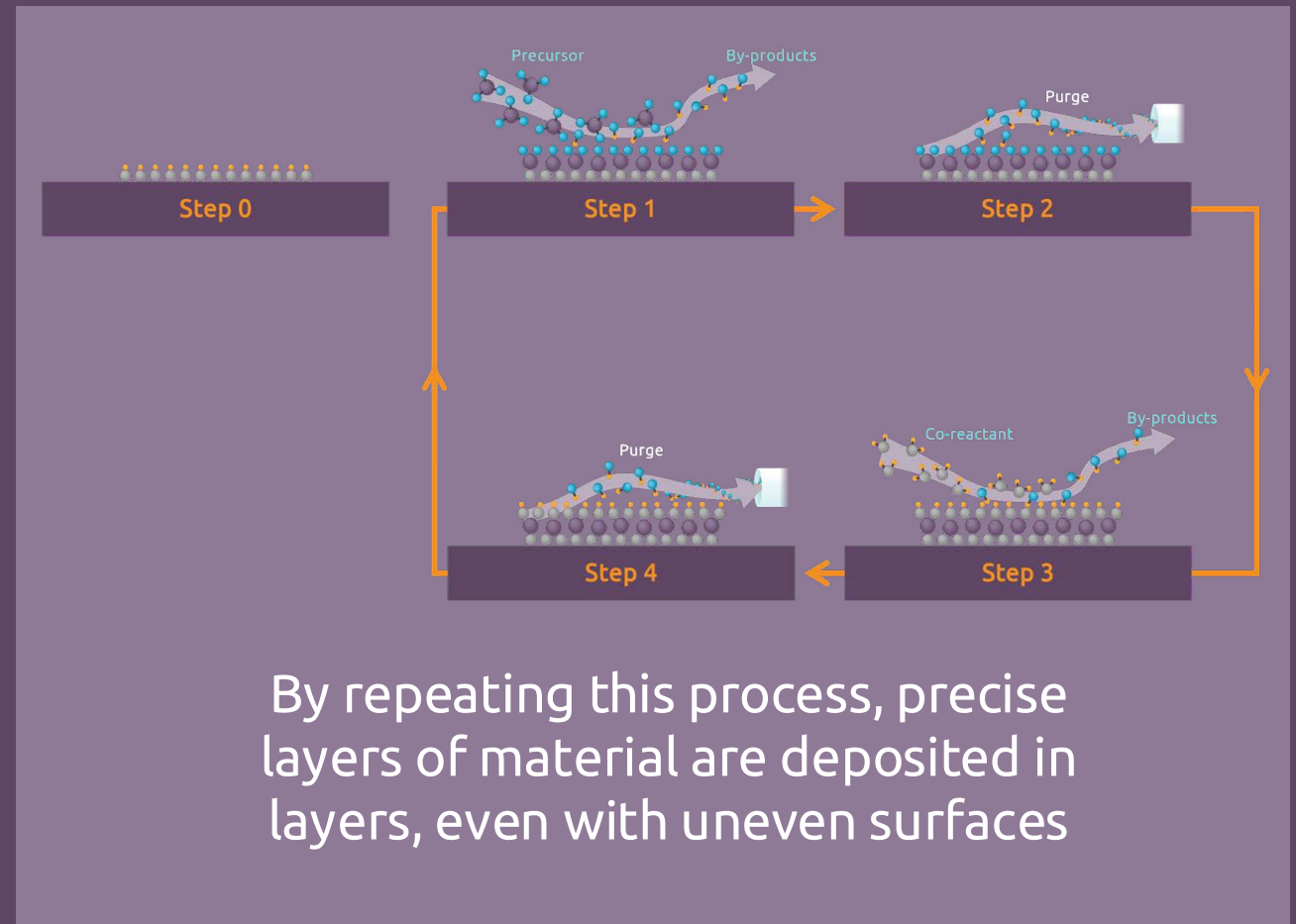
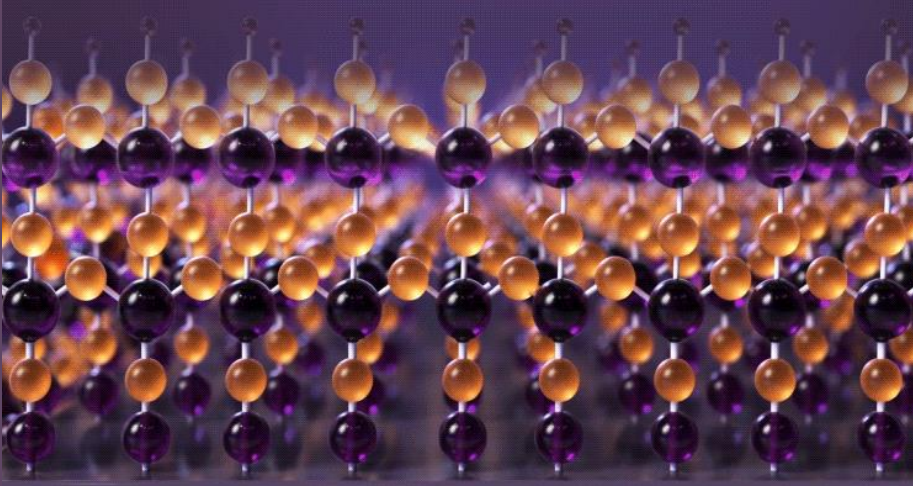
Expose substrate to second precursor (co-reactant) “pulse” to convert surface; often enhanced with plasma energy

# Key steps in ALD cycle





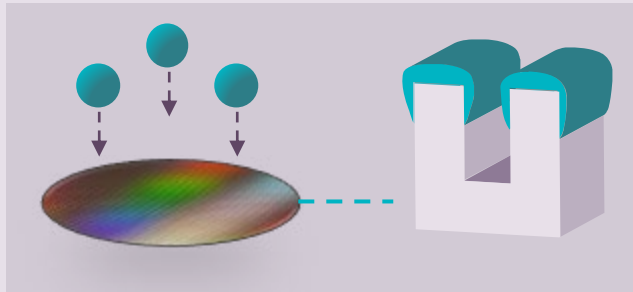
# Key steps in ALD cycle



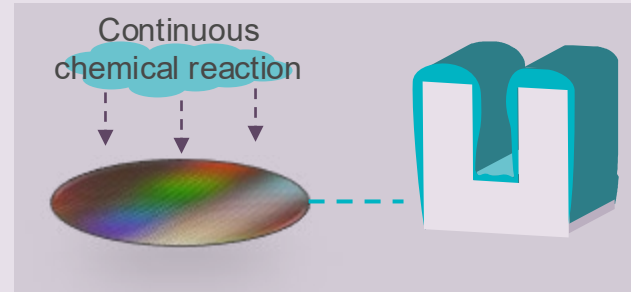
# ALD geared for a 3D world



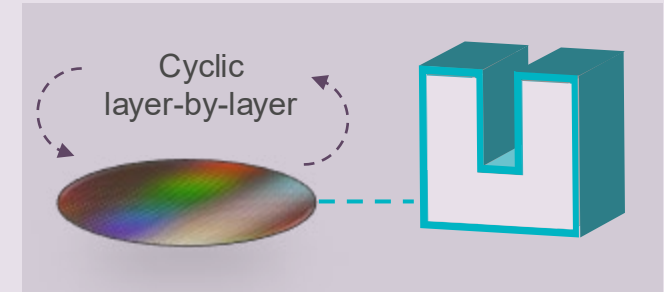
## Physical Vapor Deposition (PVD)



## Chemical Vapor Deposition (CVD)



## Atomic Layer Deposition (ALD)



### Mechanism

Physical transfer of material (sputtering)

Chemical reaction of gases

Sequential, self-limiting surface reactions

### Directionality

Highly directional: Line-of-sight

Less directional than PVD

Non-directional, conformal deposition

### Film growth

Unabated (no surface reaction control)

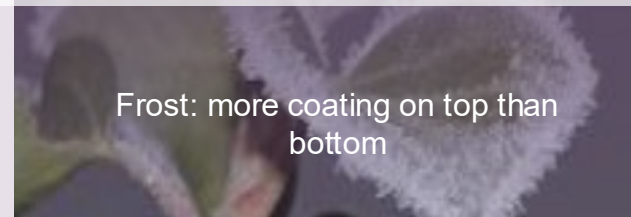
Unabated (Continuous growth on surface)

Abated (layer-by-layer precision)

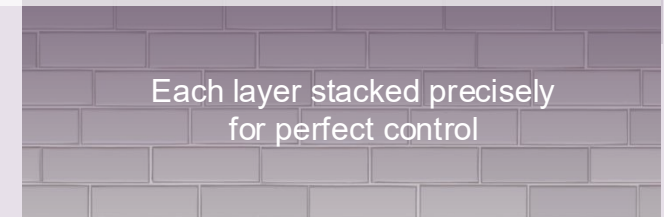
Travels straight and coats what it hits



Frost: more coating on top than bottom



Each layer stacked precisely for perfect control



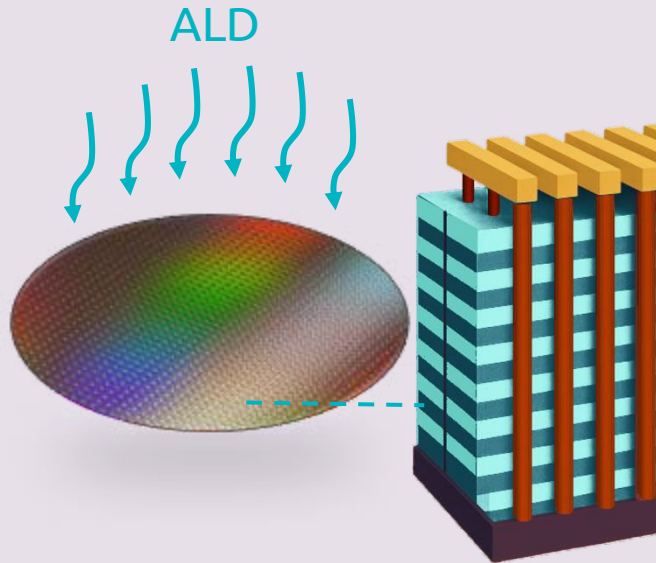
**ALD's precise, uniform and conformal coating makes it ideal for next-gen devices**



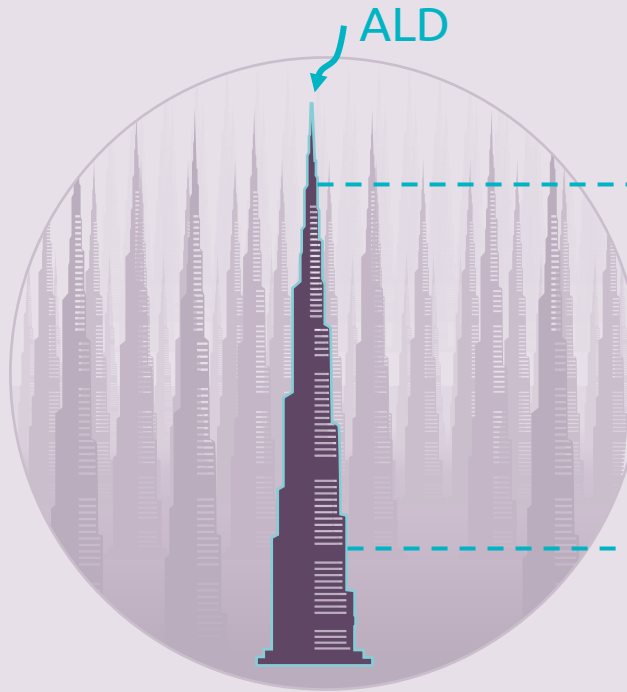
# Coating Dubai with precision finer than human hair

Uniformity of ALD film across wafer and over high A/R structures ~ coating city packed with Burj Khalifa towers with a 5mm layer thickness with precision to within width of a human hair!

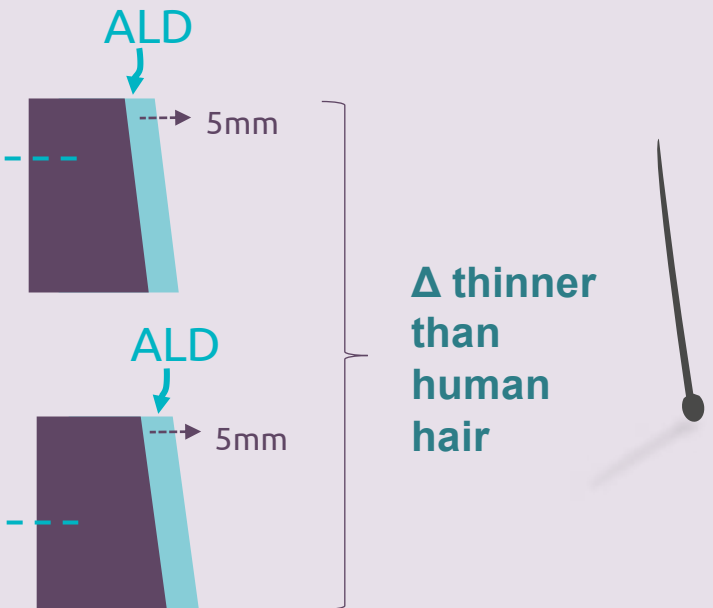
**Depositing 1nm ALD film uniformly across a 300 mm wafer over trillions of HAR features**



**Coating all Dubai with 5mm ALD film full of MANY Burj Khalifa**



**Uniformly coating entire city**



**Standard deviation (1 sigma) in thickness is less than the width of a human hair**





---

In 3 years, device aspect ratio will exceed equivalent of stacking 50 Burj Khalifa towers vertically, reaching beyond stratosphere and coating with same precision

---



# ASM is market leader in ALD



# ASM is market leader in ALD



- **ASM's ALD legacy: 50+ yrs**
- Solving ALD's toughest challenges
- Largest product portfolio to address diverse application needs
- ASM expands ALD-compatible materials
- Prolific & impactful IP portfolio



**1974**

Dr. Suntola invents ALD (ALE)



**1987**

Microchemistry (MC) founded in Helsinki (Neste)



**1998**

First 200mm Pulsar<sup>®</sup> released



**1999**

ASM acquires MC from Neste



**2000**

Acquired Sherman PEALD patents



**2004**

Genitech acquisition



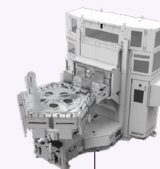
**2008**

Semiconductor International – Pulsar<sup>®</sup> "PoY" "Switch is On" launched at SEMICON



**2018**

ASM introduces Synergis<sup>®</sup>, a dual chamber thermal ALD product



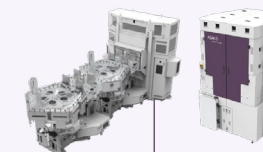
**2019**

ASM introduces XP8<sup>®</sup> quad chamber module



**2022**

Acquisition of Reno Sub-Systems



**2024**

ASM introduces Prominis<sup>®</sup> ALD and XP8E<sup>®</sup> platform

**50+ years driving innovation in ALD**



# ASM is market leader in ALD



- ASM's ALD legacy: 50+ yrs
- **Solving ALD's toughest challenges**
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## Industry Problem

### Reactor challenges

Non-uniform precursor delivery/plasma  
Parasitic CVD  
Thermal uniformity  
Radical/ion recombination  
Plasma damage



## ASM Solutions

### Reactors Designed for ALD

- ✓ Tools conceived for ALD
- ✓ Small volume reactors; cross-flow and showerhead type
- ✓ Integrated pulse valves
- ✓ Tykon™ EVC plasma control with fast impedance matching and less variation

Pulsar®



QCM™



### Precursor issues

Soft-saturation  
Precursor decomposition  
Steric hindrance  
Necessary volatility  
Byproduct interaction



### Precursor Innovation Sphere

#### Precursor development strategy:

- ✓ Best network (in-house/partner chemical scientists)
- ✓ Co-located with ASM hardware

#### Precursor delivery:

- ✓ Best temperature uniformity
- ✓ Increasing chemical dose/sources



University of Helsinki and ASM Chemical Innovation Group (taken in 2023)

### Surface effects

Poorly functionalized surfaces  
Contaminated surfaces  
Outgassing  
Topography  
Surface and precursor interaction



### Integrated solutions

Clustering for modular co-development

- ✓ Clean (thermal/plasma)
- ✓ Treat (inhibit, functionalize)
- ✓ Controlled environment

Tession®



XP8E®



# ASM is market leader in ALD



- ASM's ALD legacy: 50+ yrs
- Solving ALD's toughest challenges

- **Largest product portfolio to address diverse application needs**

- ASM expands ALD-compatible materials
- Prolific & impactful IP portfolio

Wide range of technically differentiated ALD products on new platform to enable enhanced clustering & productivity for a range of applications and fab volumes

## Single

High-k, dipole and work function

Pulsar®



EmerALD®



High quality oxides, carbides and nitrides

## Dual

Patterning, high-k, WF, conducting nitrides, metallization, liner/gapfill, interfacial eng/clustered films

Synergis®



Formis®/Formion®



DCM™



Valion®



Silicon oxides, metal oxides, metal nitrides, metals, clean/treatment

## Quad

HAR gap-fill, TSV liner, low-k liner, SiN liner metallization, high-k, interfacial eng/clustered films

QCM™



Arius™



JQCM™



Tession®



Prominis®



Magma®



HT silicon oxides/doped oxides, silicon nitrides, metal oxides, nitrides, metals, clean/treatment

## Platform

New platform with integrated AI/ML

XP8®



XP8E®



Tailored ALD solutions for every customer need

Addendum: Magma® shown in Quad category



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Elements  
accessed  
by ALD

1980's

|                                     |                                   |                                    |                                 |                                       |                                  |                                    |                                 |                                  |                                  |                                  |                                  |                                  |                                 |                                  |                                  |                                     |                               |                                       |                            |                                    |                             |
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| 3<br>Li<br>6.94<br>Lithium          | 4<br>Be<br>9.0121831<br>Beryllium |                                    |                                 |                                       |                                  |                                    |                                 |                                  |                                  |                                  |                                  |                                  |                                 |                                  |                                  | 5<br>B<br>10.81<br>Boron            | 6<br>C<br>12.011<br>Carbon    | 7<br>N<br>14.007<br>Nitrogen          | 8<br>O<br>15.999<br>Oxygen | 9<br>F<br>18.998403163<br>Fluorine | 10<br>Ne<br>20.1797<br>Neon |
| 11<br>Na<br>22.98976928<br>Sodium   | 12<br>Mg<br>24.305<br>Magnesium   |                                    |                                 |                                       |                                  |                                    |                                 |                                  |                                  |                                  |                                  |                                  |                                 |                                  |                                  | 13<br>Al<br>26.9815385<br>Aluminium | 14<br>Si<br>28.085<br>Silicon | 15<br>P<br>30.973761998<br>Phosphorus | 16<br>S<br>32.06<br>Sulfur | 17<br>Cl<br>35.45<br>Chlorine      | 18<br>Ar<br>39.948<br>Argon |
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ASM has developed reference processes for >70% of the elements cited in ALD literature

Source: [www.atomiclimits.com/alddatabase](http://www.atomiclimits.com/alddatabase)



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50+ yrs
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Elements  
accessed  
by ALD

2024

|                                     |                                   |                                    |                                 |                                       |                                  |                                    |                                 |                                  |                                  |                                  |                                  |                                  |                                 |                                  |                                  |                                     |                               |                                       |                            |                                    |                             |
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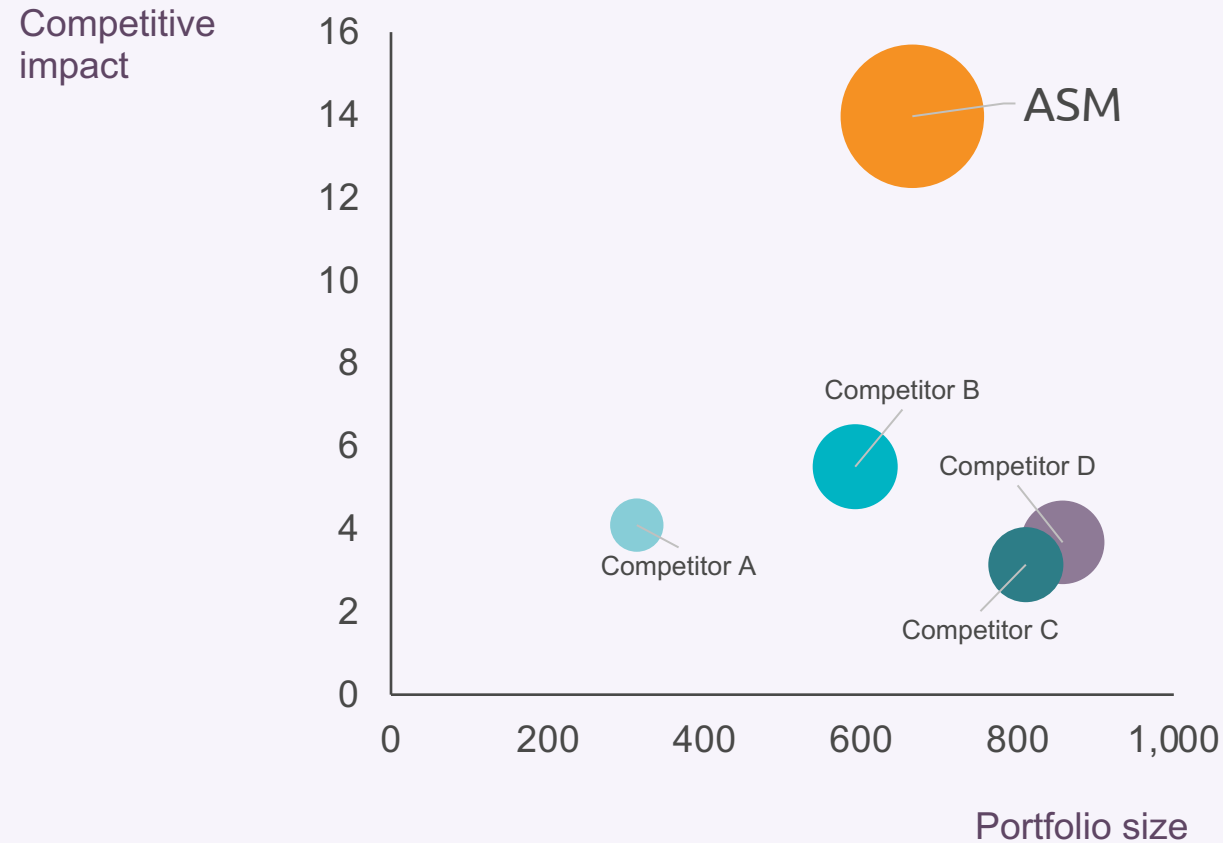
Investor Day 2025

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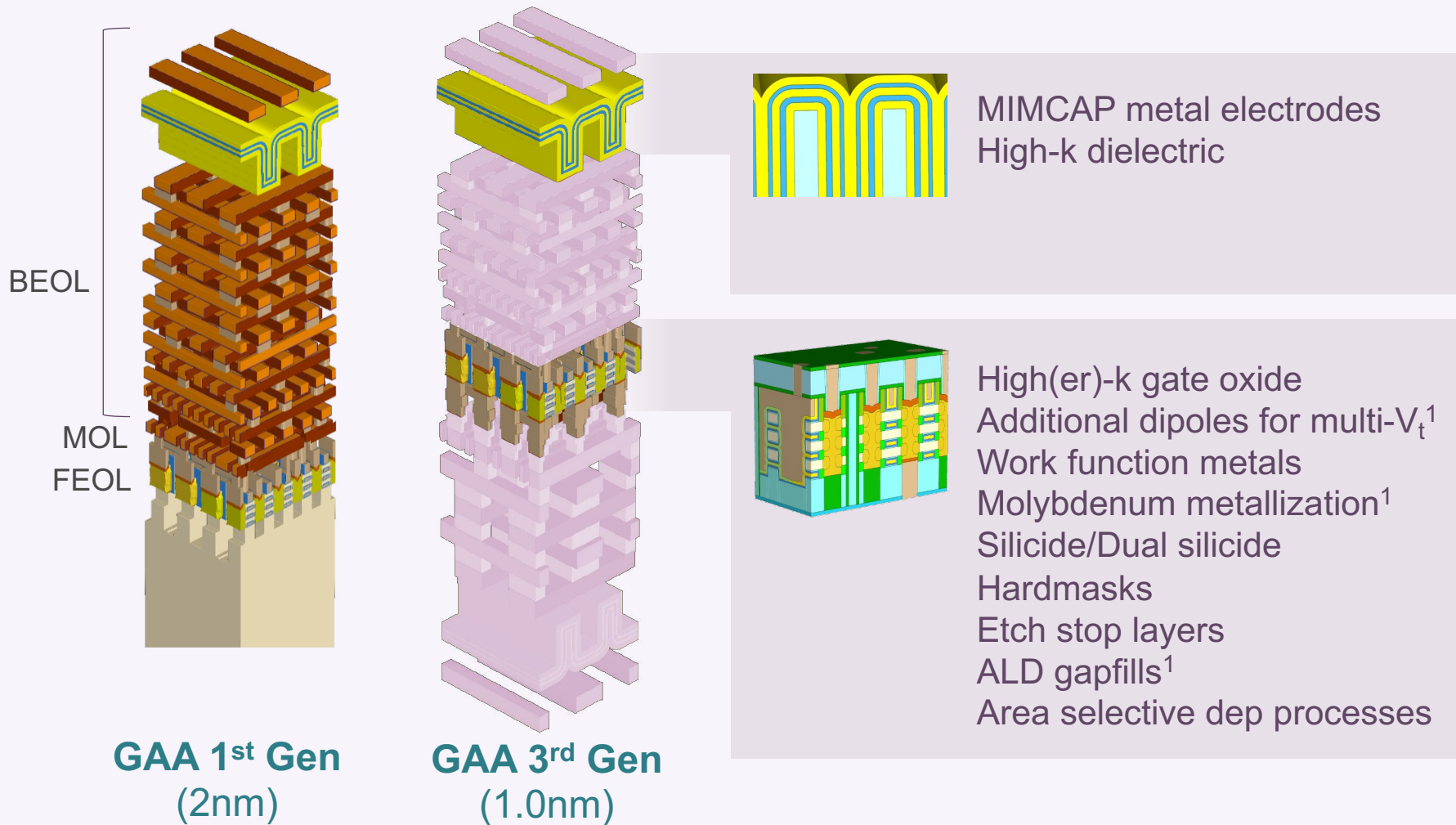


Source: LexisNexis® PatentSight® (November 2024), for more information, please visit <https://www.lexisnexisip.com/resources/atomic-layer-deposition-thin-layers-are-a-big-thing/>





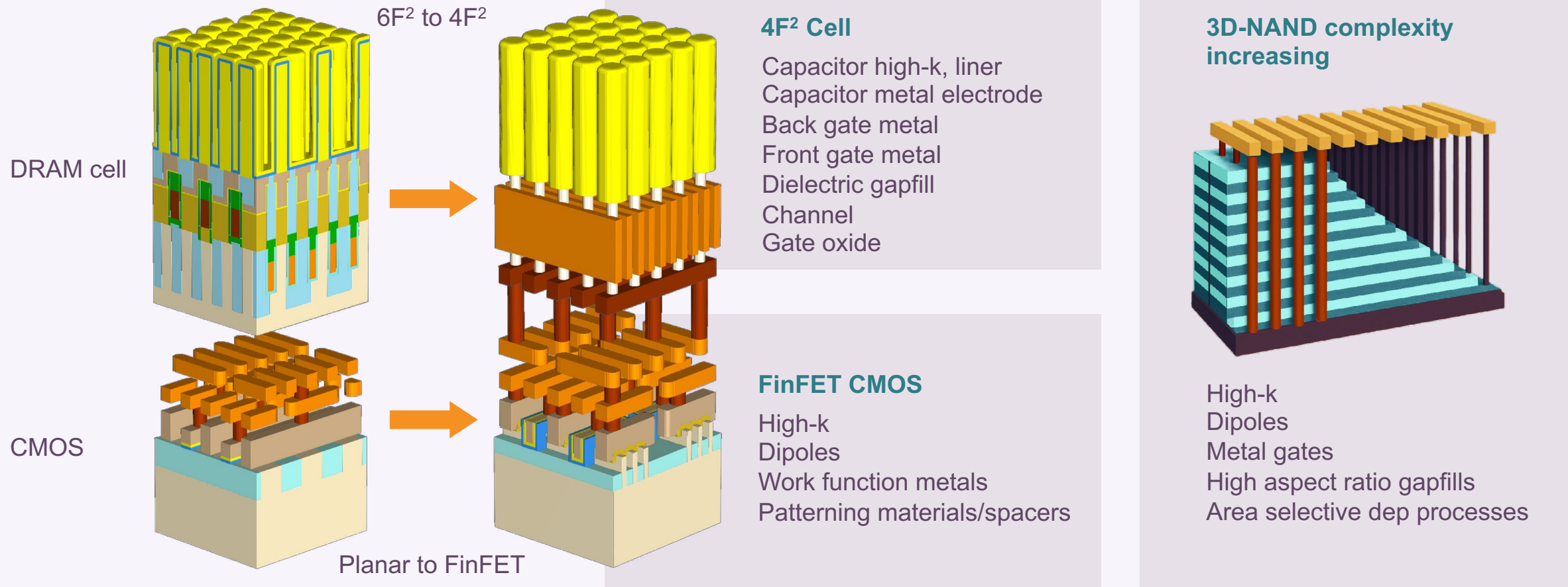
# Increasing GAA complexity drives ALD growth



More ALD materials and passes needed with GAA technology scaling

1) Deepdive

# Memory transitions accelerate ALD adoption





---

ALD is essential for 3D scaling  
of functional and gapfill layers  
ASM excels in solving many  
high value problems with  
unique solutions

---



# Deep dive

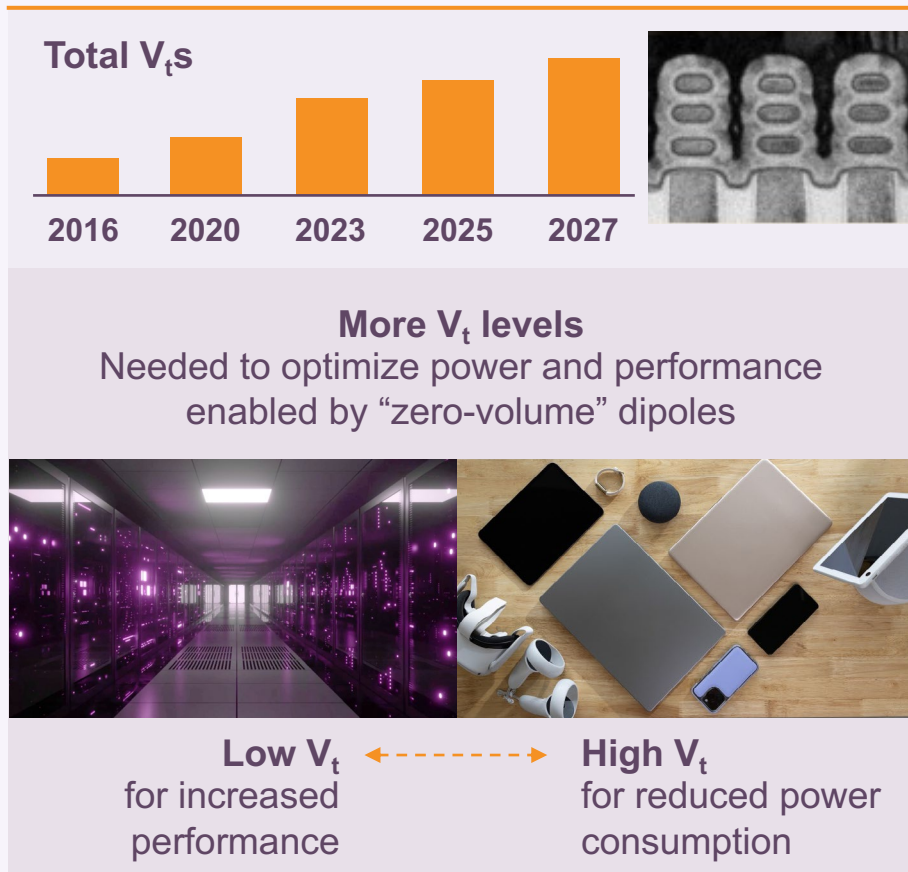


# ASM dipole technology meets growing $V_t$ tuning needs

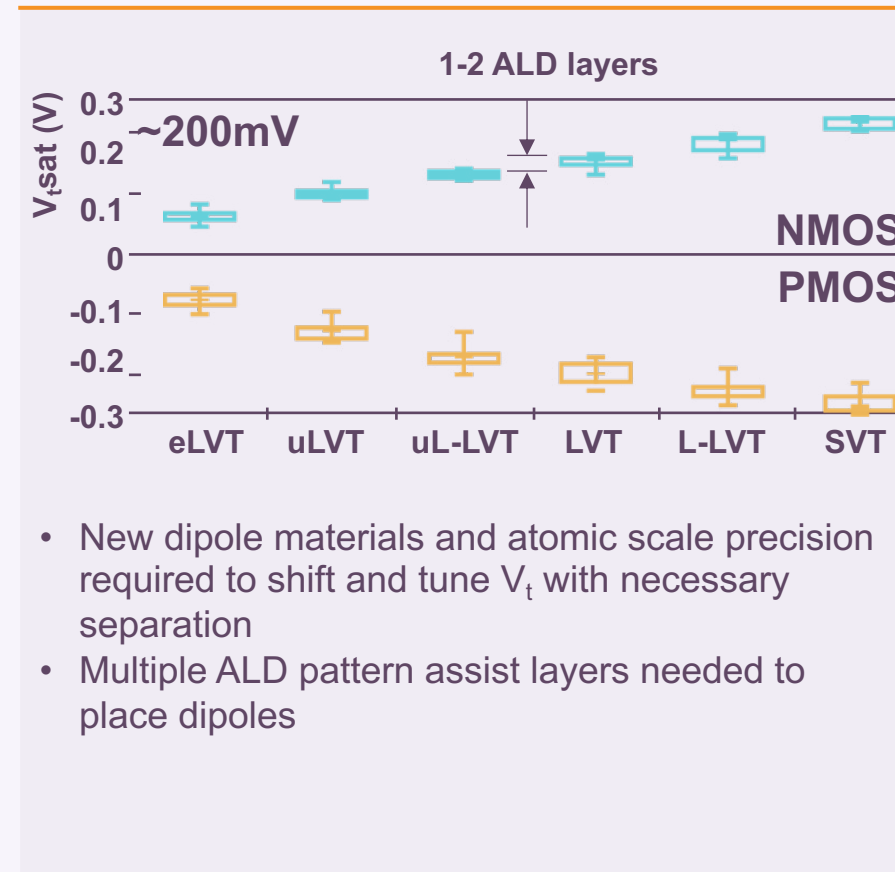


GAA driving more stringent functional film requirements only met by ALD

## $V_t$ s increase node over node



## Reducing gap between $V_t$ levels



ASM advancing multi- $V_t$  with precisely controlled dipole layers

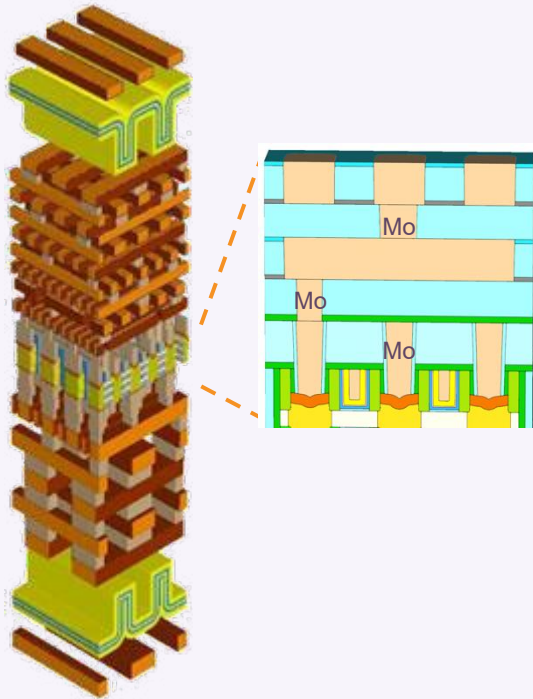
Source: S.-Y. Wu et al, IEDM 2022 (TSMC 3nm)

# Integrated solution for molybdenum metallization



## Requirements

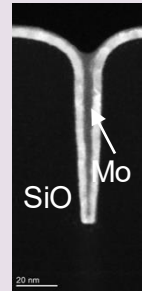
Low resistivity (seam-free),  
non-damaging, low temperature  
Mo metallization solution for via  
and trench fill in Logic



## PEALD and thermal Mo ALD with integrated surface clean

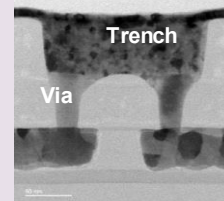
### PEALD Mo Liner

<400C,  
seam free  
conformality,  
low resistivity



Tession®

### Thermal ALD trench fill



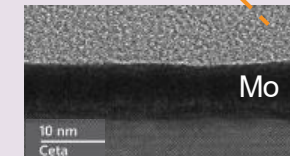
Prominis®

Solid source

Leader in solid  
chemistry  
management



### Formion®



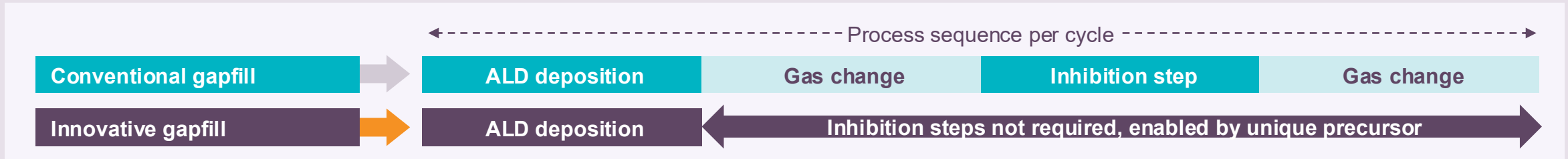
Atomically smooth  
interface via  
surface clean

Flexible, multi-process  
integrated solution  
for all molybdenum  
metallization  
challenges






# Innovations for vertical and lateral ALD gapfill



## Lateral gapfill

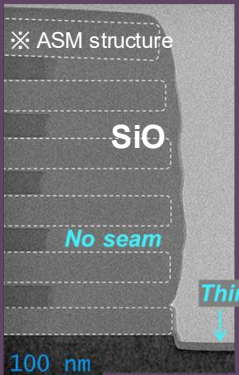
### Challenges



Seam

- Seams in lateral trench
- Minimal deposition on side and bottom

### ASM solutions



※ ASM structure

SiO<sub>2</sub>

No seam

Thin

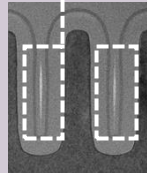
100 nm

Seamless gapfill in lateral trenches with thin film at side and bottom

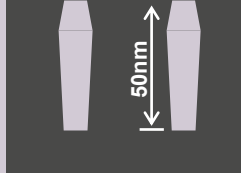
## Vertical gapfill

### Challenges

Logic Re-entrant narrow CD



Seam

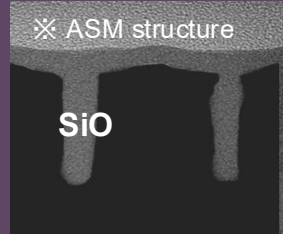


<6nm

50nm

### ASM solutions

Gapfill without seams and void-free

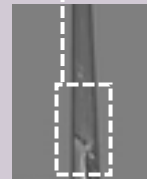


※ ASM structure

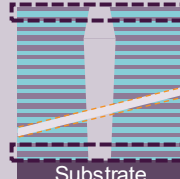
SiO<sub>2</sub>

### Challenges

3D-NAND High aspect ratio, >250:1



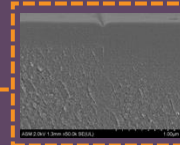
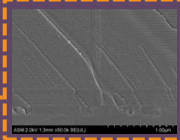
Void



Substrate

### ASM solutions

Void-free



Providing innovative solutions for future nodes' challenging demands on HVM-proven hardware



# Key takeaways

## 1 Essential

ALD is essential technology for advanced, 3D structures.

## 2 Growth

Single-wafer ALD set to grow at 9-13% CAGR, outpacing WFE (6%)  
Leading logic/foundry inflections and expanding in memory.

## 3 Legacy

Unparalleled legacy in ALD (50+ years).

## 4 Innovation

ASM leads ALD market and continuously innovates to stay ahead of what's next.

## 5 Clustering

New common platform drives enhanced clustering & productivity:  
Couples surface clean and deposition solutions.

## 6 ALD+

ALD+ means advanced materials, chemical and technology solutions,  
tackling high value problems.

# Investing for growth, delivering long-term value

**Paul Verhagen**

CFO



# Key takeaways



## 1 Value for stakeholders

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

## 2 Guidance 2027

Guidance 2027: revenue adjusted for currency only to €3.7-€4.6 billion and margins increased.

## 3 Guidance 2030

New guidance for 2030 is as follows:

- Revenue of more than €5.7 billion, representing a 2024-2030 CAGR of at least 12%, outperforming WFE.
- Gross margin target range increased to 47%-51%
- Operating margin target range increased to 28%-32%. Target >30% by 2030.

## 4 Operating expenses

Continue low double-digit % investment in net R&D while SG&A is expected to decrease to below 7% in 2030, both as % of total sales.

## 5 Capital allocation

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

## 6 Net Zero 2035 target

Driving sustainability is not only a license to operate, it also makes business sense.

Note: All numbers presented throughout this presentation are adjusted numbers excluding purchase price allocation adjustment



# Growth through Innovation strategy has created significant value over FY20 - FY24

€1.0 billion

Total cash returned to shareholders

€1.6 billion<sup>1</sup>

Accumulated free cash flow

36.5%<sup>2</sup>

Average ROIC

22.0%

Revenue CAGR

48.7%

Average gross margin

27.0%

Average operating margin

100%

Renewable electricity since 2024

-85%

Reduction in scope 1 and 2 emissions (2024 vs 2020)

1) Excluding ASMPT dividends and acquisitions

2) Excluding share of income from ASMPT and equity value and cash



# Latest view FY25

- ASM expects Q3 2025 revenue to be as previously guided.
- Q4 2025 revenue to be below earlier expectations. This is due to lower-than-expected demand in leading-edge logic/foundry, with a mixed picture per customer, as well as lower demand in the power/wafer/analog markets.
- For this reason, revenue in the second half of 2025 is expected to be 5%-10% lower compared to the first half of 2025 at constant currencies.
- For bookings, the above-mentioned demand weakness is projected to result in a book to bill of below 1 in the second half of 2025.
- The updated guidance for H2 2025 implies that revenue growth (at constant currencies) for the full year 2025 will be at the lower end of the previously guided range of 10%-20%.
- For the full year 2025, we still expect to grow strongly in leading-edge logic/foundry. The structural outlook for this market segment remains strong.





# Excess cash returned to shareholders

## Dividend per share

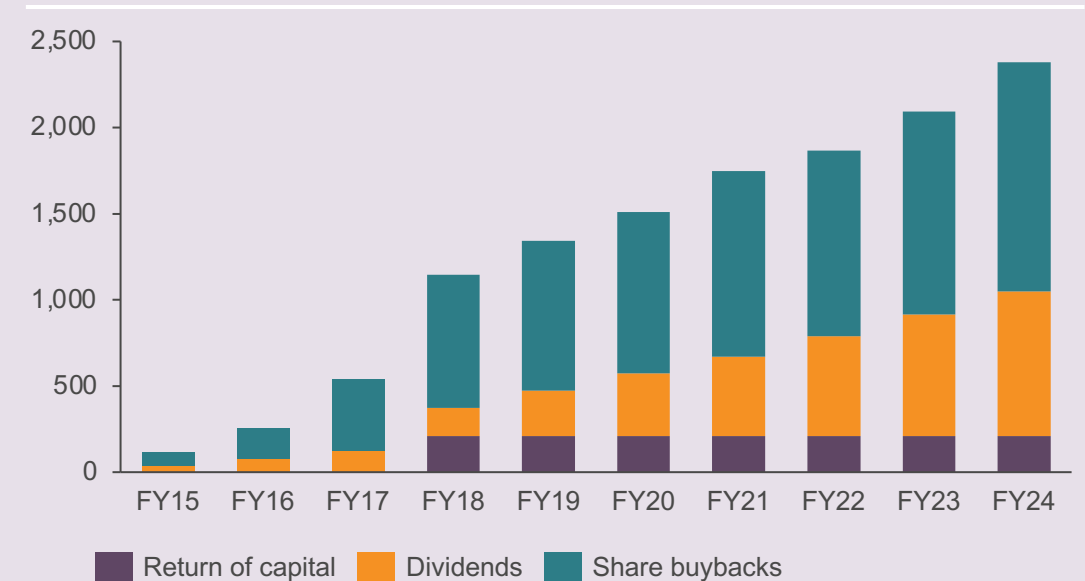
(in € paid over)



**Dividends gradually increased from €0.70 per ordinary share in FY15 to €3.00 in FY24**

## Cumulative cash returned to market

(€ million)



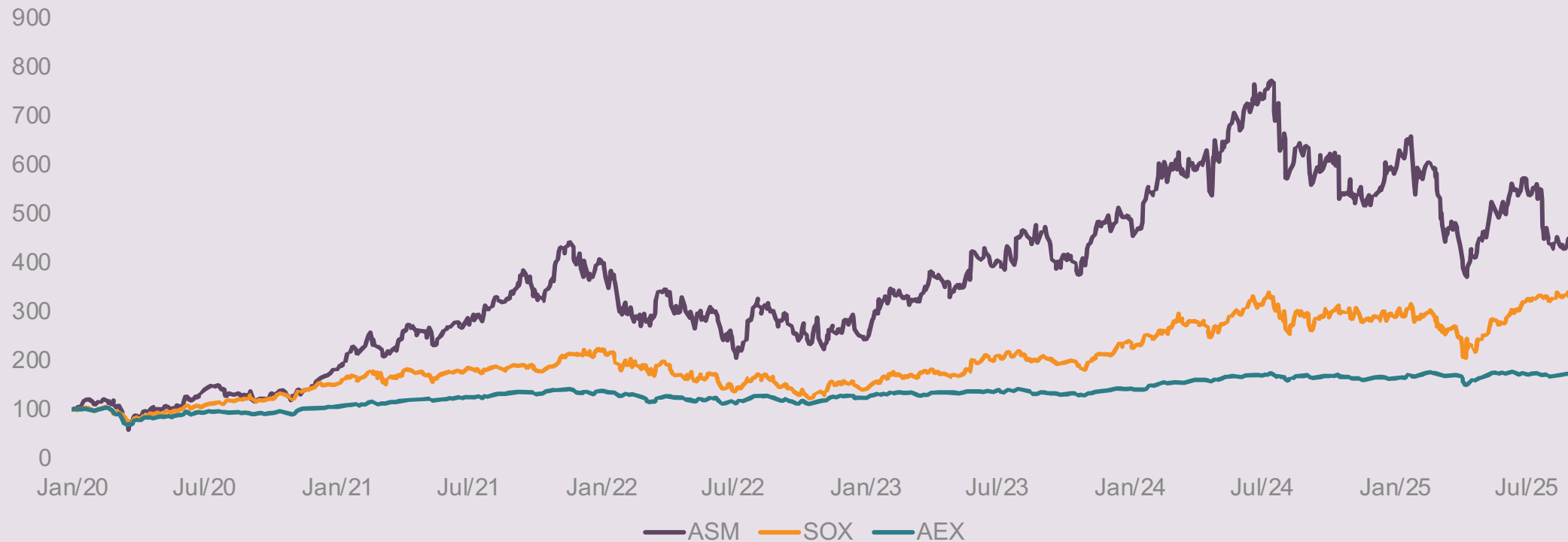
## Cash returned to shareholders

- More than €2.3 billion cash returned since FY15 of which approximately:
  - €1.3 billion in share buyback
  - €0.8 billion in dividends
  - €0.2 billion in return of capital

# Strong total shareholder return



## Total cumulative shareholder return



Note: Indexed total return ASM vs. AEX and SOX as of January 2020, up to September 2025

# Status update on FY27 guidance







# 2027 revenue guidance adjusted for currency only, margins increased

|                      | FY 2027   | Current view   |
|----------------------|---|--|
| Revenue              | €4.0-€5.0 billion                                 | €3.7-€4.6 billion adjusted for currency <sup>1</sup> |
| Gross margin %       | 46%-50% (FY26-FY27)                               | 47%-51% (FY26-FY27)                                  |
| SG&A % revenue       | High single digit (FY26-FY27)                     | High single digit (FY26-FY27)                        |
| R&D (net) % revenue  | High single digit to low double digit (FY26-FY27) | Low double digit (FY26-FY27)                         |
| Operating margin %   | 26%-31% (FY26-FY27)                               | 28%-32% (FY26-FY27)                                  |
| Effective Tax Rate % | High teens to low twenties (FY26-FY27)            | Low twenties (FY26-FY27)                             |

1) Revenue adjusted based on USD/EUR 1.17.

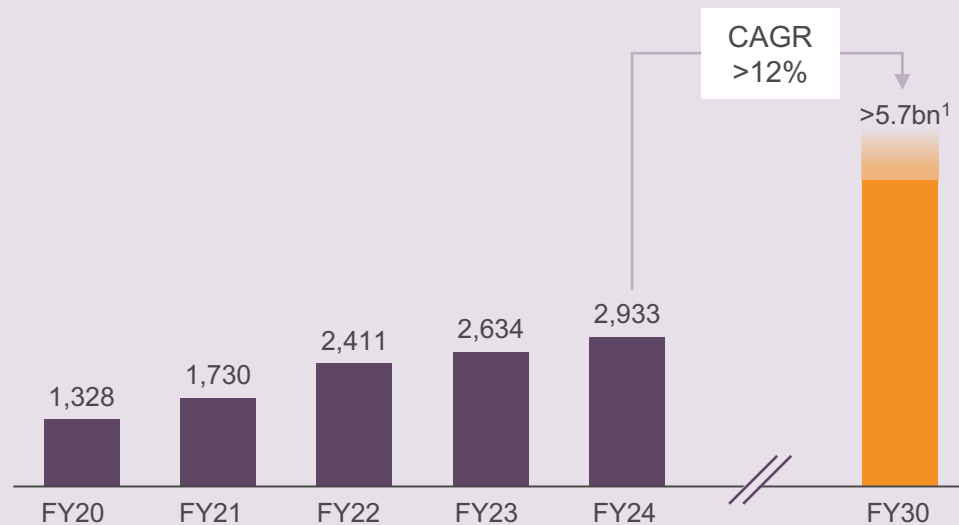
# Targets for FY30



# Revenue target of more than €5.7 billion in FY30, outgrowing WFE market

## Revenue

(€ million)



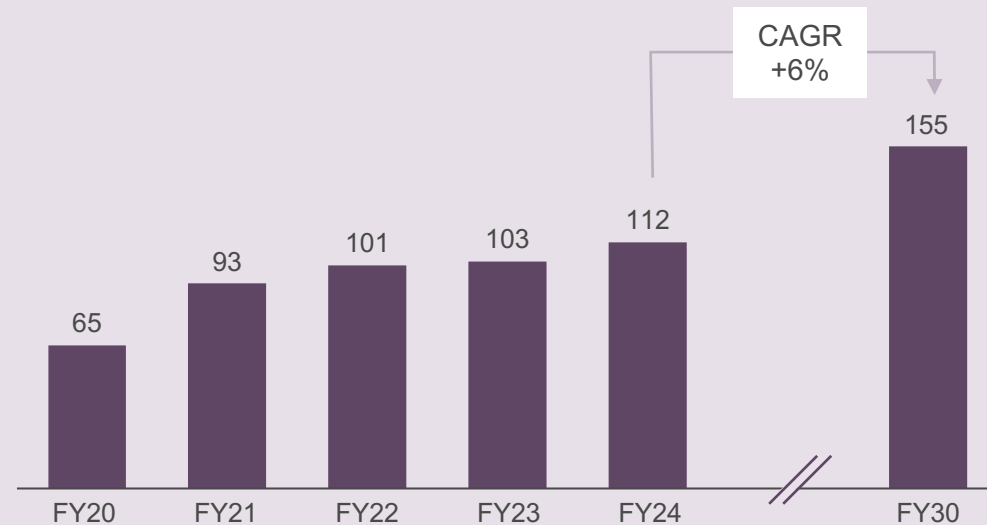
### Growth drivers for period '25 – '30:

- Growth of end markets
- Growth and composition of WFE market
- Increased ALD intensity with new inflections and maintain ALD market leadership in logic/foundry and grow memory, in particular DRAM
- Increased Epi intensity with new inflections and market share gains
- Grow in advanced packaging applications
- Spares and services > grow Outcome-based services

1) At comparable currencies

## WFE market forecast

(US\$ billion)



Source: Historical WFE: TechInsights (June 2025); 2030 WFE: ASM internal analysis

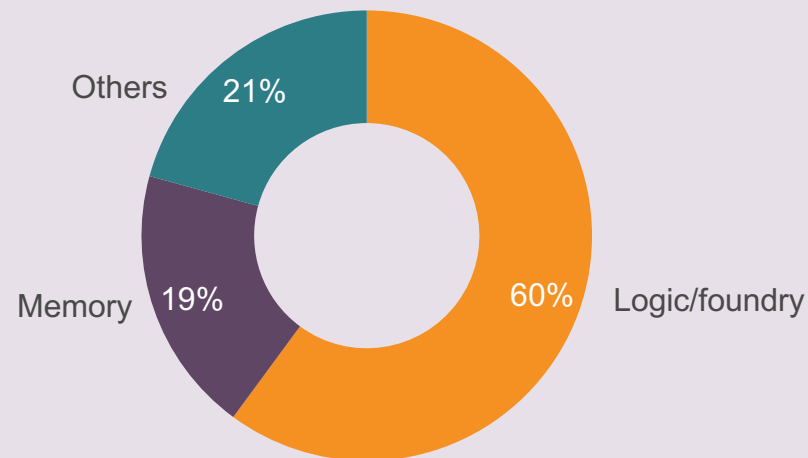
### ASM expects to outgrow the WFE market over the next six years





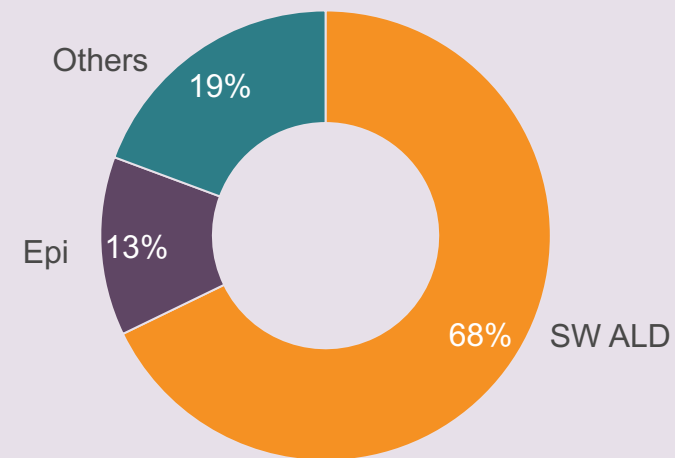
# Highest exposure in logic/foundry and ALD

**Revenue by served market as % of equipment revenue**  
(average FY20-FY24)



- Leading-edge logic/foundry is the key growth driver
- Mature logic/foundry contribution has also been robust in 2023/2024, particularly from the Chinese market
- Memory has on average been the smaller segment in recent years, but represents a strategic growth area for ASM
- The Others segment mainly consists of the power/analog/wafer segments

**Revenue by product as % of equipment revenue**  
(average FY20-FY24)

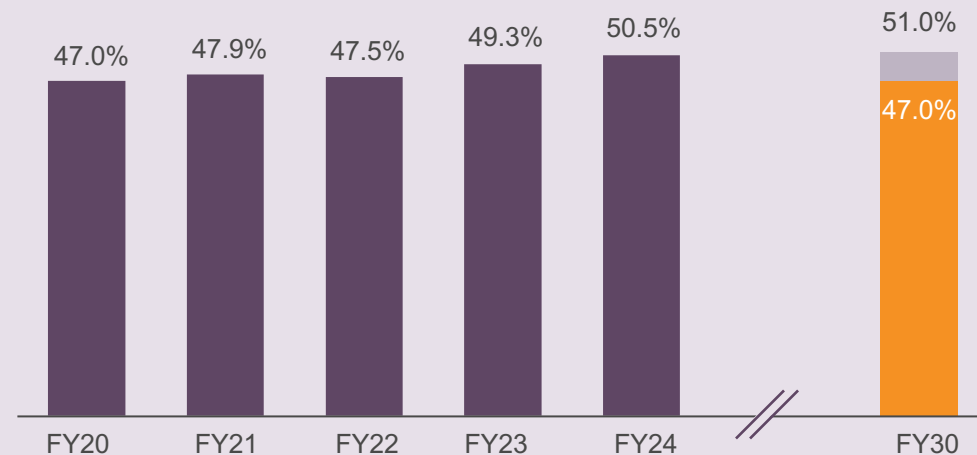


- ALD represents the largest part of sales
- We have a growing position in Si Epi, driven by market share gains in the leading-edge logic/foundry market
- The Others category consists of vertical furnaces, PECVD and SiC Epi, in which we target selective growth opportunities

# Mid-term gross margin guidance increased to 47%-51%



## Gross margin



### Factors affecting gross margin:

Sales price development

Application and customer mix

Cost efficiencies:

- Supply chain improvements, e.g., Merge in Transit (MIT)
- Standardization and commonality of platforms
- Value engineering

Operating leverage

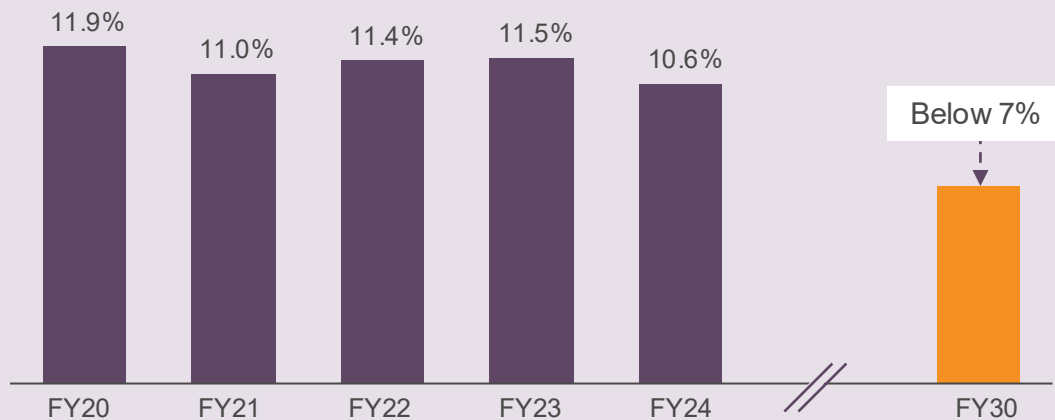
Some impact from USD EUR currency development despite reasonably good natural hedge

Potential unfavorable impact from geopolitical changes (tariffs) uncertain and not included



# Gradual decrease of SG&A as % of revenue and continued investments in R&D

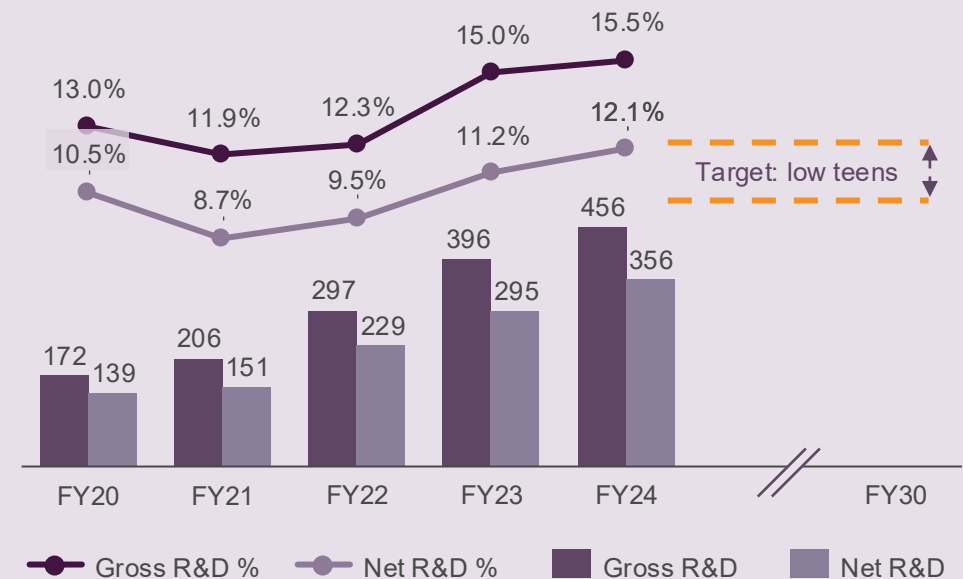
## SG&A spend (as % of revenue)



## SG&A as % of revenue gradually decrease

- Benefiting from operating leverage due to revenue growth, cost control, digitization and productivity improvements

## Net R&D spend (as % of revenue)



## Increasing to low teens depending on revenue growth

- Advanced R&D for inflections in logic/foundry and memory segments, including AP
- Lab expansions & equipment upgrades
- Continuous investments in R&D headcount
- Gross R&D investment is typically 2-4% higher than net R&D

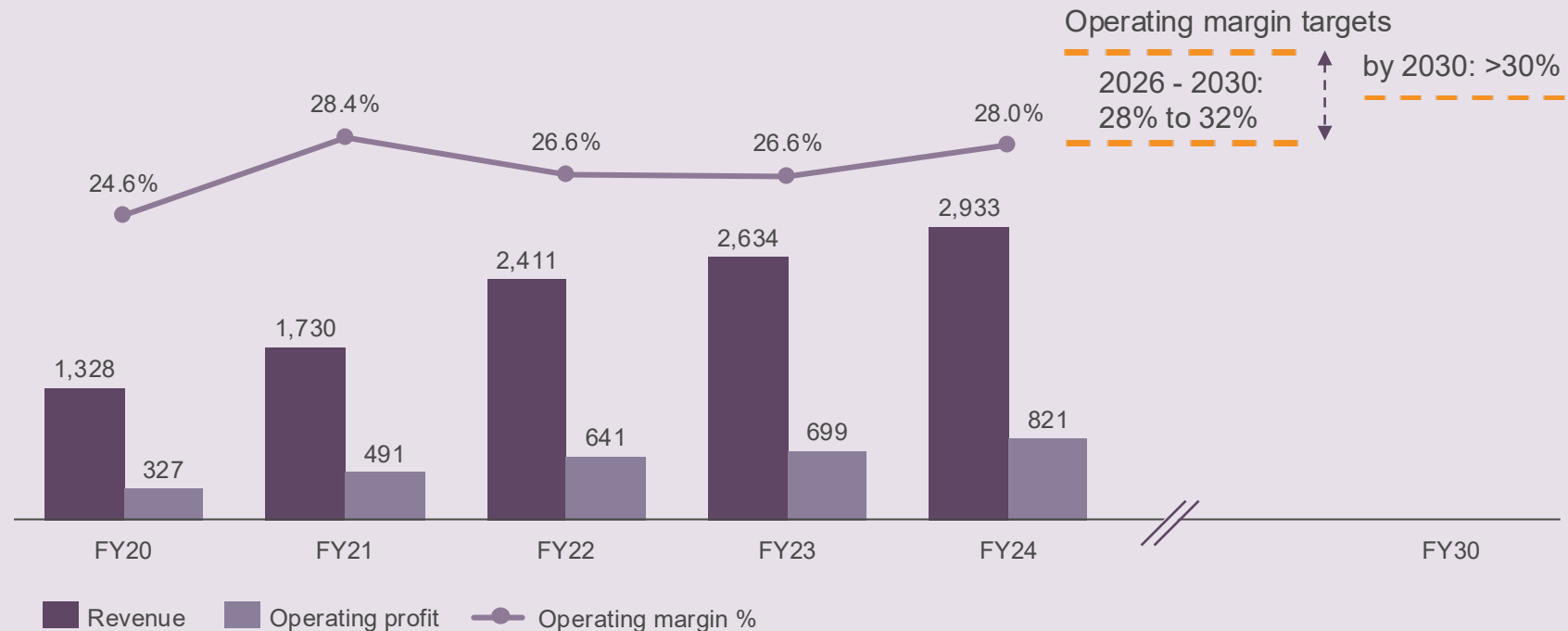


# Strong financial performance driven by revenue growth combined with disciplined gross margin and cost management



## Revenue, operating profit and operating margin

(€ million)





# Tax rate to gradually stabilize at low twenties

## Effective tax rate<sup>1</sup>



### Remarks

Effective tax rate (ETR) in recent years gradually increased from mid to high teens to low twenties due to the impact from Global minimum tax and the relative development of results on a country-by-country basis

Global minimum tax of 15% has become effective since 2024 and has resulted in upward pressure on ETR due to impact on certain tax incentives

The allocation of taxable profits moves in sync with ASM business developments

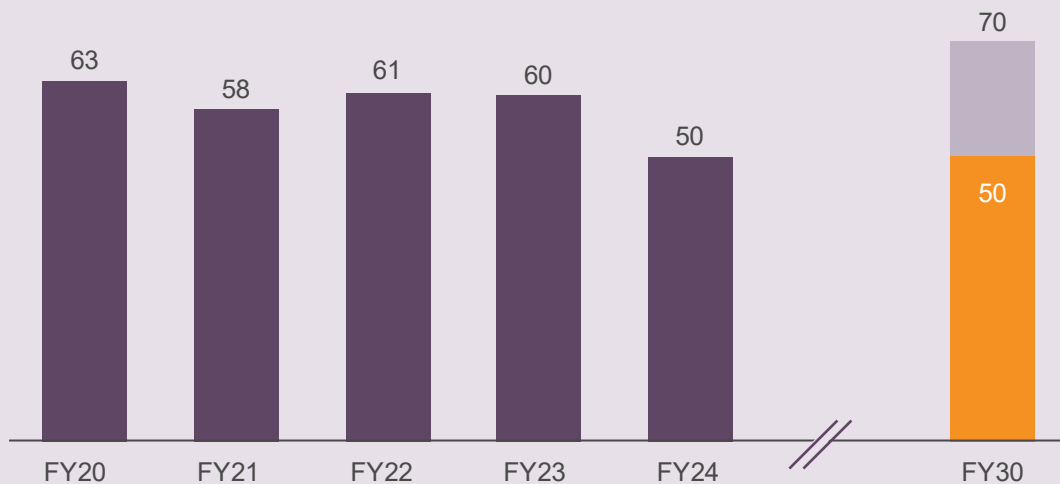
Global business and tax developments are continuously monitored assessing their potential ETR impact

1) ETR refers to effective tax rate excluding ASMPPT



# Disciplined working capital management and increased capex to support growth

## Working capital days

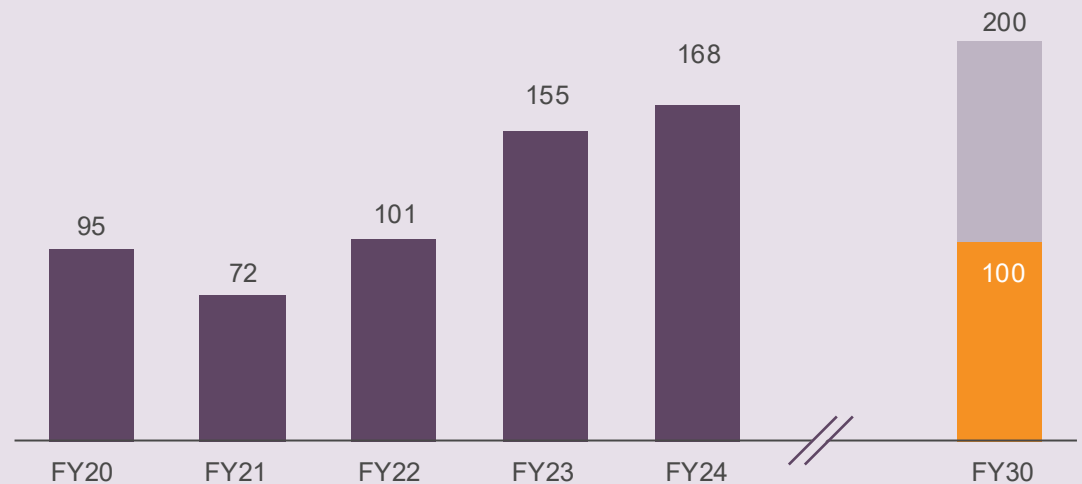


### We expect working capital days to range from 50-70 days

Strong working capital in 2024 due to:

- Improved DIO at 63 days
- Relatively higher contract liabilities (mainly deferred revenue) at 54 days that are expected to normalize in coming years

## Capital expenditure, gross (€ million)



### Capex €150-250m in years with infrastructure expansion and €100-200m after main expansions are completed

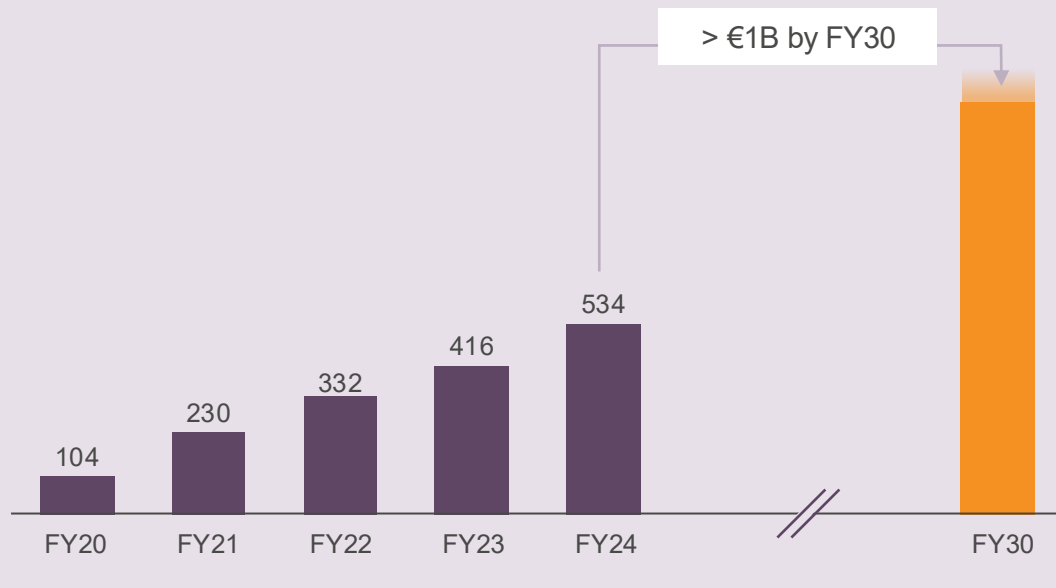
- Singapore completed in 2023
- South Korea completed in 2025
- Phoenix expected to be completed in Q1 2027
- Potential expansion in Europe starting in 2028
- Continued investments in products and metrology to support innovation





# Continuous growth in FCF generation in excess of €1B by FY30

## Free cash flow<sup>1</sup> (€ million)



### FCF growth due to:

Continued investment in revenue growth with strong profitability

Strict working capital management

Annual capex €100-200 million

Capex of €150-250 million in years with infrastructure expansion

1) Excluding ASMPT dividends and acquisitions



# Introducing FY30 targets

|                       | FY 2024      | FY 2030                                     |
|-----------------------|--------------|---|
| Revenue               | €2.9 billion | More than €5.7 billion by FY30 <sup>1</sup> |
| Revenue growth        | 12.0% yoy    | At least 12% CAGR (FY24-FY30)               |
| Gross margin %        | 50.5%        | 47-51% (FY26-FY30)                          |
| SG&A % revenue        | 10.4%        | Below 7% (by FY30)                          |
| R&D (net) % revenue   | 12.1%        | Low double digit (FY26-FY30)                |
| Operating margin %    | 28.0%        | 28-32% (FY26-FY30), >30% by 2030            |
| Capex (gross)         | €168 million | €100-200 million (FY30)                     |
| Effective Tax Rate %  | 21.1%        | Low twenties (FY26-FY30)                    |
| Total working capital | 50 days      | 50-70 days (FY26-FY30)                      |
| Free cash flow        | €534 million | More than €1 billion by FY30                |

1) At comparable currencies

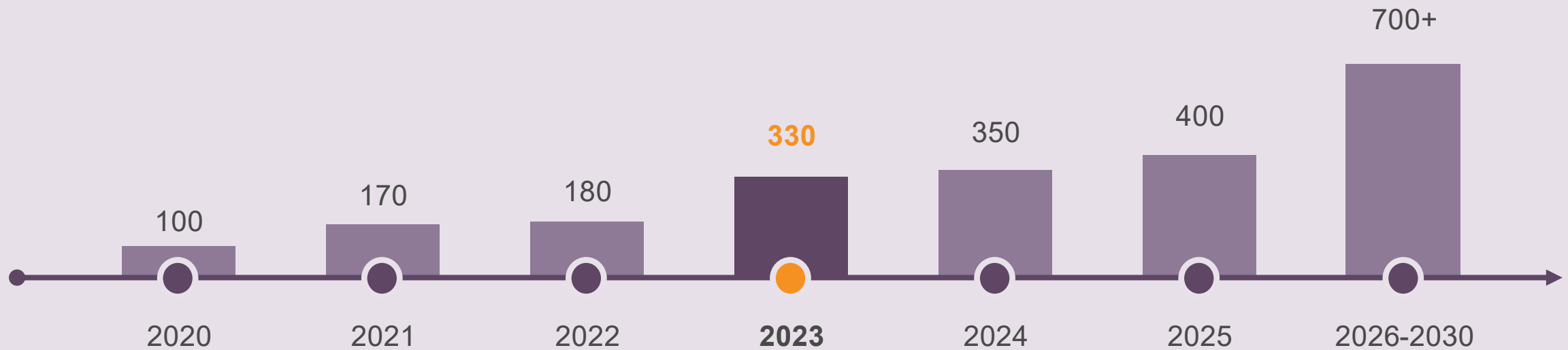
# Capacity and margin improvement initiatives





# ASM investing in flexible manufacturing capacity

Manufacturing capacity indexed to 2020



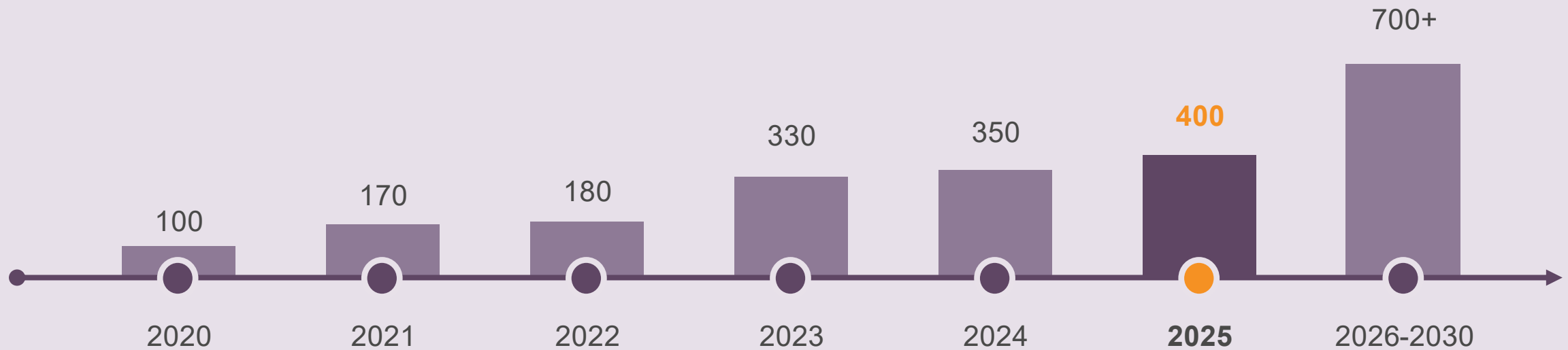
Singapore second floor expansion





# ASM investing in flexible manufacturing capacity

Manufacturing capacity indexed to 2020



Korea expansion will provide further capacity and enhanced business continuity

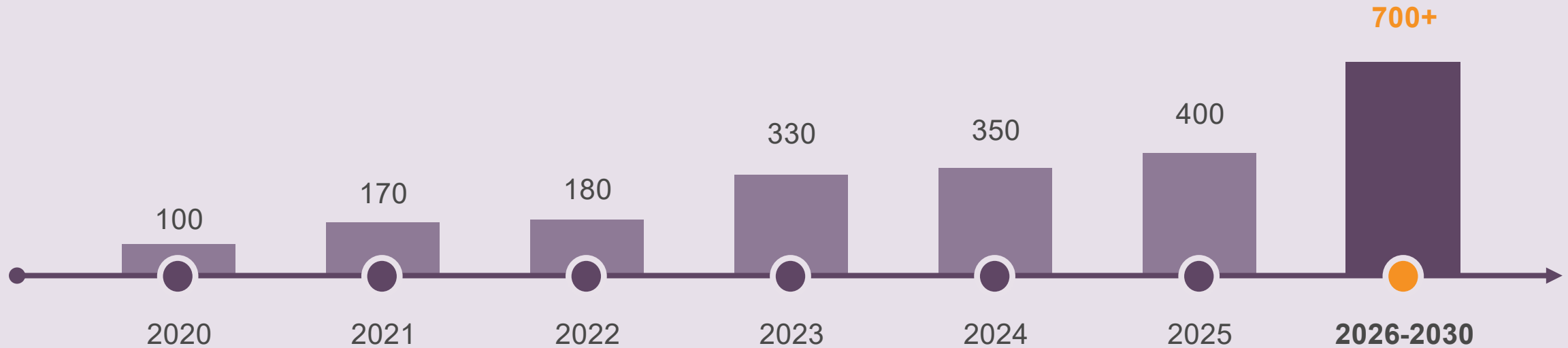
Dongtan expansion





# ASM investing in flexible manufacturing capacity

Manufacturing capacity indexed to 2020



Incremental future capacity expansion can be realized via merge in transit and increased efficiency to scale for 2030

Future MIT



Increased efficiency







# Drive operational excellence, flexible footprint and strong financial performance

## 1 Digital foundation

New digital foundation in place since July 2025 after successful big bang go live with new global ERP and PLM systems

## 2 Productivity

These new systems enable improved productivity, real time data analytics and increased benefits from AI

## 3 New product platforms

Improved platform development will reduce cost of product, inventory and lead times. New platforms will gradually replace previous generations in coming years

## 4 Manufacturing model

Improved manufacturing model including Merge In Transit will increase overall capacity and reduce cost of good for eligible tools

## 5 Operating margin

All these initiatives are expected to gradually and structurally improve operating margin by 200-300bps in the coming years which is reflected in the mid-term guidance

# Capital allocation

# Capital allocation strategy unchanged



## Priority 1

**Invest to support future growth**

- R&D
- Capex
- M&A

## Priority 2

**Maintain a strong balance sheet**

- Cash position around €800 million

## Priority 3

**Sustainable dividend payments**

## Priority 4

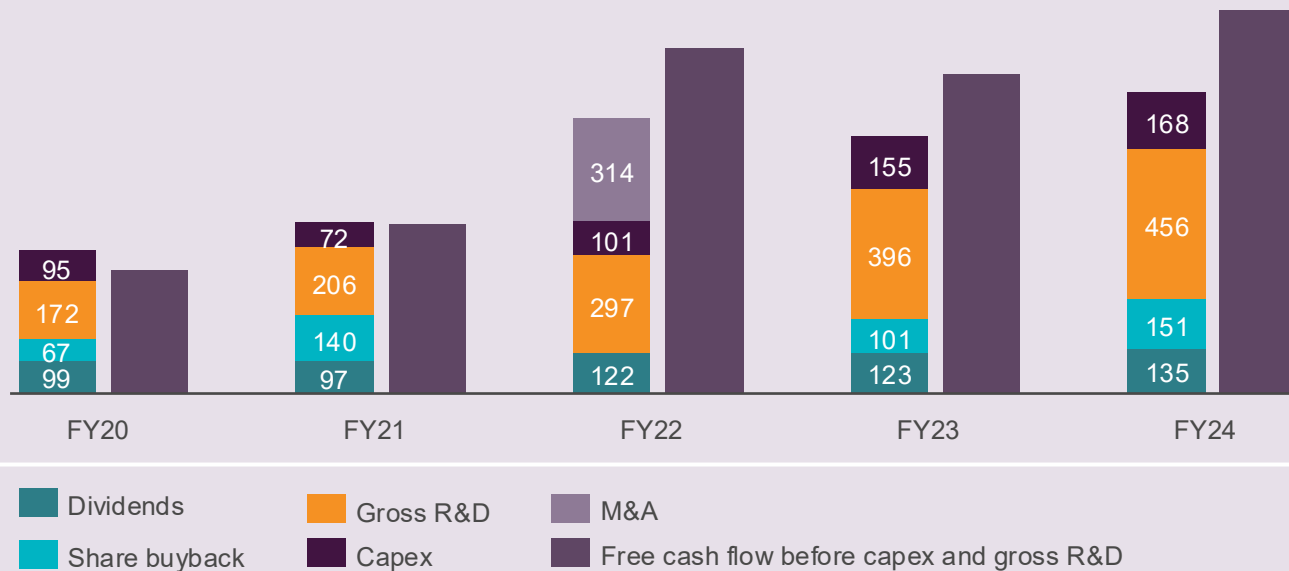
**Return of excess cash to shareholders through share buybacks**





# Disciplined capital allocation driving strategic growth and sustained shareholder value

## Capital allocation (€ million)



### Capital allocation from FY20-FY24:

Majority of cash flow<sup>1</sup> allocated to R&D, capex and M&A to support value creating growth

Strongly increased funding of R&D to drive differentiation in innovation with strong ROI

Steady increase in dividends and share buybacks

1) Free cash flow before capex and gross R&D

# Sustainability roadmap – Planning for 2035



# Our sustainability framework covers 5 pillars





# Focus areas defined through Double Materiality Assessment

|            |                                  |   |
|------------|----------------------------------|---|
| Social     | Environment                      | <b>Climate change (E1)</b> <ul style="list-style-type: none"><li>• Climate change mitigation</li><li>• Climate change adaptation</li><li>• Energy</li><li>• Product Sustainability</li></ul>  |
|            | Our workforce (S1)               | <b>Working conditions</b> <ul style="list-style-type: none"><li>• Health and safety</li><li>• Adequate wages</li><li>• Working hours</li></ul> <b>Equal treatment and opportunities for all</b> <ul style="list-style-type: none"><li>• Training and skills development</li><li>• Inclusion and Diversity</li><li>• Equal pay for work of equal value</li></ul> |
|            | Workers in the supply chain (S2) | <b>Working conditions</b> <ul style="list-style-type: none"><li>• Health and safety</li><li>• Working time</li></ul> <b>Other work-related rights</b> <ul style="list-style-type: none"><li>• Forced labor</li></ul>  |
| Governance | Business conduct (G1)            | <ul style="list-style-type: none"><li>• Corporate culture</li><li>• Protection of whistleblowers</li></ul> <b>Corruption and bribery</b> <ul style="list-style-type: none"><li>• Prevention and detection, including training</li><li>• Incidents</li></ul>   |







# Product sustainability strategy focuses on key technology drivers



## Sustainable chemistry



## Energy efficiency



## GHG emission reduction

### 2035 targets

- 35% reduction of precursor consumption<sup>1</sup>
- 90% reduction in NF3<sup>1</sup>

- 35% reduction in thermal energy<sup>1</sup>
- 20% reduction in RF energy<sup>1</sup>

- Net-zero pathway for 3.11 use of sold products

### Approach

- Use of alternative/green chemistry to reduce global warming potential (GWP)
- Reduce usage amount of precursor and process chemistry

- Reduce per wafer consumption via throughput improvement
- Reduce tool power and utilities usage through engineering design

- Reduce fuel or gas usage through alternative technologies
- Recycle or reuse materials

### Examples

- Tenza™
- High throughput clean

- Turino™-CL
- GenMatch™

- Dynamic HPM<sup>2</sup> control
- High-efficiency chillers

1) Against a 2023 baseline  
2) Hazardous production material

# Key takeaways



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# Thank you

ASM Investor Day 2025

