



Small Talk 2024

End Markets, Wafer Demand and Lithography Spending

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Senior Vice President & Head of Corporate Marketing

ASML Investor Day

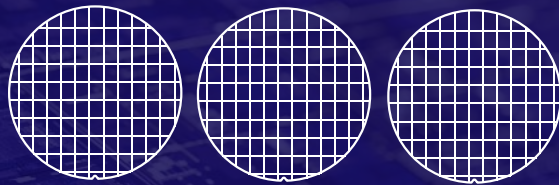
Veldhoven, The Netherlands
November 14, 2024

End Markets, Wafer Demand & Litho Spending

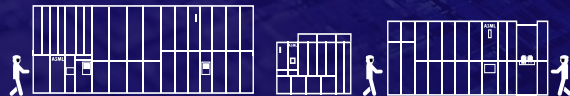
Key messages



End Markets



Wafer Demand



Lithography Spending

The long-term outlook for the semiconductor industry remains promising, given the role of semis as mission-critical enablers of multiple megatrends. In particular, we believe that the emergence of AI creates a significant opportunity. As a result, we expect global semi sales to grow at 9% CAGR (2025-2030) & surpass \$1tn by 2030.

This end-market outlook translates into an overall wafer demand growth of 780K wafer starts per month per year (2025-2030). The rise of AI as a leading end driver also implies a positive mix-shift in the wafer demand profile from litho spending perspective. Lastly, we expect 5-8% extra overall wafer capacity by 2030 on top of demand-driven additions, owing to strategic considerations.

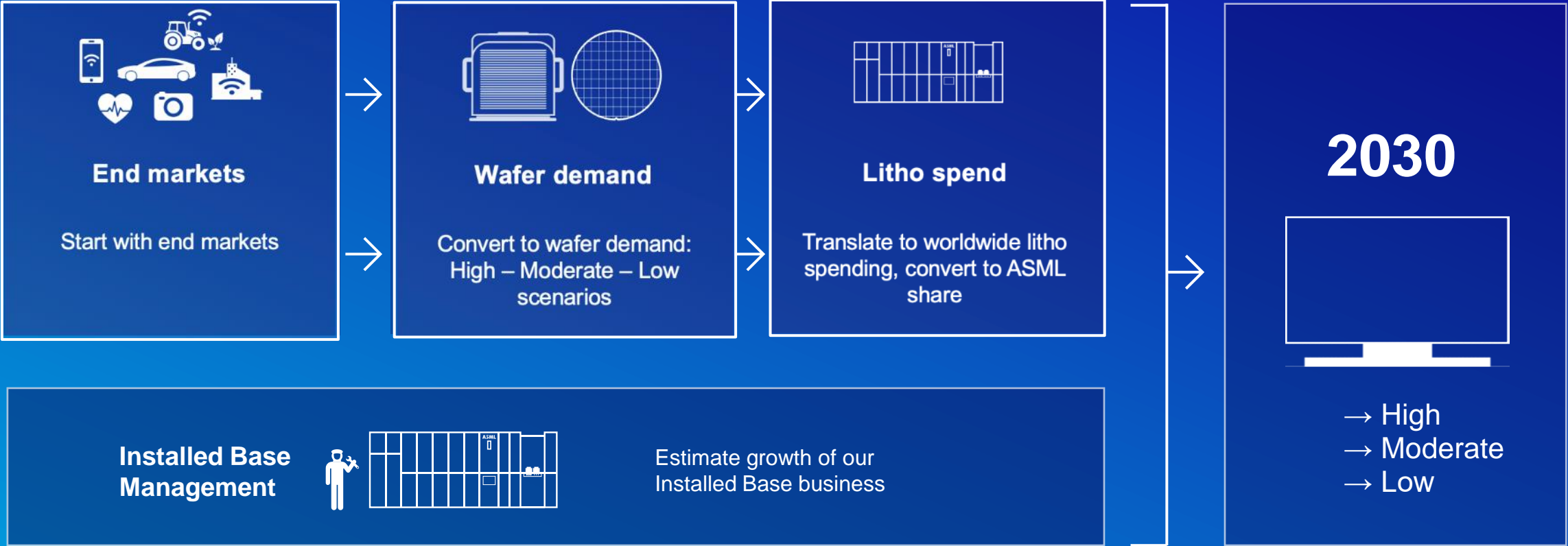
We expect Advanced Logic & DRAM shrink to drive further EUV litho layers & spending. For Advanced Logic, we expect a gradual ramp of High NA (0.55NA) layers over 2025-2030, translating into an EUV litho spending CAGR of 10-20%. On the DRAM side, we expect an increase in both Low NA (0.33NA) and High NA (0.55NA) layers over 2025-2030, translating into an EUV litho spending CAGR of 15-25%.

Our model to determine the long-term opportunity for ASML

This opportunity is driven by an interplay of market forces, tech choices & strategic considerations

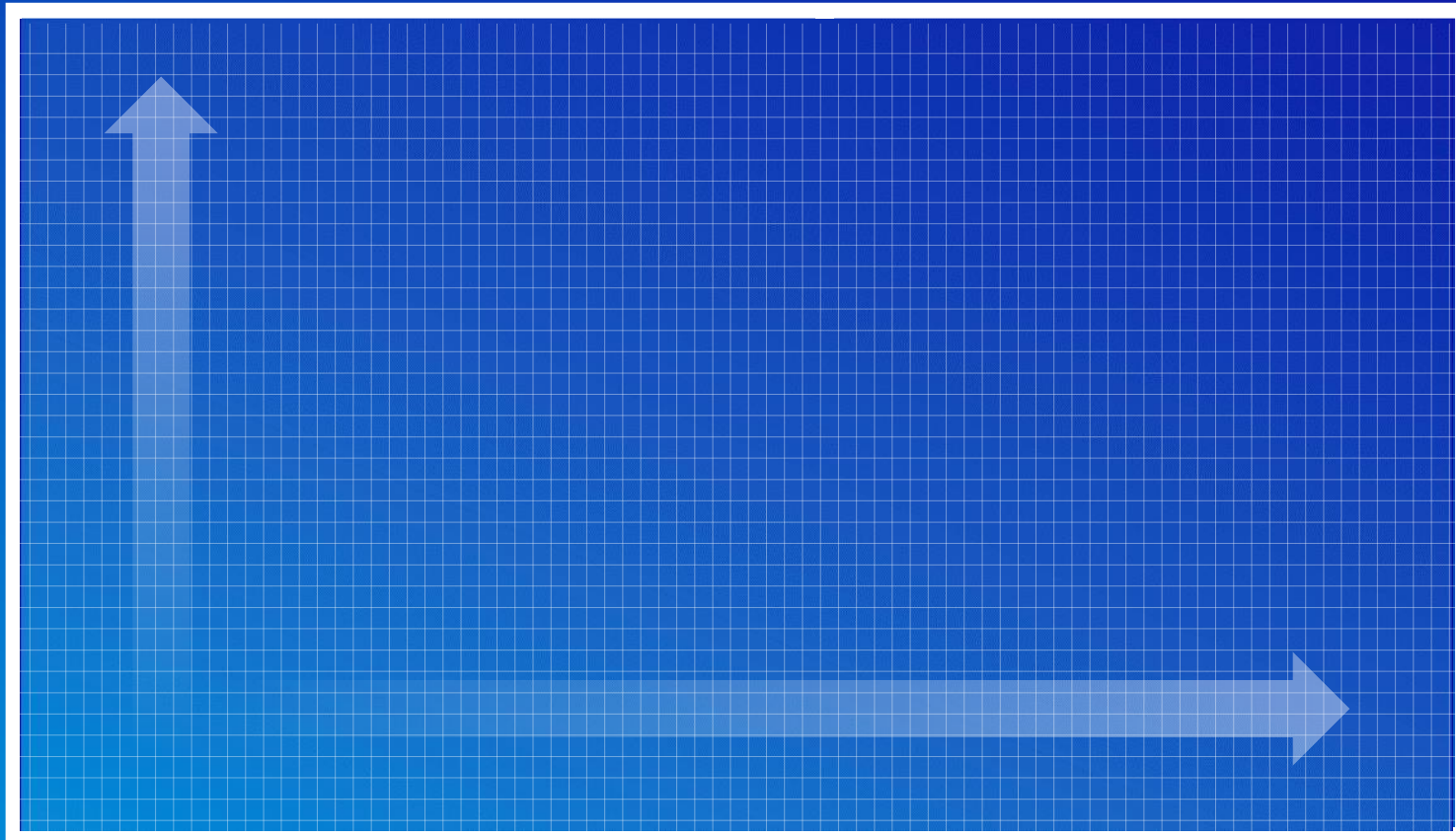
Model assumptions

Scenarios



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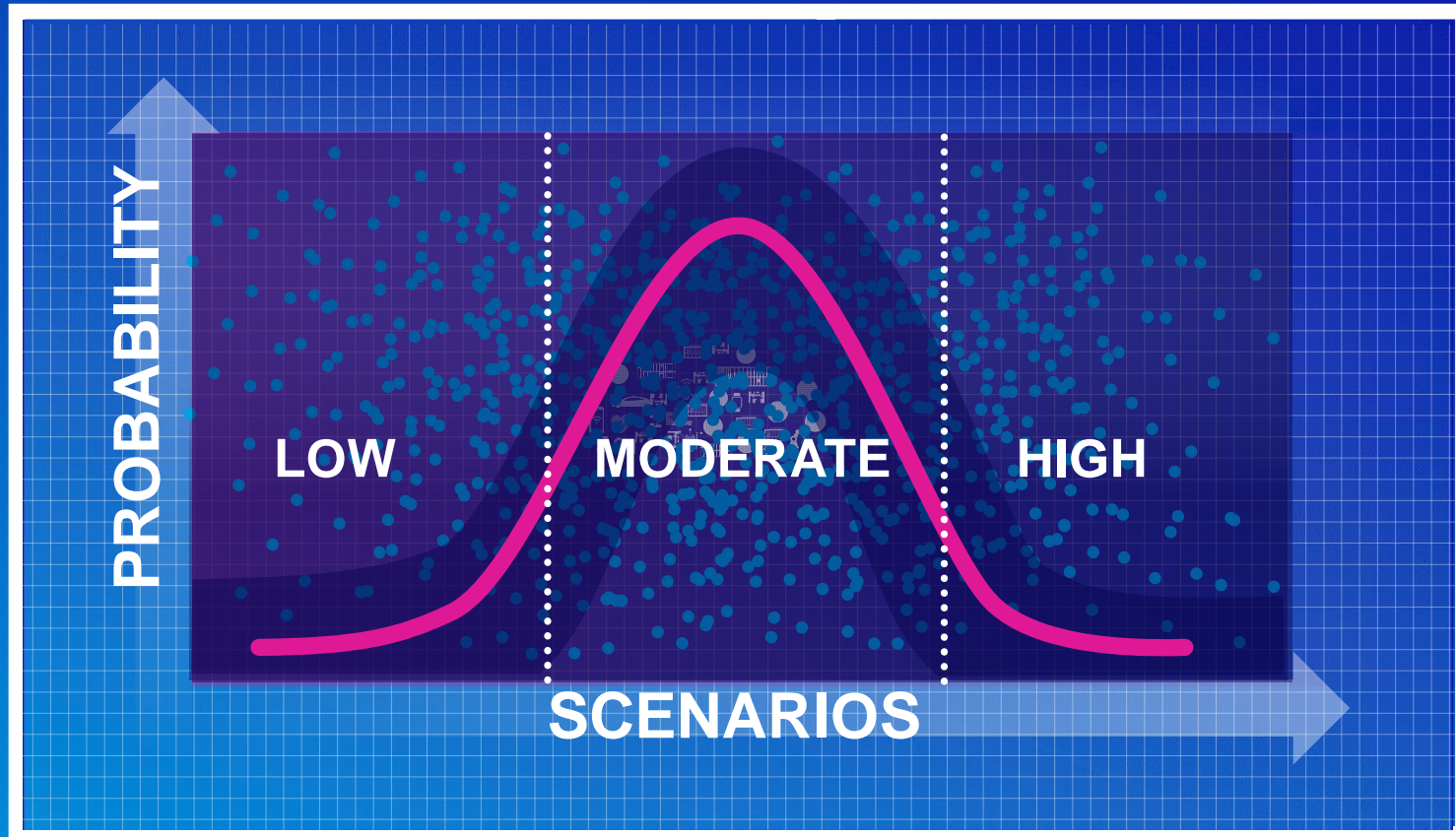
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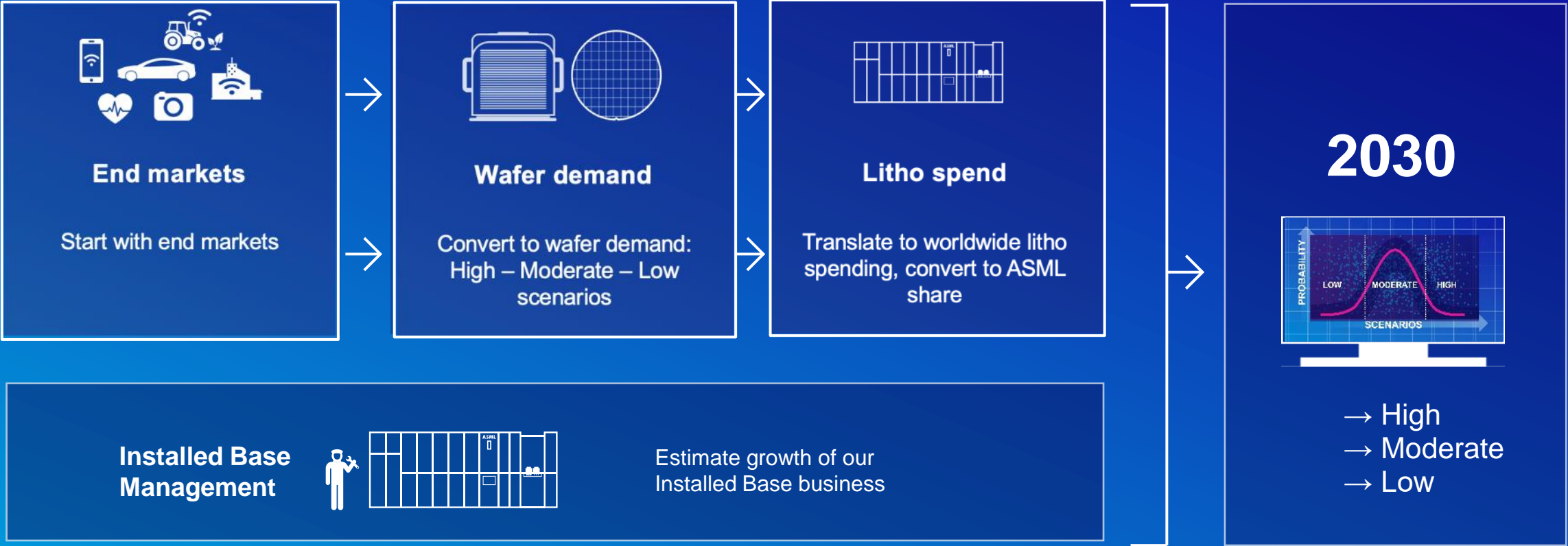


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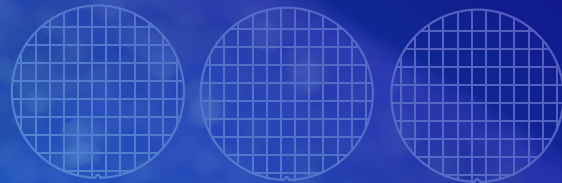
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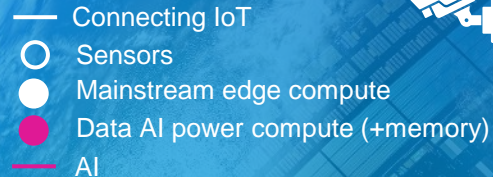
The long-term outlook for the semiconductor industry remains promising

Semiconductors serve as mission-critical enablers of multiple megatrends across society

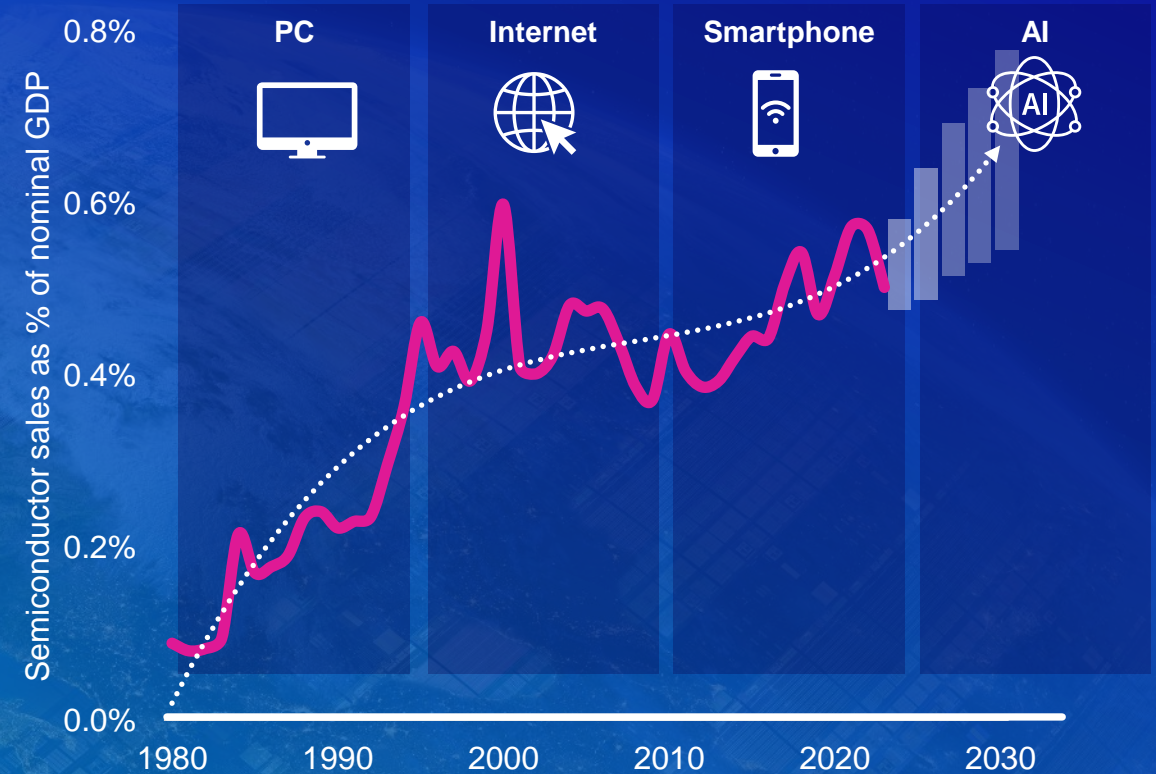


We also see AI driving an increase in semiconductor sales as a % of global GDP, in the coming years

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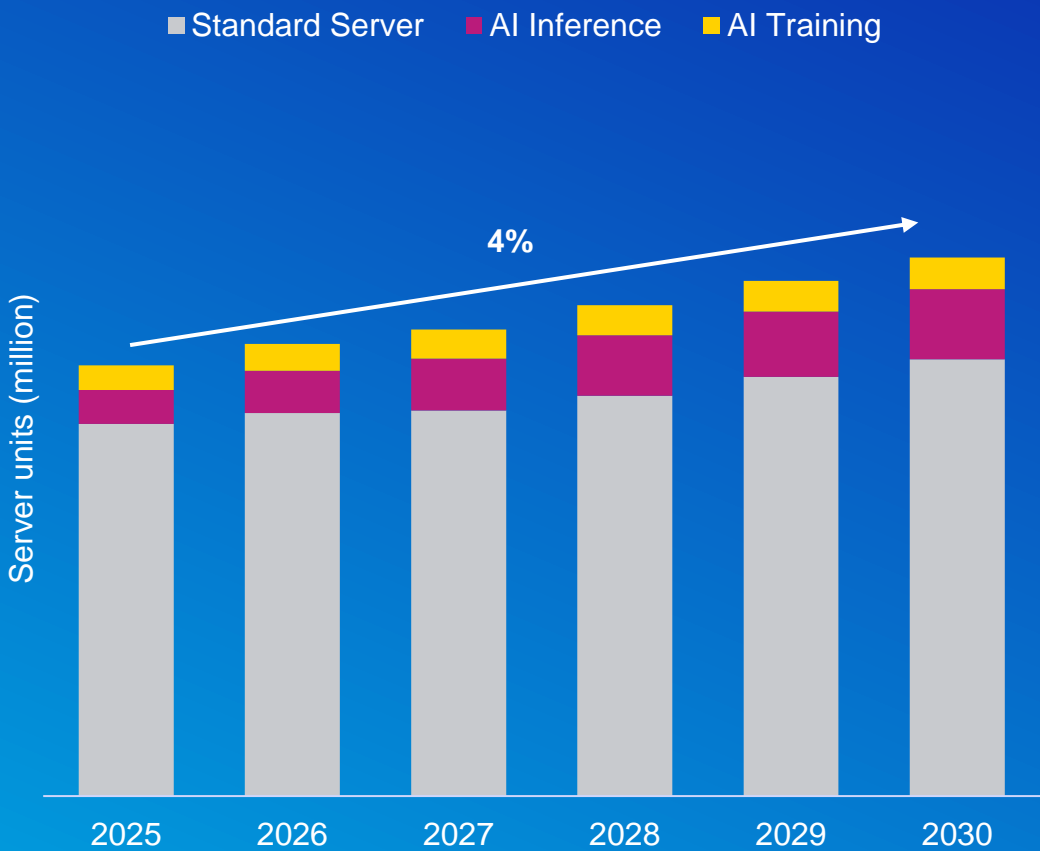
Semiconductor sales as % of global nominal GDP have steadily grown across the previous computing waves



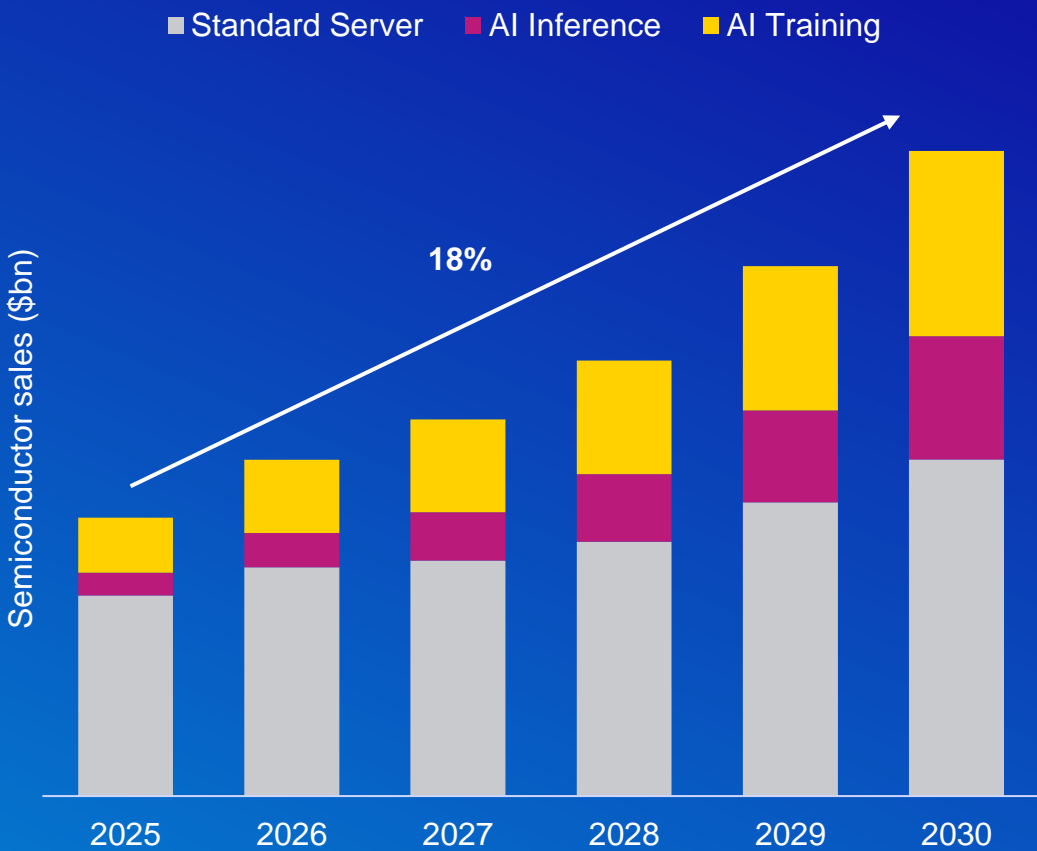
We see Servers, Datacenters & Storage as the key initial beneficiary of AI

As a result, we now expect the semi sales associated with this end market crossing \$350bn by 2030

AI Servers will account for a small share of overall units

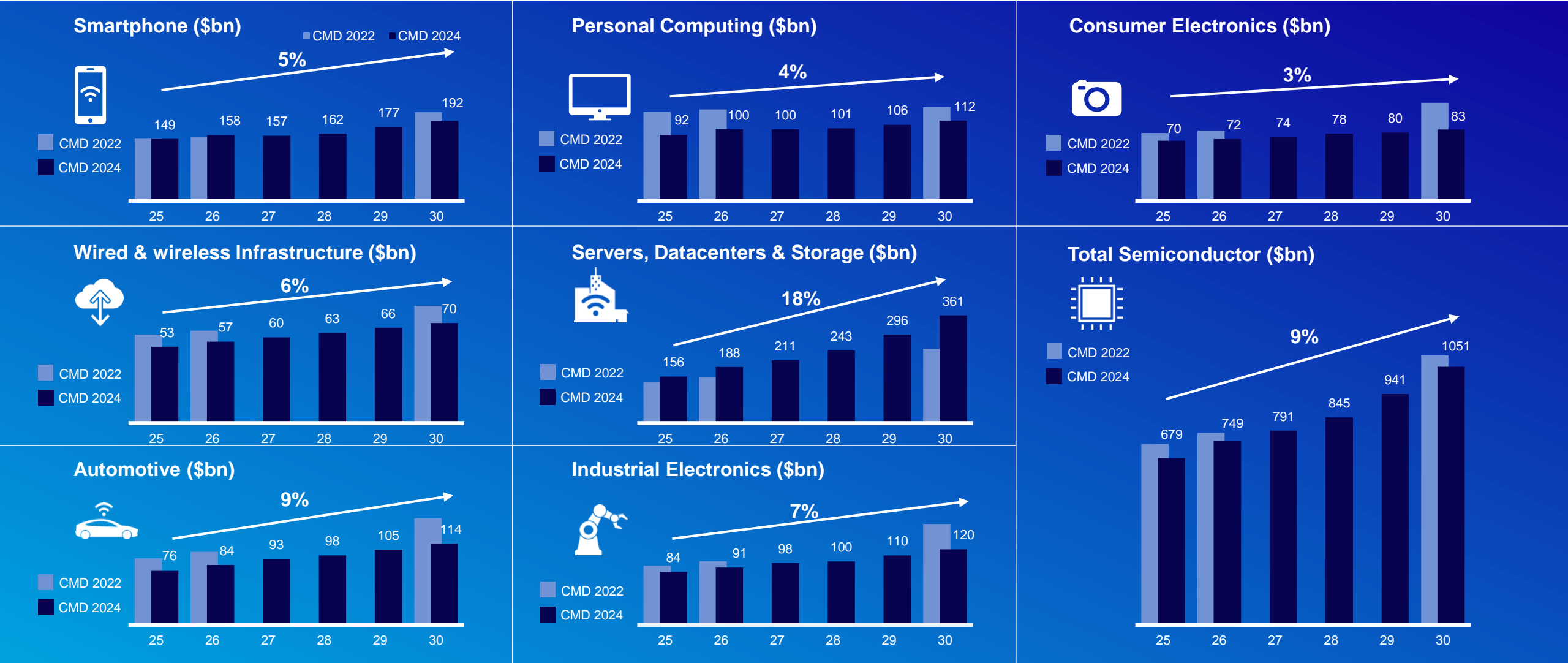


AI Servers will drive most of the growth & account for an increasing share of the semi sales, due to higher content



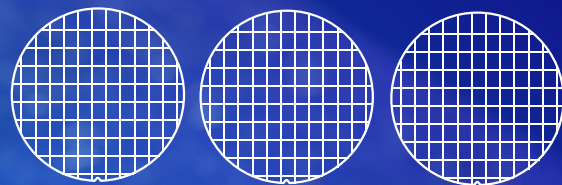
Semi sales expected to grow at 9% CAGR (2025-2030) & surpass \$1tn by 2030

Sharp increase in growth for Servers, Datacenters & Storage offsets most of moderation elsewhere





End Markets



Wafer Demand

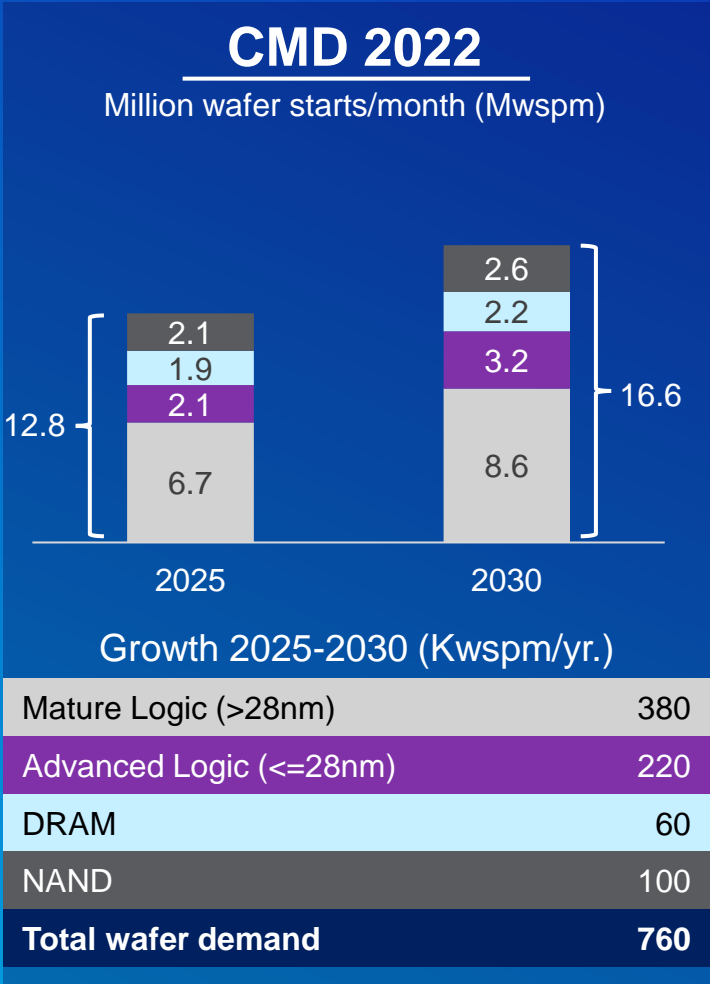


Lithography Spending

Translating to expected growth of wafer demand in all segments

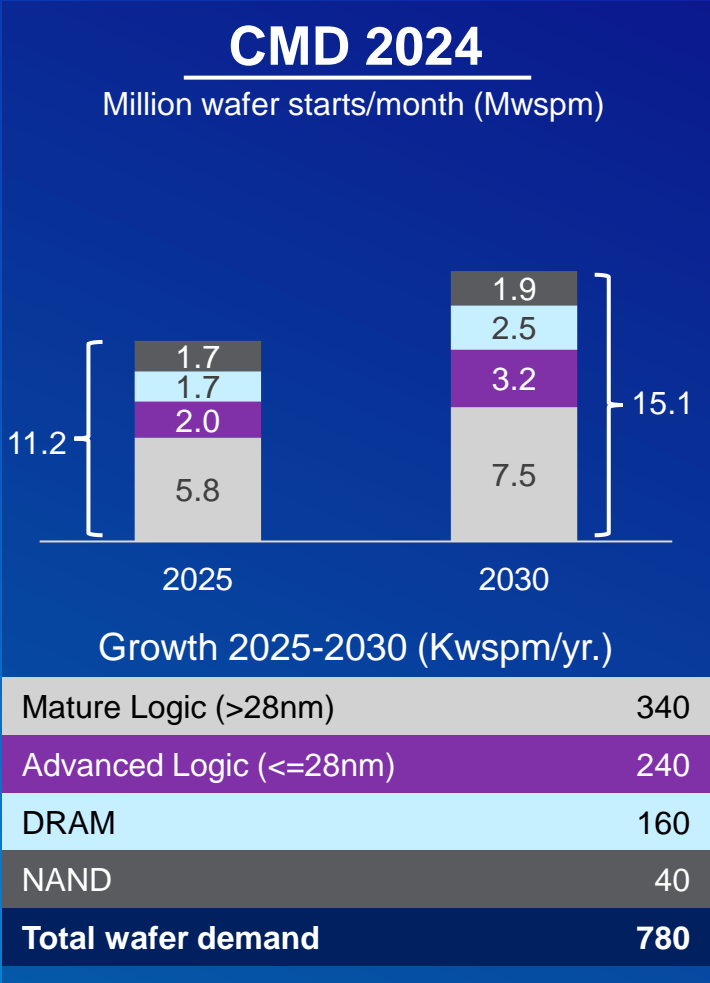
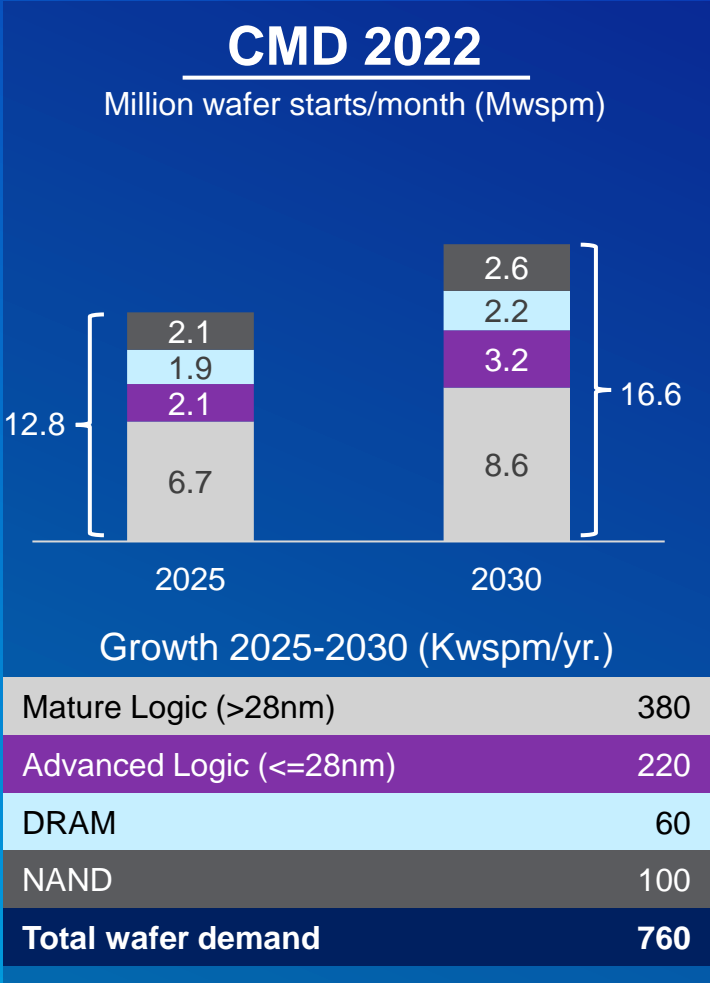
Translating to expected growth of wafer demand in all segments

At CMD 2022, we saw a healthy overall wafer demand growth of ~760Kwspm/yr. (2025-2030)



Translating to expected growth of wafer demand in all segments

Off a lower 2025 level, we now expect overall wafer demand growth of ~780Kwspm/yr. (2025-2030)

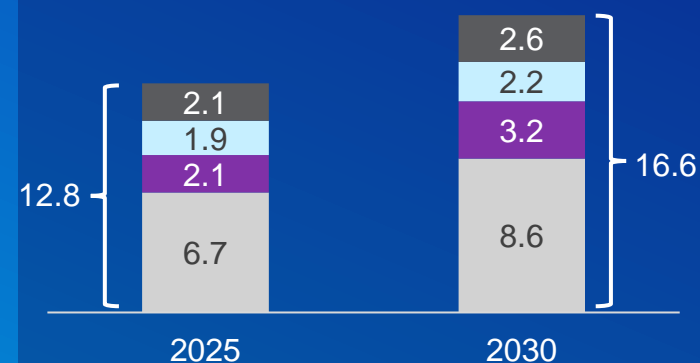


Translating to expected growth of wafer demand in all segments

Going forward, we will classify Logic as Mainstream Logic (>7nm) and Advanced Logic (<=7nm)

CMD 2022

Million wafer starts/month (Mwspm)



Growth 2025-2030 (Kwspm/yr.)

Mature Logic (>28nm)	380
Advanced Logic (<=28nm)	220
DRAM	60
NAND	100
Total wafer demand	760

CMD 2024

Million wafer starts/month (Mwspm)
(Old Logic classification)

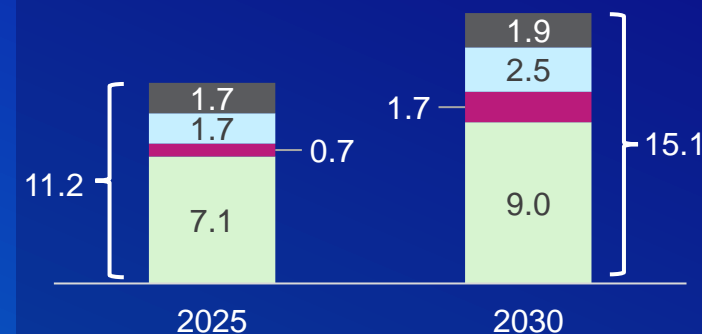


Growth 2025-2030 (Kwspm/yr.)

Mature Logic (>28nm)	340
Advanced Logic (<=28nm)	240
DRAM	160
NAND	40
Total wafer demand	780

CMD 2024

Million wafer starts/month (Mwspm)
(New Logic classification)



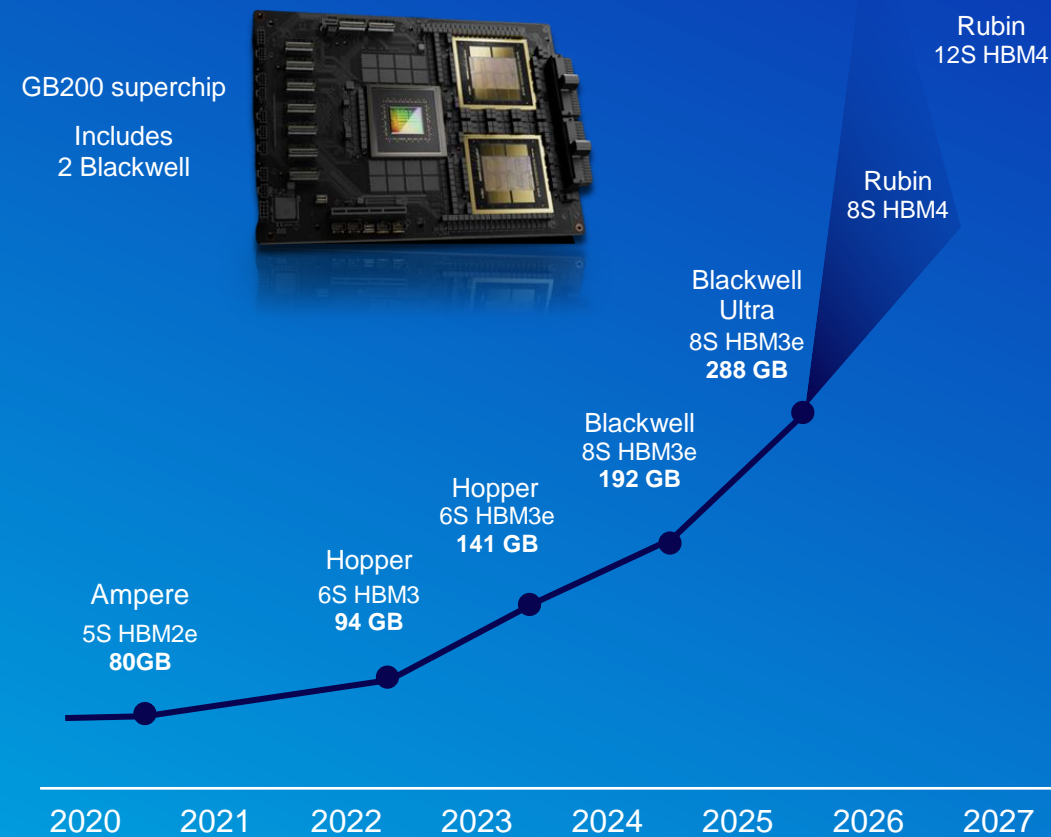
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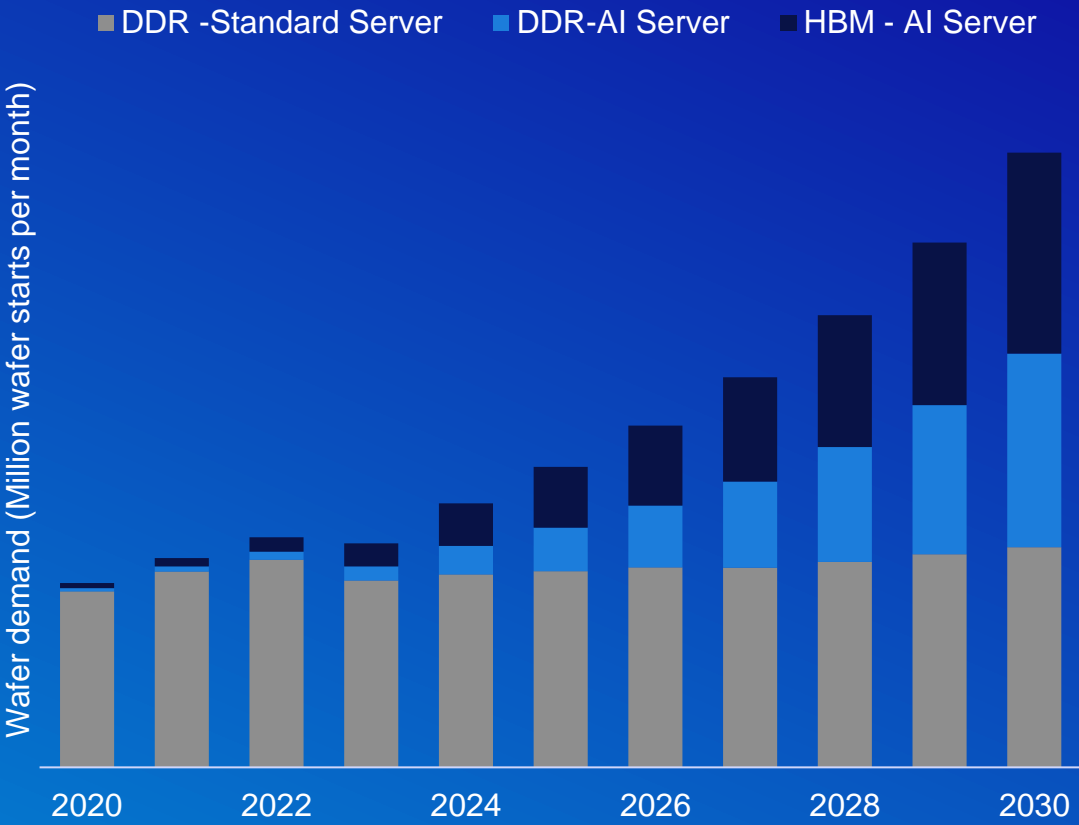
AI expected to drive stronger DRAM wafer demand growth towards 2030

We estimate that DRAM demand from AI Servers alone could reach ~1 million wspm by 2030

Nvidia AI scaling roadmap: rapidly increasing HBM content



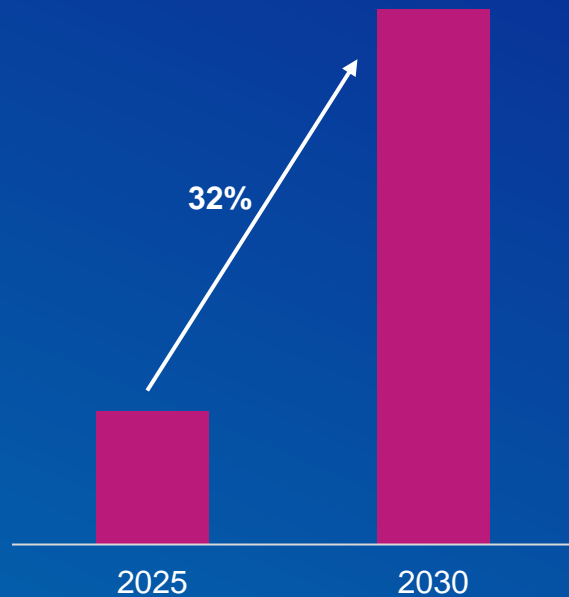
AI-driven server DRAM wafer demand



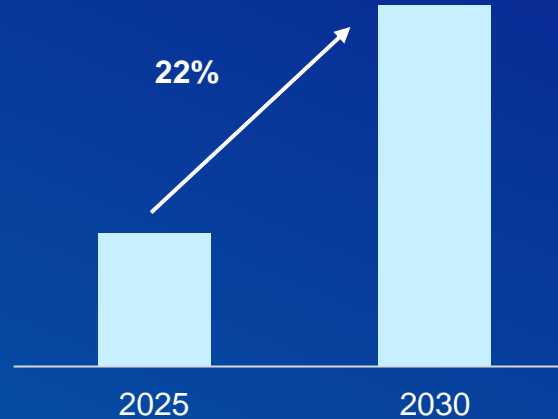
Correlating wafer demand back to transistor & bit growth in the coming years

We anticipate healthy growth rates over the period 2025-2030 for Advanced Logic & DRAM

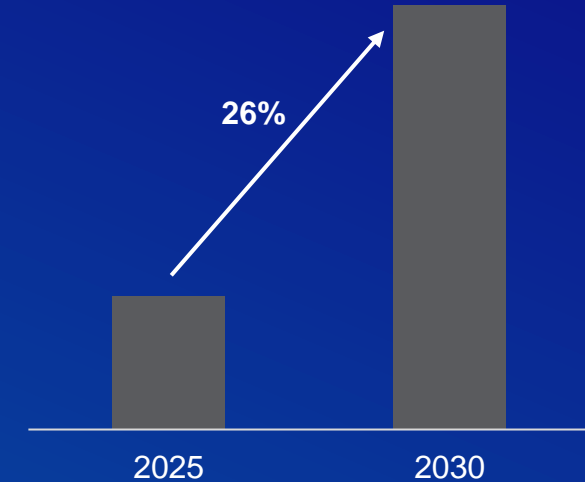
Advanced Logic transistor growth



DRAM bit growth



NAND bit growth



Wafer capacity will be driven by both wafer demand & strategic considerations

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Firstly, technology sovereignty remains a tailwind with a broadening range of incentives

US CHIPS and Science Act



- \$52bn investment
- Tax credits

European Chips Act



- \$48bn investment
- Tax credits

SOUTH KOREA-Semiconductor Strategy



- Government support via tax credits and loans

CHINA “Big Fund” Phase 3



- \$48bn central government investment



INDIA Semiconductor Mission

- \$10bn government investment

JAPAN Strategy for Semiconductors

- \$26bn investment
- Tax credits



TAIWAN Chip-Based Industrial Innovation Program

- \$9bn investment
- Tax credits

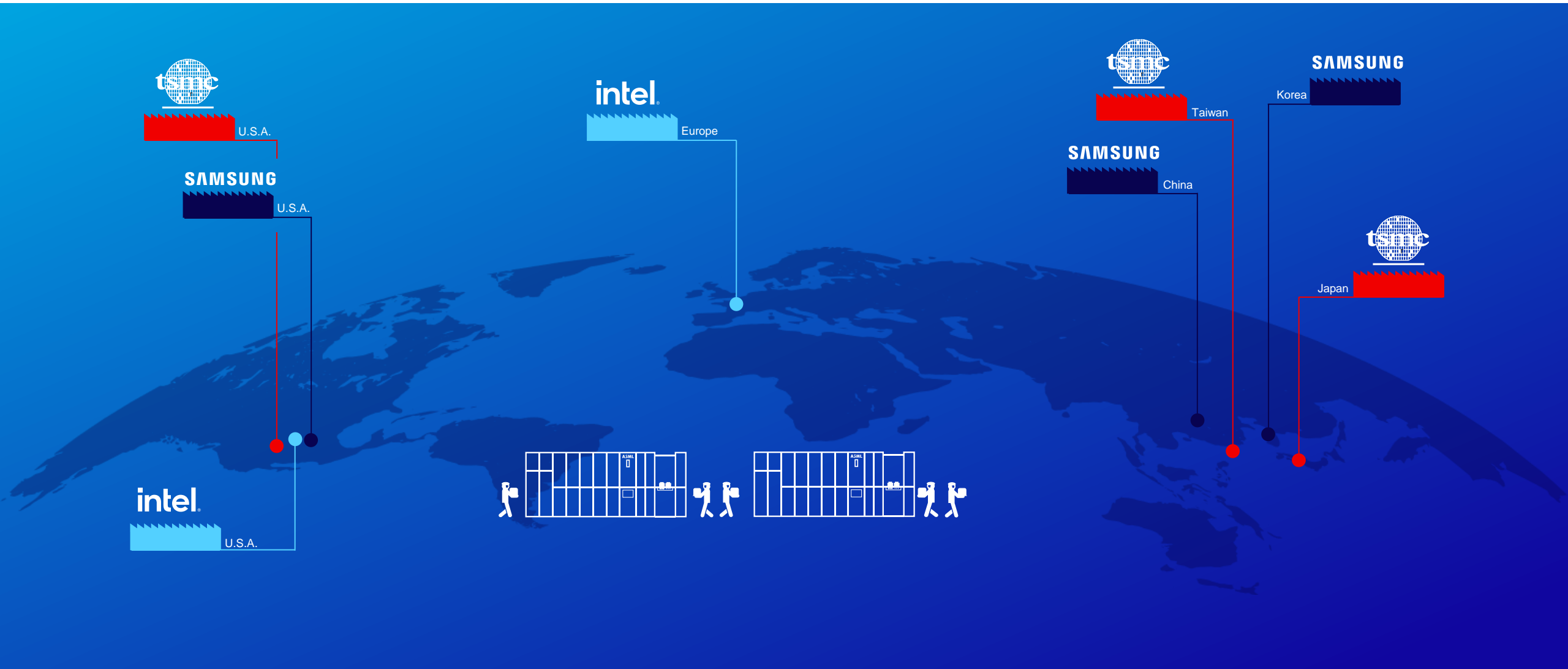
Wafer capacity will be driven by both wafer demand & strategic considerations

Secondly, the increased emphasis on supply security is evident from fabs coming online through 2027



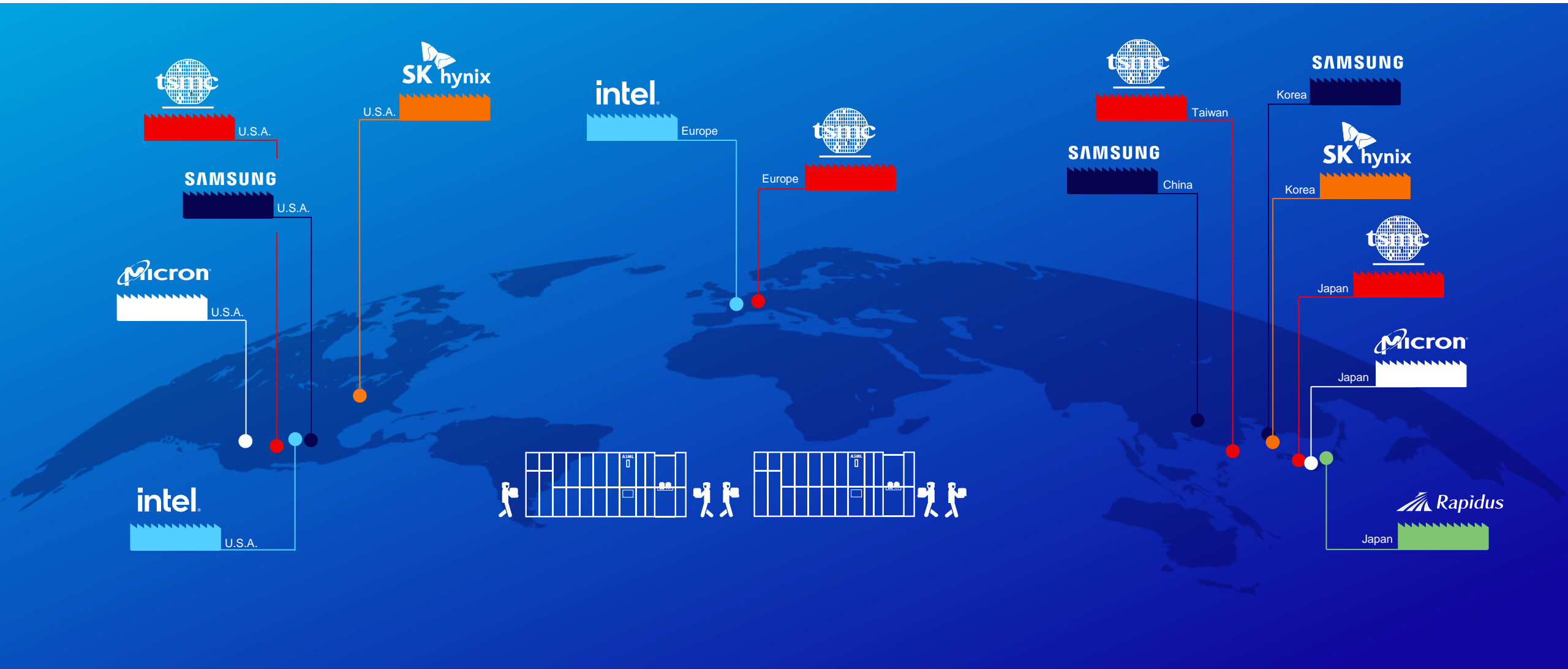
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Lastly, at CMD 2022, we flagged foundry competition & talked about investments by our top-3 customers



Wafer capacity will be driven by both wafer demand & strategic considerations

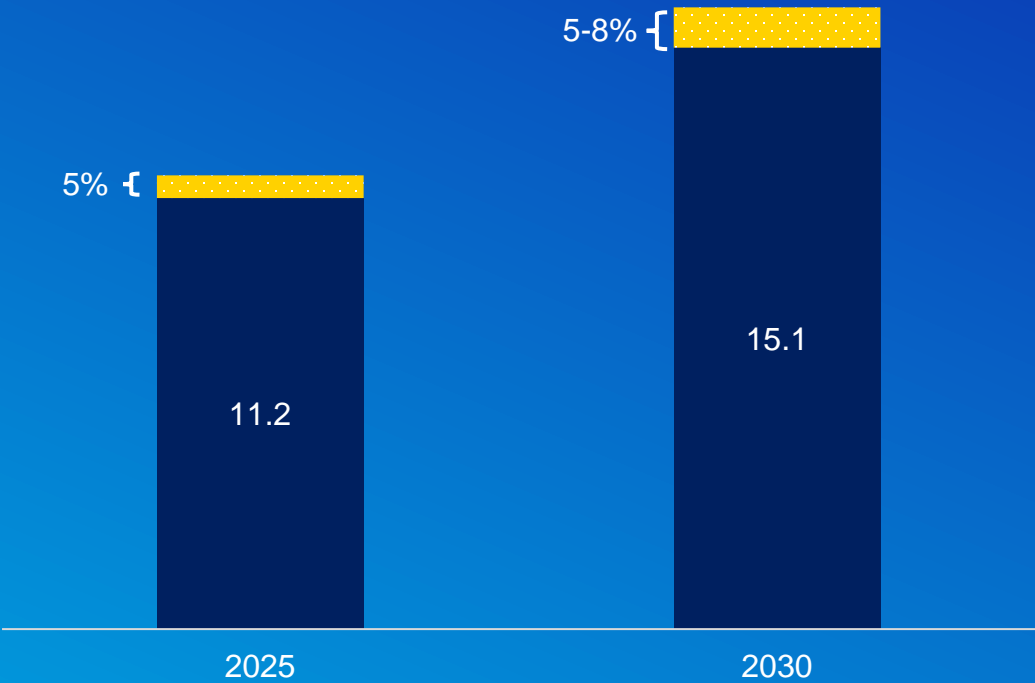
On balance, we still see competition as a tailwind today, as more customers announce their plans



Wafer capacity will be driven by both wafer demand & strategic considerations

As a result, we expect 5-8% extra overall capacity by 2030 on top of demand-driven additions

Wafer capacity: Million wafer starts/month (Mwspm)



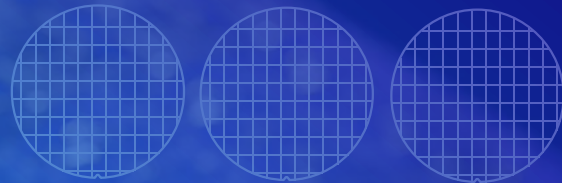
Strategic considerations

- **Tech sovereignty** leading to less efficient use of the installed capacity as countries/regions aim to (re)gain fab footprint.
- Increased emphasis on **supply security** resulting in geographically diversified ownership profile, in turn making load balancing more difficult.
- Intensified **competition** could lead to a period with overcapacity as players try to capture market share.

Growth 2025-2030 (Kwspm/yr.)	
Total wafer demand	780
Strategic considerations	85
Total wafer capacity	865



End Markets



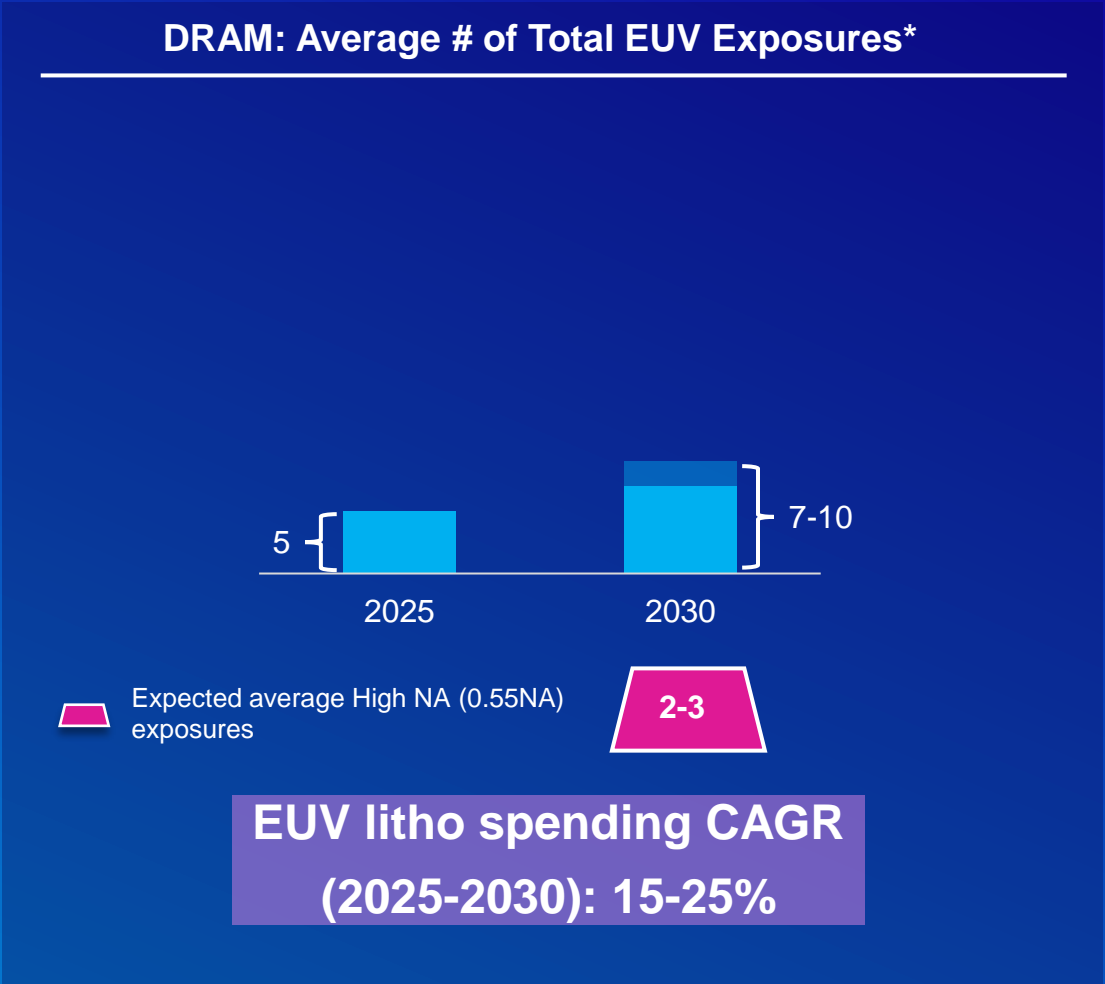
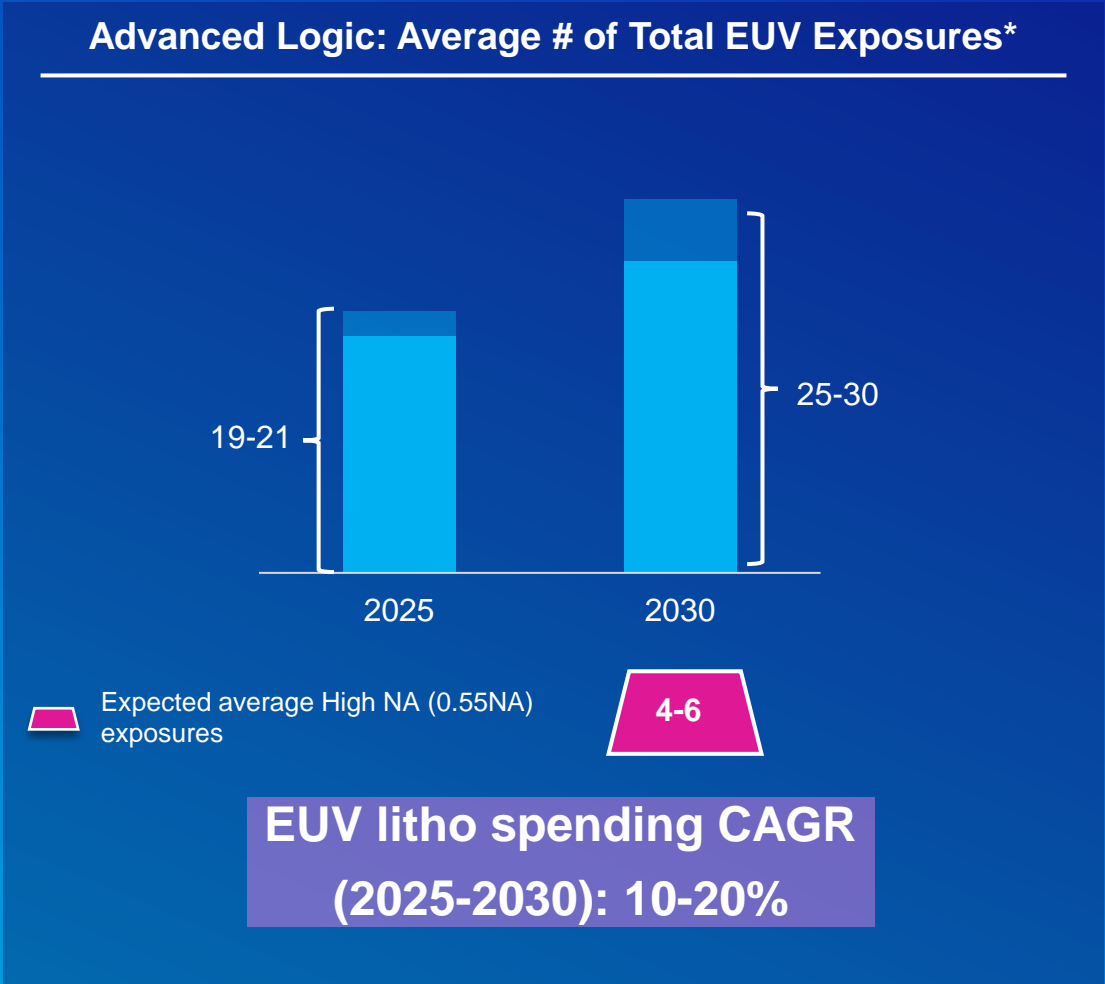
Wafer Demand



Lithography Spending

Advanced logic & DRAM shrink is expected to drive further layers & spending

Increase in exposures, combined with wafer volume translates into double-digit EUV spending CAGRs

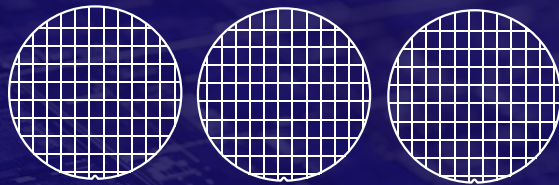


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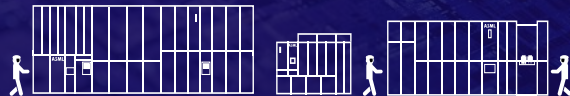
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Forward Looking Statements

This document and related discussions contain statements that are forward-looking within the meaning of the U.S. Private Securities Litigation Reform Act of 1995, including statements with respect to our strategy, plans and expected trends, including trends in end markets and the technology industry and business environment trends, including the emergence of AI and its potential opportunities and expectations for the semiconductor industry, including computing power, advanced logic nodes and DRAM memory, statements with respect to Moore's law and expected transistor growth and aspirations by 2030, global market trends and technology, product and customer roadmaps, long term outlook and expected lithography and semiconductor industry growth and trends and expected growth in semiconductor sales and semiconductor market opportunity through to 2030 and beyond, expected growth in wafer demand and capacity and additional wafer capacity requirements, expected investments by our customers, including investments in our technology and in wafer capacity, plans to increase capacity, expected growth in lithography spend, growth opportunities including opportunities for growth in service and upgrades and opportunities for growth in Installed Base Management sales, expected growth and gross margins in the holistic lithography business and expected addressable market for Applications products, expectations and benefits of a growing installed base, ASML's and its supplier's capacity, expected production of systems, model scenarios and the updated model for 2030, including annual revenue and gross margin opportunity and development potential for 2030, outlook and expected, modelled or potential financial results, including revenue opportunity, gross margin, R&D costs, SG&A costs, capital expenditure, cash conversion cycle and annualized effective tax rate for 2030 and assumptions and drivers underlying such expected, modelled or potential amounts, and other assumptions underlying our business and financial models, expected trends, outlook and growth in semiconductor end markets and long term growth opportunities, demand and demand drivers, expected opportunities and growth drivers for and technological innovation of our products including DUV EUV, High NA, Hyper NA, Applications, and other products impacting productivity and costs, transistor dimensions, logic and DRAM shrink, foundry competition, statements with respect to dividends and share buybacks and our capital return policy, including expectation to return significant amounts of cash to shareholders through growing dividends and buybacks and statements with respect to energy generation and consumption trends and the drive toward energy efficiency, emissions reduction and greenhouse gas neutrality goals and target dates to achieve greenhouse gas neutrality, zero waste from operations and other ESG targets and ambitions and plans to maintain a leadership position in ESG, increasing technological sovereignty across the world and the expected impact on semiconductor sales, including specific goals of countries across the world, increasing competition in the foundry business, estimates for 2024 and other non-historical statements. You can generally identify these statements by the use of words like "may", "will", "could", "should", "project", "believe", "anticipate", "expect", "plan", "estimate", "forecast", "potential", "opportunity", "scenario", "guidance," "intend", "continue", "target", "future", "progress", "goal" and variations of these words or comparable words. These statements are not historical facts, but rather are based on current expectations, estimates, assumptions, models, opportunities and projections about our business and our future and potential financial results and readers should not place undue reliance on them. Forward-looking statements do not guarantee future performance and involve a number of substantial known and unknown risks and uncertainties. These risks and uncertainties include, without limitation, customer demand, semiconductor equipment industry capacity, worldwide demand for semiconductors and semiconductor manufacturing capacity, lithography tool utilization and semiconductor inventory levels, general trends and consumer confidence in the semiconductor industry and end markets, the impact of general economic conditions, including the impact of the current macroeconomic environment on the semiconductor industry, uncertainty around a market recovery including the timing thereof, the impact of inflation, interest rates, wars and geopolitical developments, the impact of pandemics, the performance of our systems, the success of technology advances and the pace of new product development and customer acceptance of and demand for new products, our production capacity and ability to adjust capacity to meet demand, supply chain capacity, timely availability of parts and components, raw materials, critical manufacturing equipment and qualified employees, our ability to produce systems to meet demand, the number and timing of systems ordered, shipped and recognized in revenue, risks relating to fluctuations in net bookings and our ability to convert bookings into sales, the risk of order cancellation or push outs and restrictions on shipments of ordered systems under export controls, risks relating to technology, product and customer roadmaps and Moore's law, risks relating to the trade environment, import/export and national security regulations and orders and their impact on us, including the impact of changes in export regulations and the impact of such regulations on our ability to obtain necessary licenses and to sell our systems and provide services to certain customers, exchange rate fluctuations, changes in tax rates, available liquidity and free cash flow and liquidity requirements, our ability to refinance our indebtedness, available cash and distributable reserves for, and other factors impacting, dividend payments and share repurchases, the number of shares that we repurchase under our share repurchase programs, our ability to enforce patents and protect intellectual property rights and the outcome of intellectual property disputes and litigation, our ability to meet ESG goals and execute our ESG strategy, other factors that may impact ASML's business or financial results including the risk that actual results may differ materially from the models, potential and opportunity we present for 2030 and other future periods, and other risks indicated in the risk factors included in ASML's Annual Report on Form 20-F for the year ended December 31, 2023 and other filings with and submissions to the US Securities and Exchange Commission. These forward-looking statements are made only as of the date of this document. We undertake no obligation to update any forward-looking statements after the date of this report or to conform such statements to actual results or revised expectations, except as required by law.

This document and related discussions contain statements relating to our approach to and interim progress on achieving certain energy efficiency and greenhouse gas emissions reduction targets, including our ambition to achieve greenhouse gas neutrality. References to "greenhouse gas neutral" means remaining emissions, after ASML's efforts to reach its GHG emission reduction targets, compensated by the same amount of metric tons of carbon credits that are verified against recognised quality standards.

An aerial photograph of a city at night, viewed from a high angle. The city's grid-like street pattern and illuminated buildings are visible, creating a complex pattern of light and shadow. The image is overlaid with a semi-transparent dark blue layer, and the text 'THANK YOU' is printed in white on this layer.

**THANK
YOU**