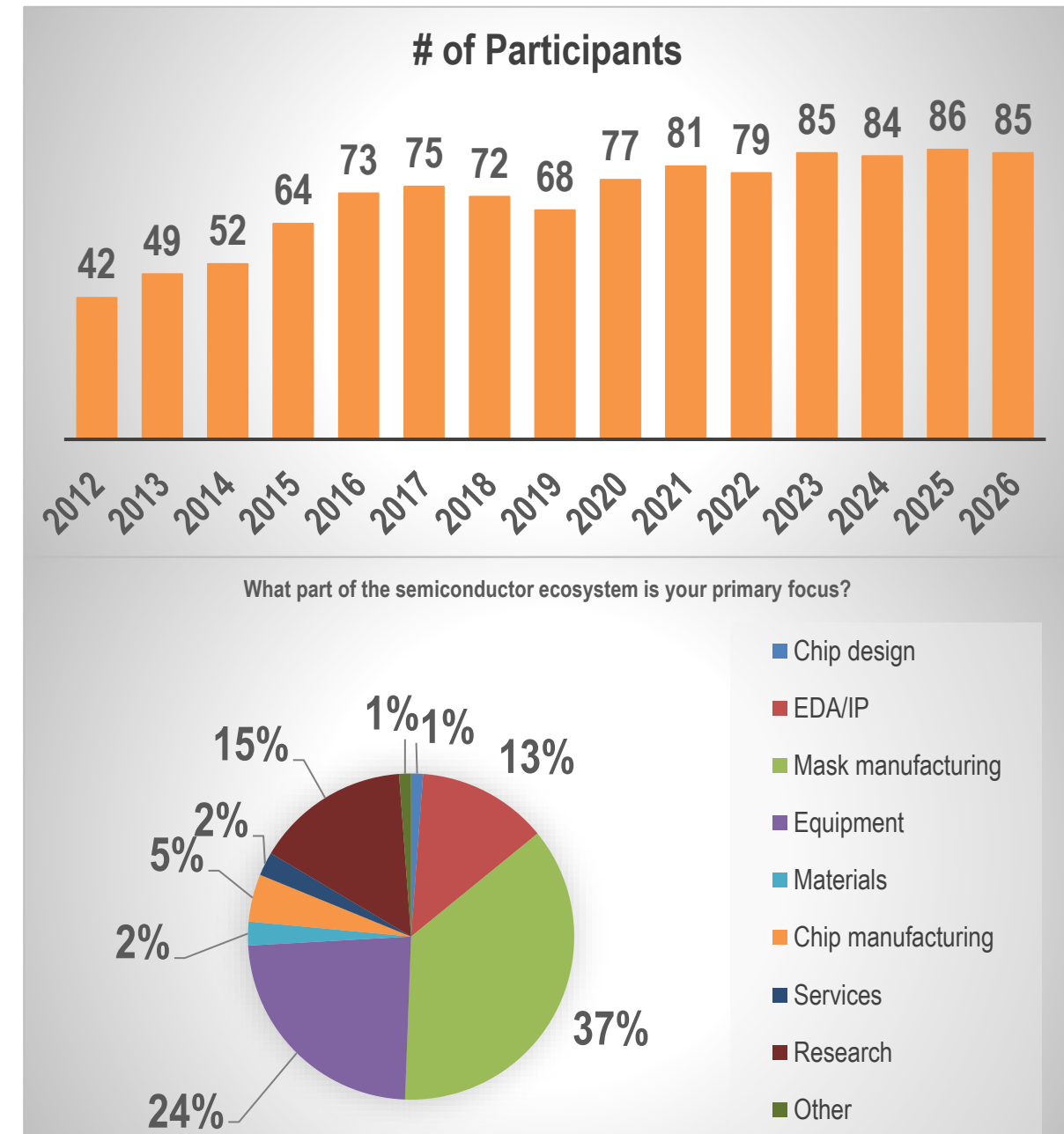


Thank You for Supporting Our 15th Luminaries Survey



- 85 luminaries in July 2026
- More than 45 different companies
- 61% equipment (purple) and mask manufacturing (green) combined

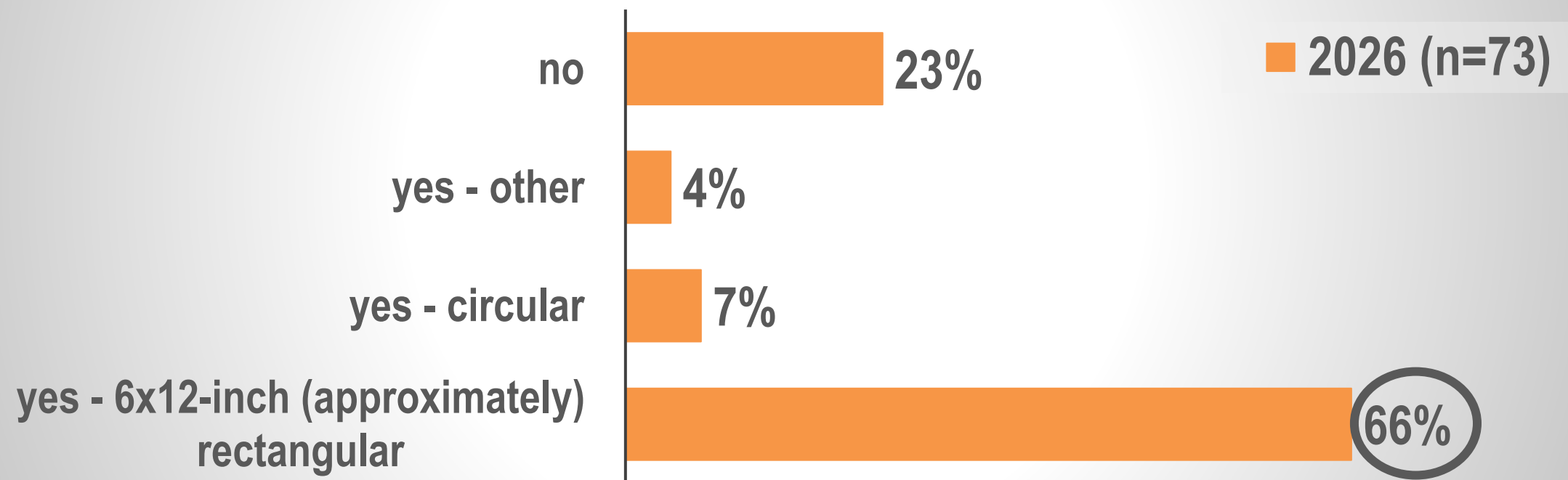


Large Format Mask Adoption Predicted in Next Decade*

New Q: 66% said 6x12 (approximately) rectangular will be adopted



New: Will large format masks of some kind be adopted in the industry by 2036? Please choose one.

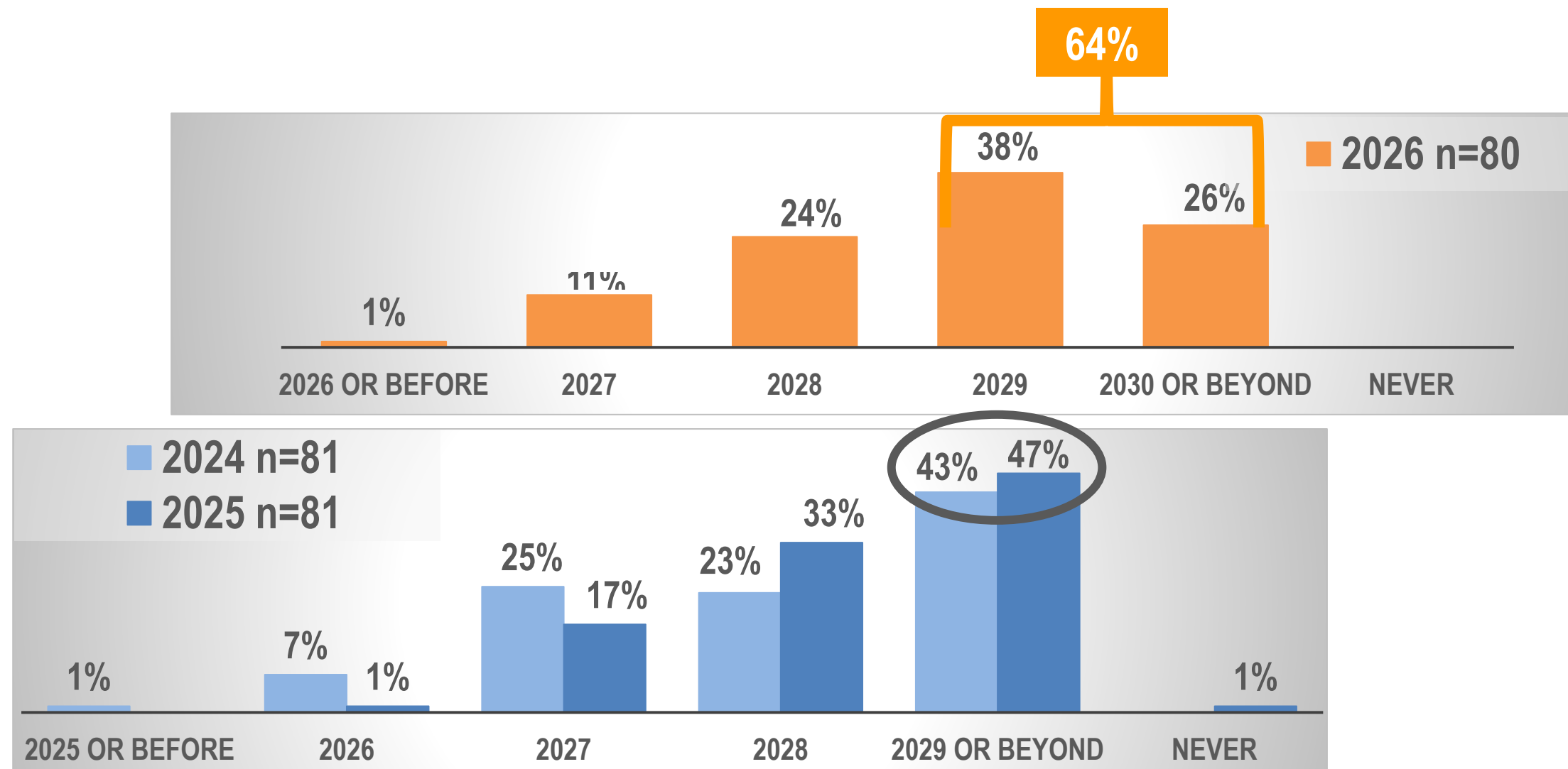


* Survey taken before 12-inch Mask Workshop on Sept. 7

High-NA EUV Prediction Shifts Right Significantly*

64% said 2029 or beyond by two or more companies vs 47%, 43% in previous years

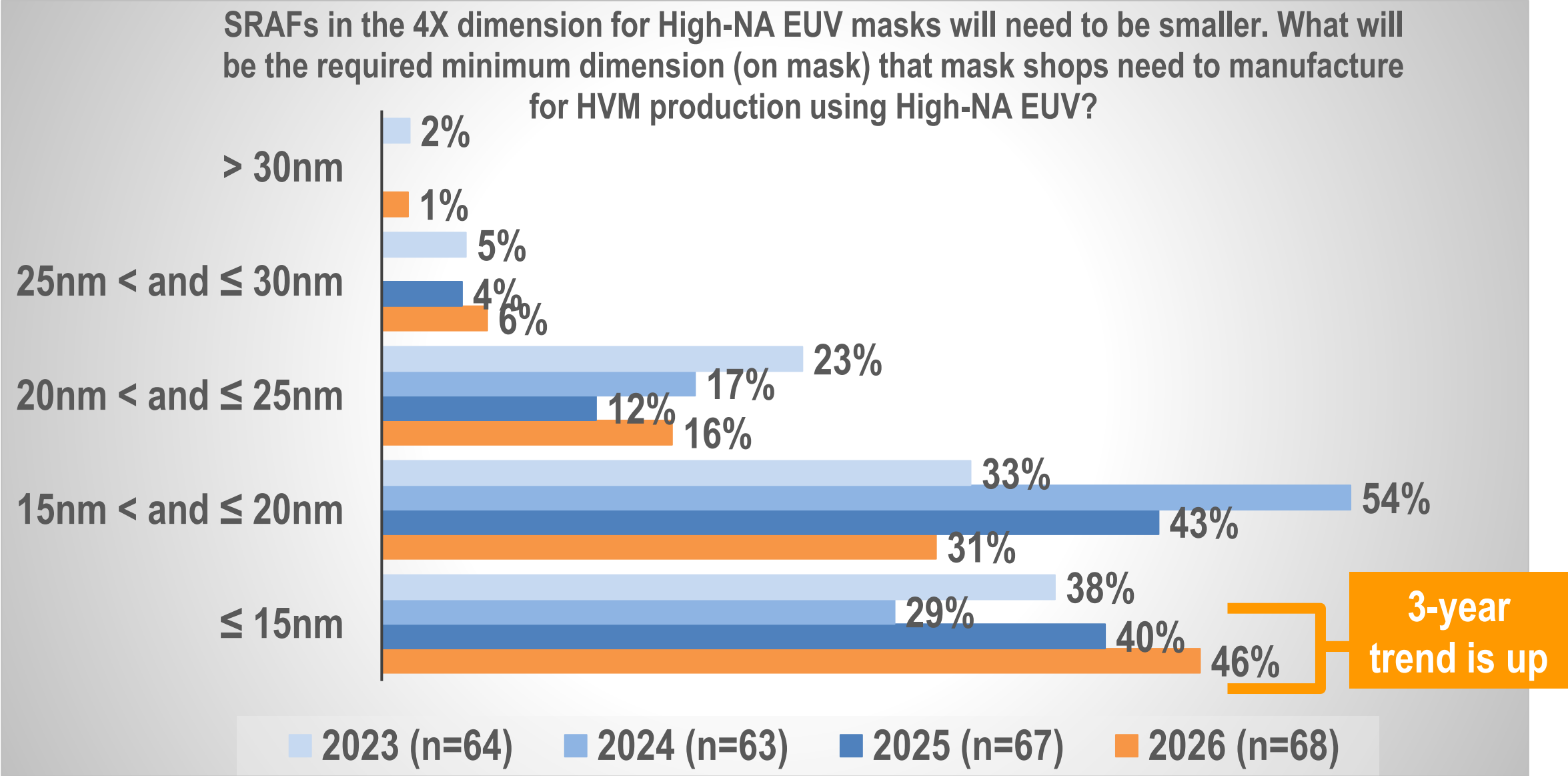
When will there be broad high volume manufacturing (HVM) adoption of High-NA EUV by two or more companies? Please choose one.



* Survey taken before 12-inch Mask Workshop on Sept. 7

High-NA EUV Mask Resolution is Very Challenging

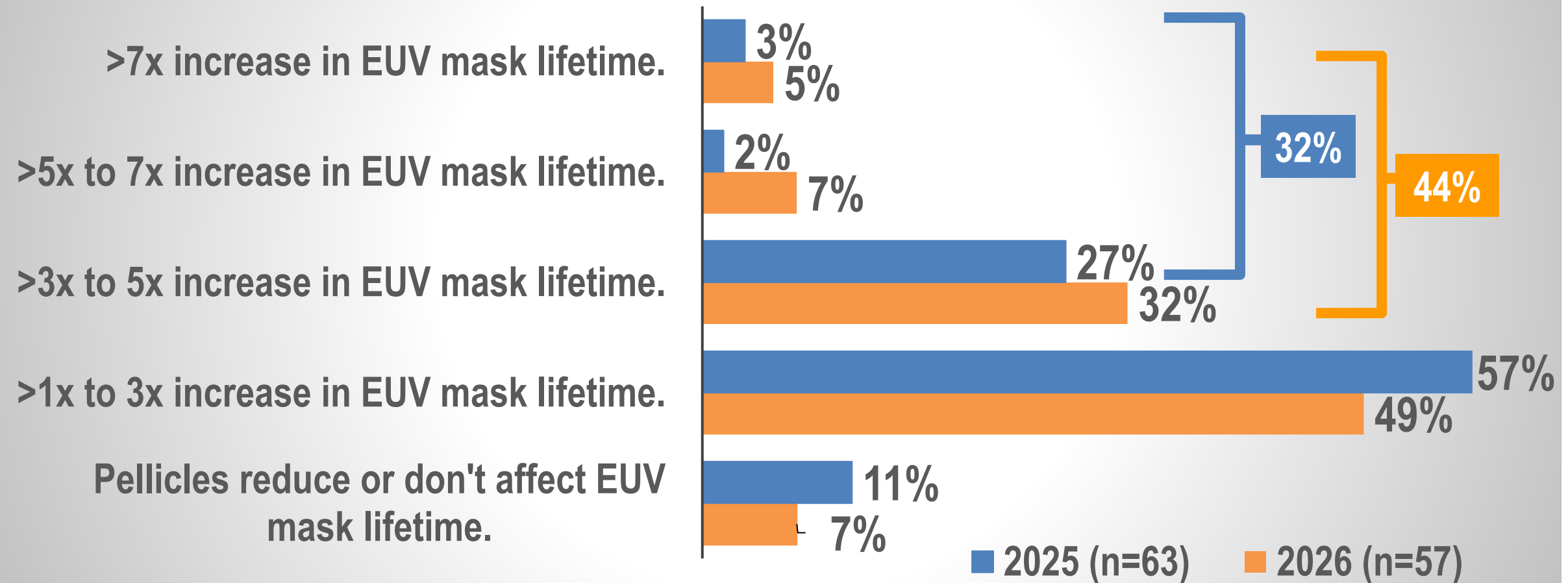
46% said SRAF Min Mask Dim for High-NA EUV $\leq 15\text{nm}$; up from 29%, 40%



Luminaries Think Pellicles Have Increasing Impact

44% said >3X increase in EUV mask lifetime vs 32% last year

Please select the statement that best reflects how much you think a pellicle affects EUV mask lifetime today.



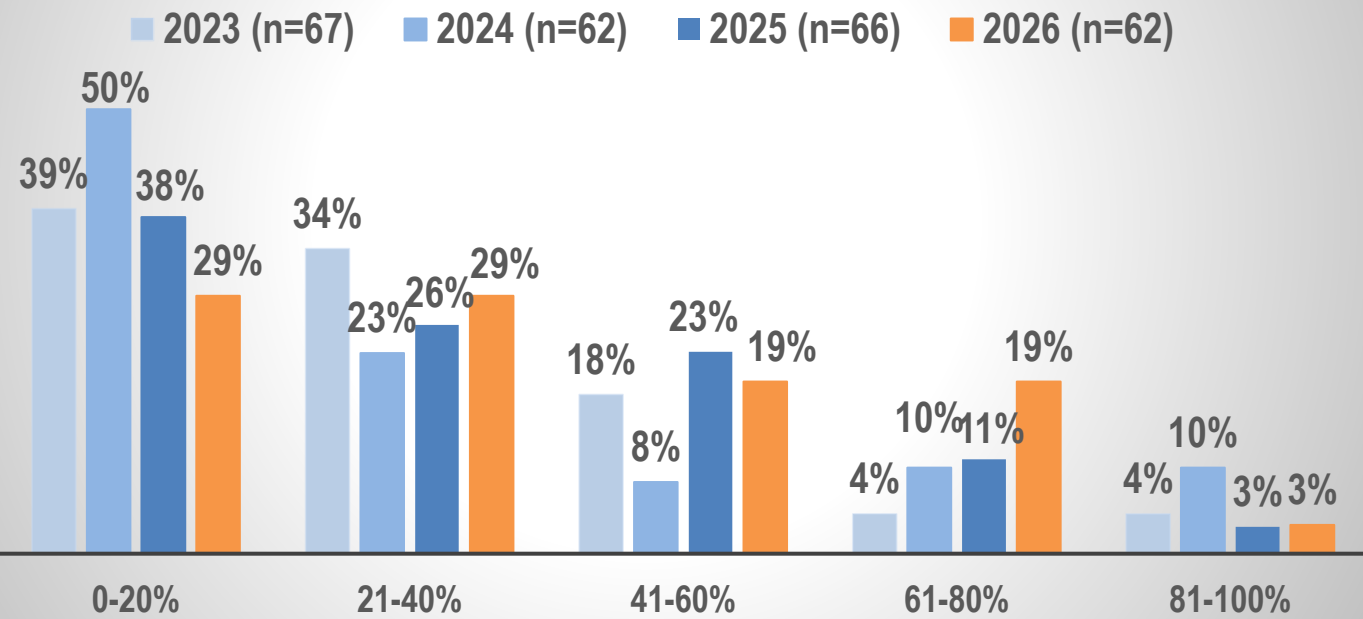
Actinic Inspection Predicted to Increase “In 3 Years”

64% said 61-100% of HVM masks in 3 years vs 43% last year



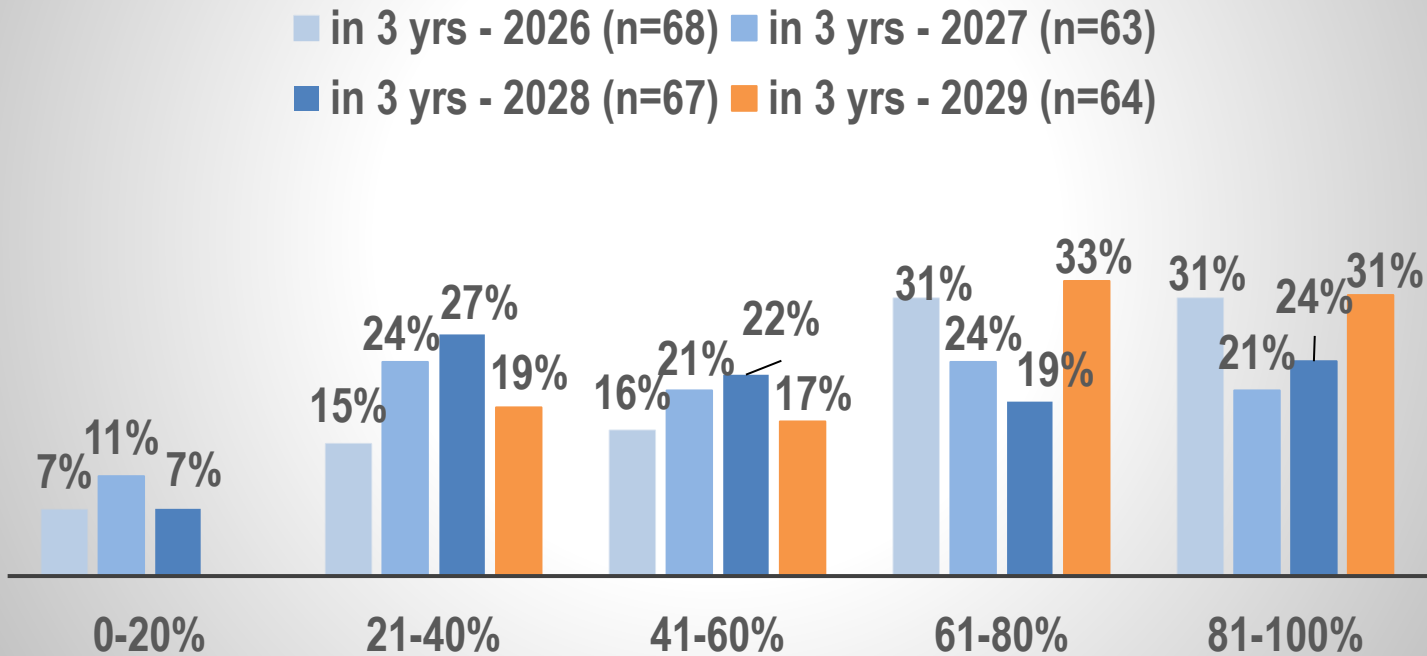
Predictions for today

What percentage of .33 NA EUV high volume manufacturing (HVM) production masks will be inspected in the mask shop using actinic inspection this year?



Predictions for 3 Years from now

What percentage of .33 NA EUV high volume manufacturing (HVM) production masks will be inspected in the mask shop using actinic inspection 3 years from now?



43%

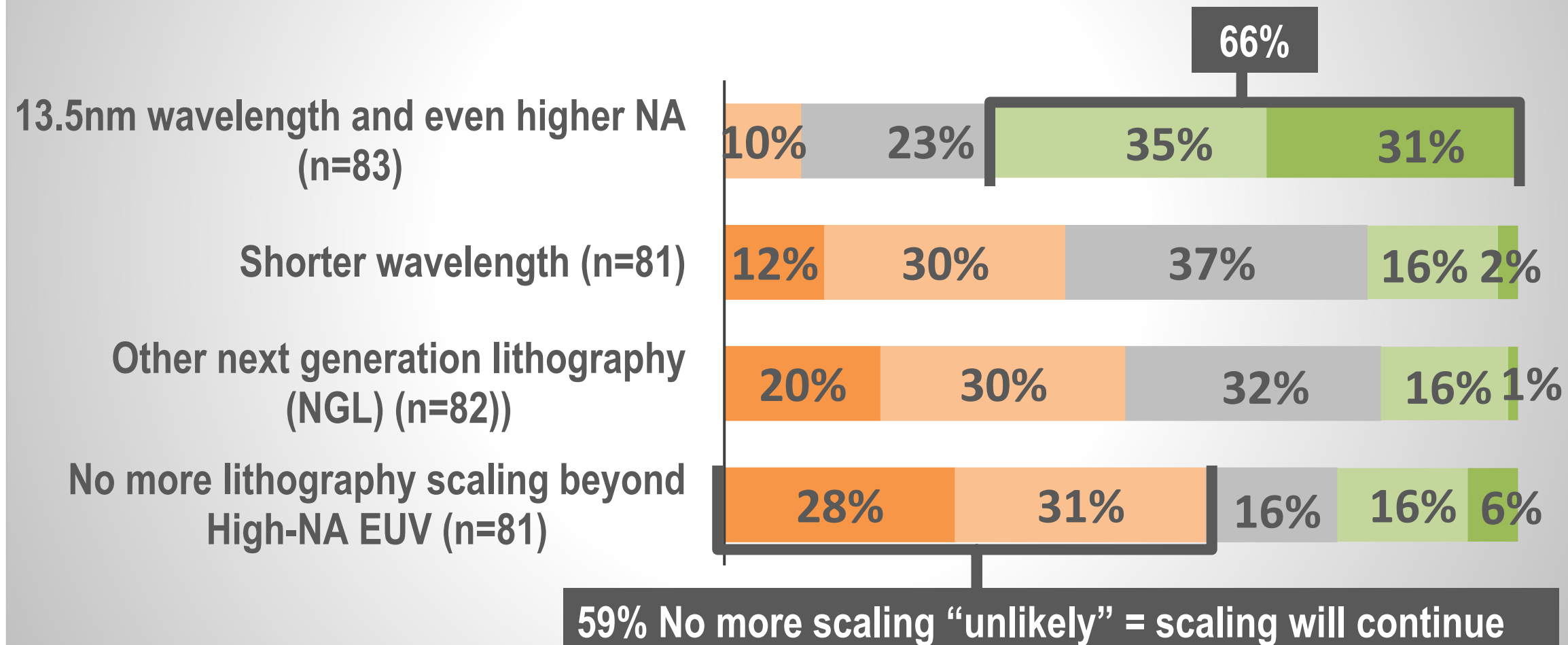
64%

Luminaries Think Lithography Scaling Will Continue

New Q: 66% predicted 13.5nm & >.55NA EUV for HVM in future

New: Which lithography technology will be used for high-volume manufacturing (HVM) logic and DRAM devices beyond High-NA EUV (13.5nm wavelength and .55NA) by 2046?

Very unlikely Unlikely Maybe Likely Very likely

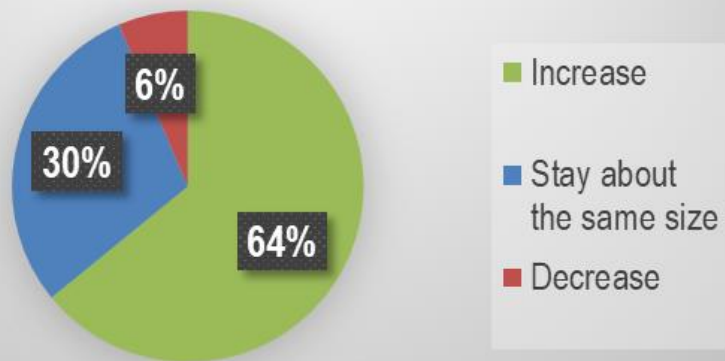


Good News for Mask Manufacturers

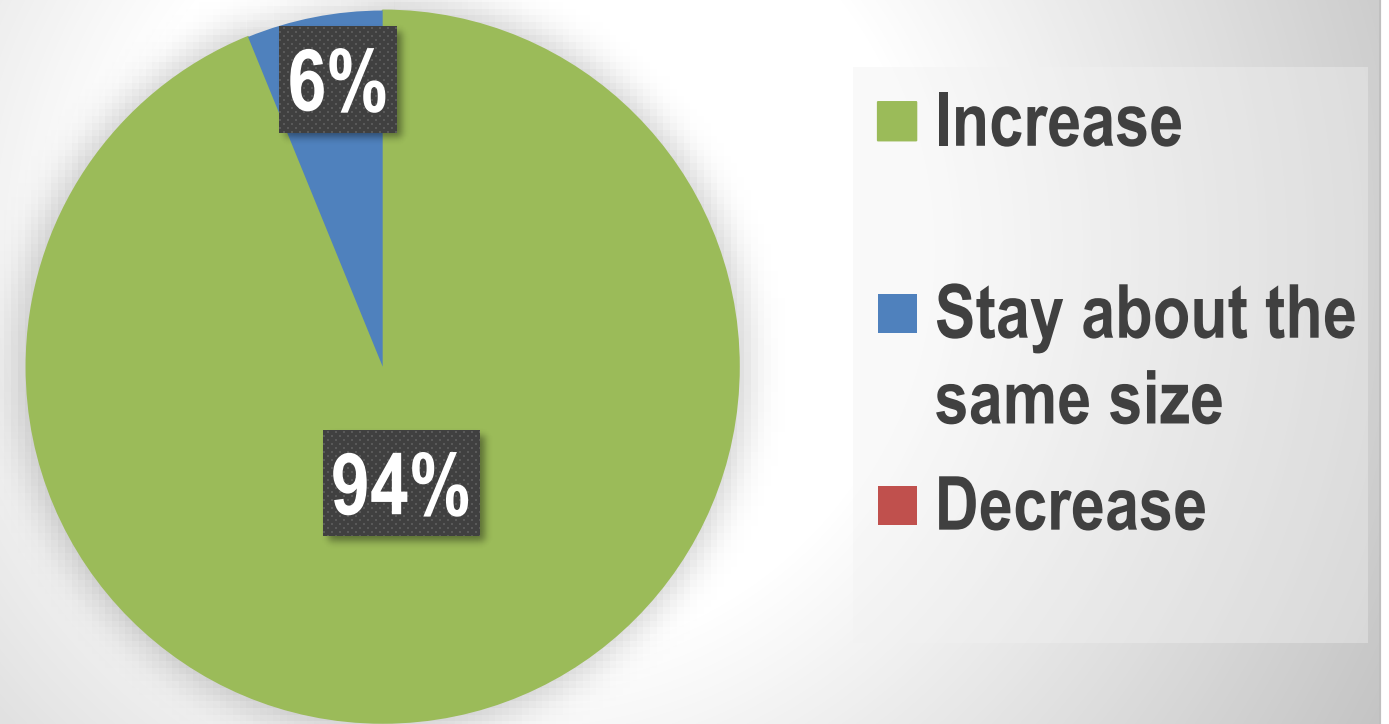
94% Said 2026 Mask Revenues Will Increase vs 2025

From Last Year's Survey

What will happen to total mask revenues
for 2025 compared to 2024? n=78

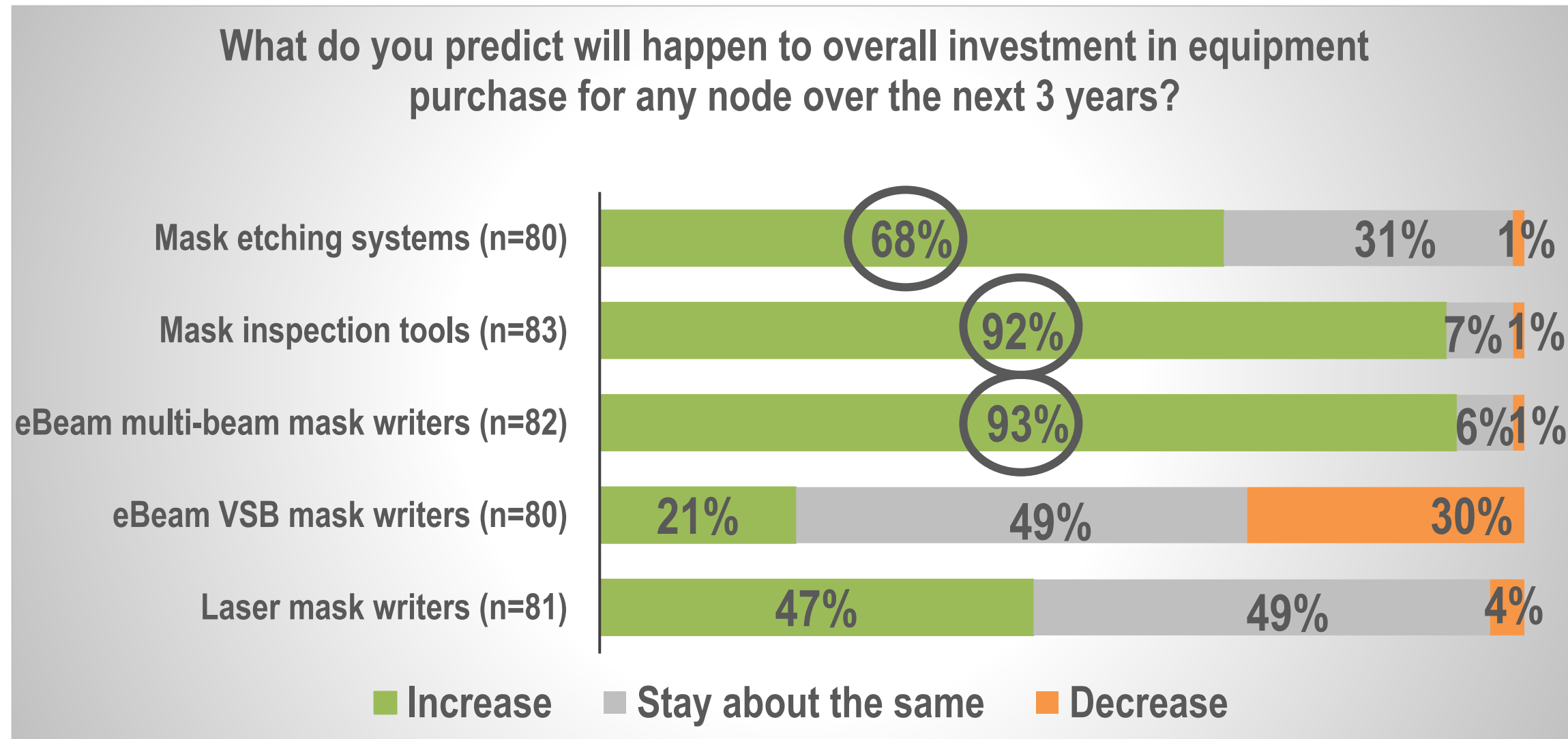


What will happen to total mask revenues
for 2026 compared to 2025? n=81



Good News for Equipment Suppliers in Next 3 Years*

New this year – 68% said mask etching systems purchases to increase



* Survey taken before 12-inch Mask Workshop on Sept. 7

Luminaries Said New Mask Shops in 4 Regions By 2031*

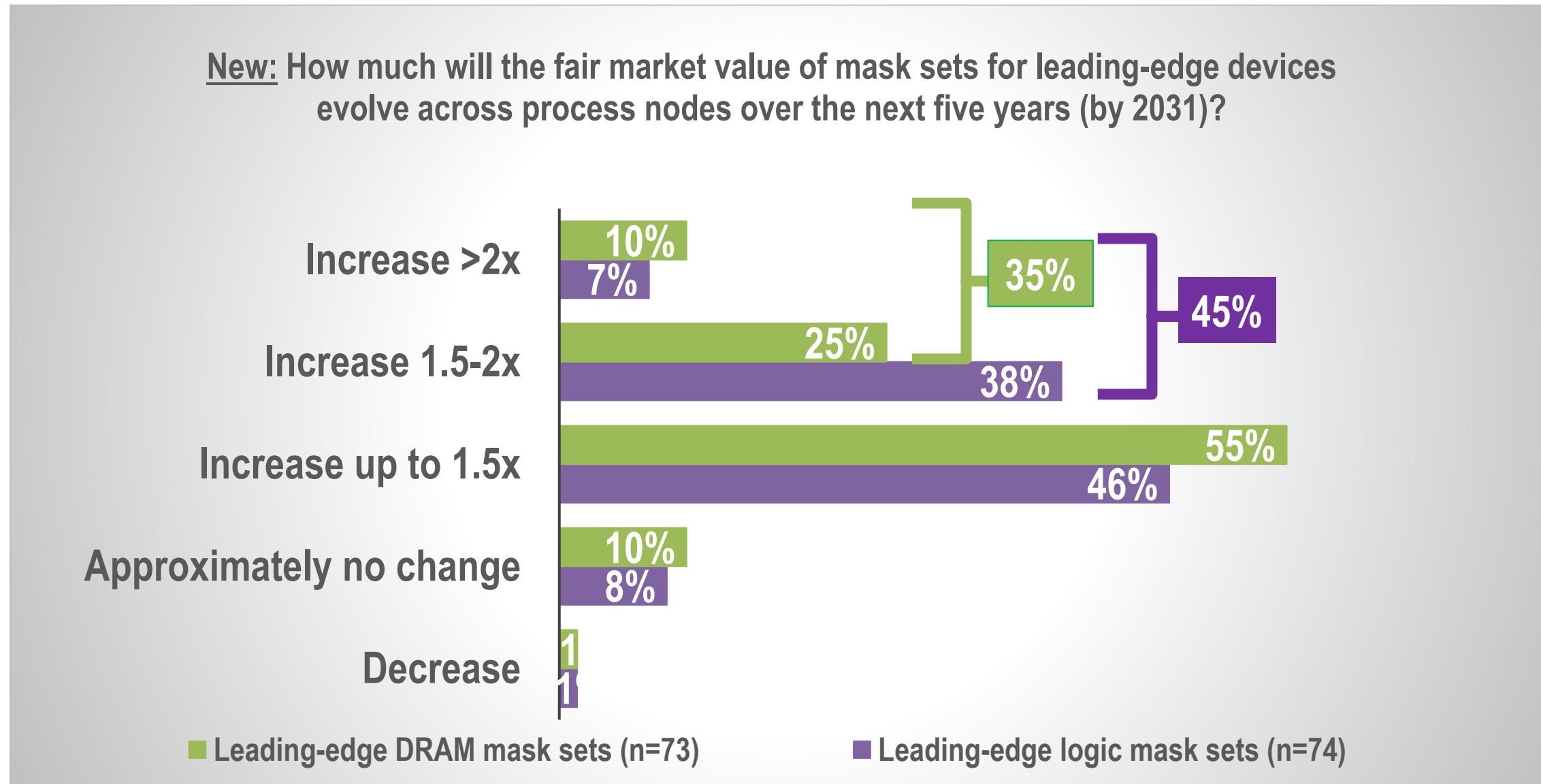
New Q: China, Korea, Taiwan, US – but split on Japan



* Survey taken before 12-inch Mask Workshop on Sept. 7

Value of Both DRAM, Logic Leading-Edge Mask Sets to Increase*

New Q: Some survey results differ at $\geq 1.5X$ (45% Logic vs 35% DRAM)



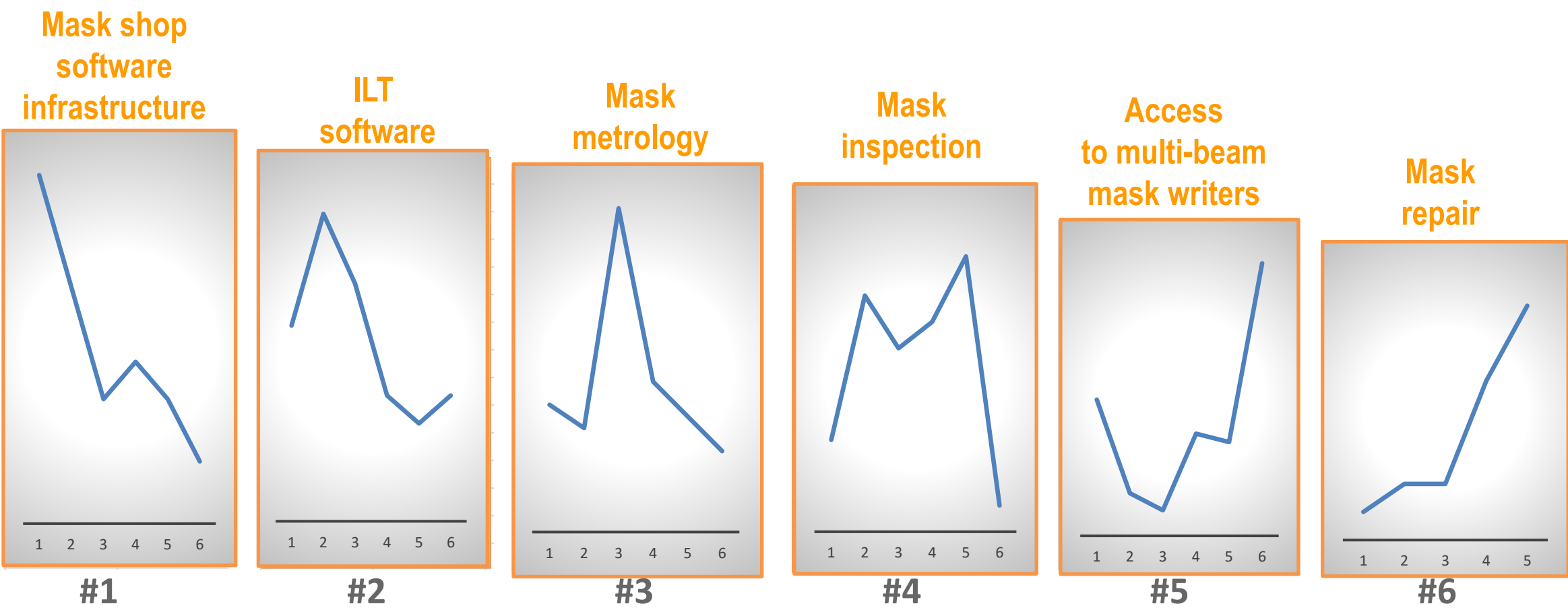
* Survey taken before 12-inch Mask Workshop on Sept. 7

2026 Views of Curvilinear Concerns Same as Last Year

Question to be retired this year



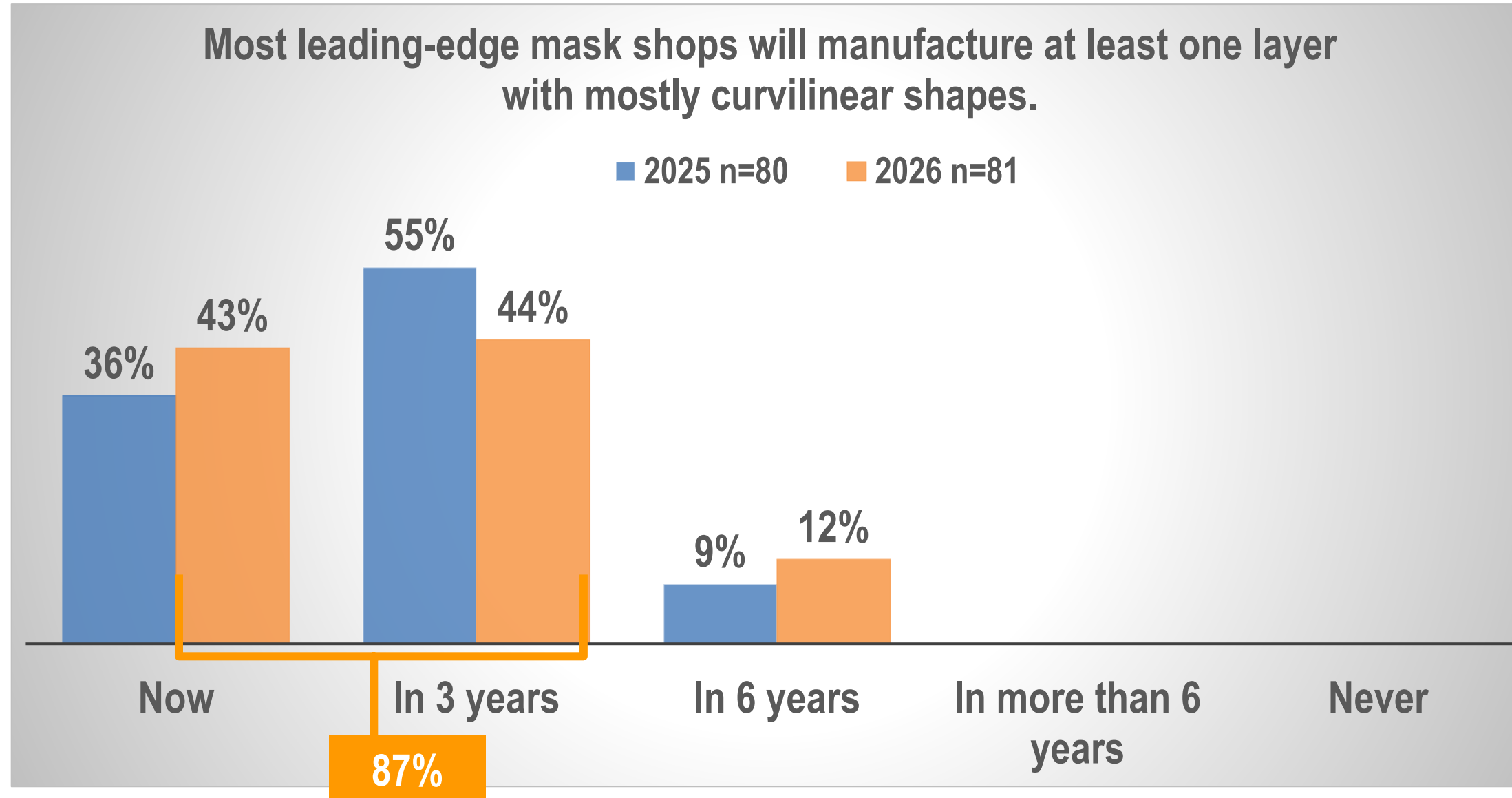
Please rank your biggest concerns in producing curvilinear masks



Note: 1-6 on X-axis indicate # of respondents that ranked that question as that ordinal number with 1 = highest

Curvilinear Masks Aren't Just for Hot Spots

87% said at least one “mostly” curvilinear layer in 3 years

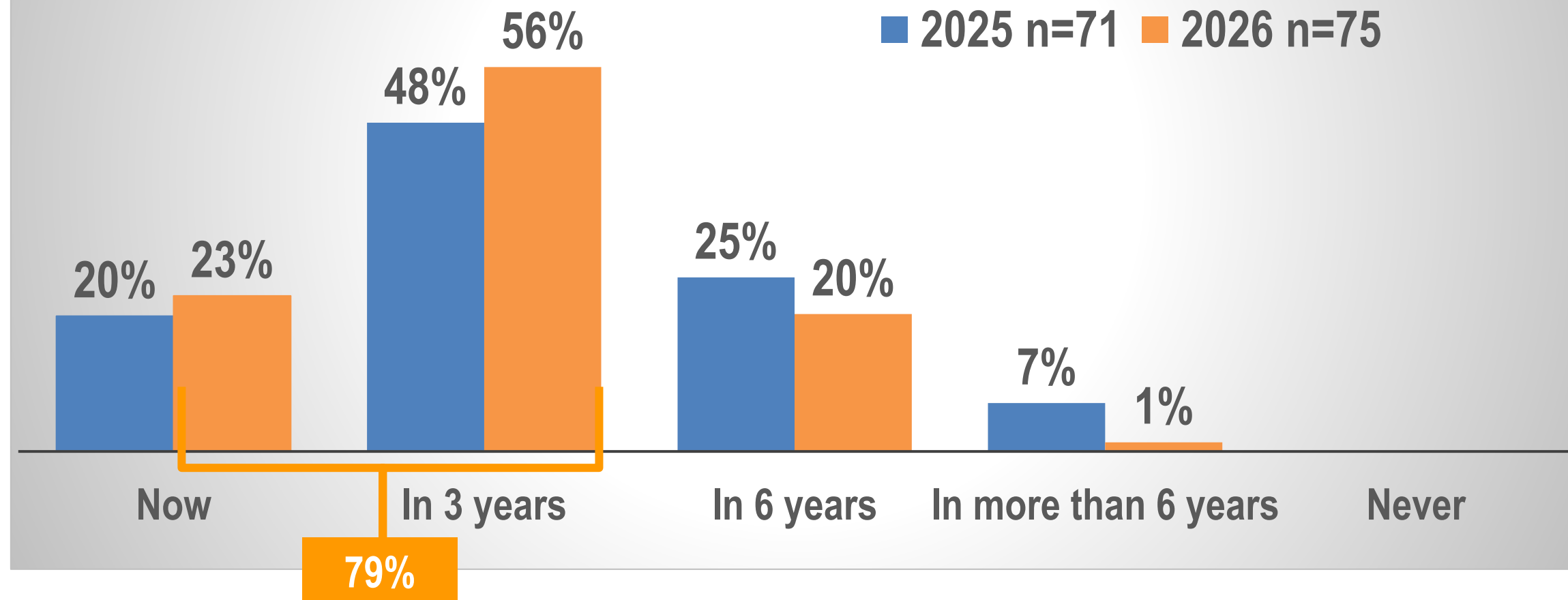


Manufacturing Can Handle Curvilinear Wafer Targets

79% said in 3 years



More than one leading-edge OPC/ILT shop is ready to accept more than 20% of design shapes (wafer targets) on a layer being curvilinear other than for arrayed ovals.

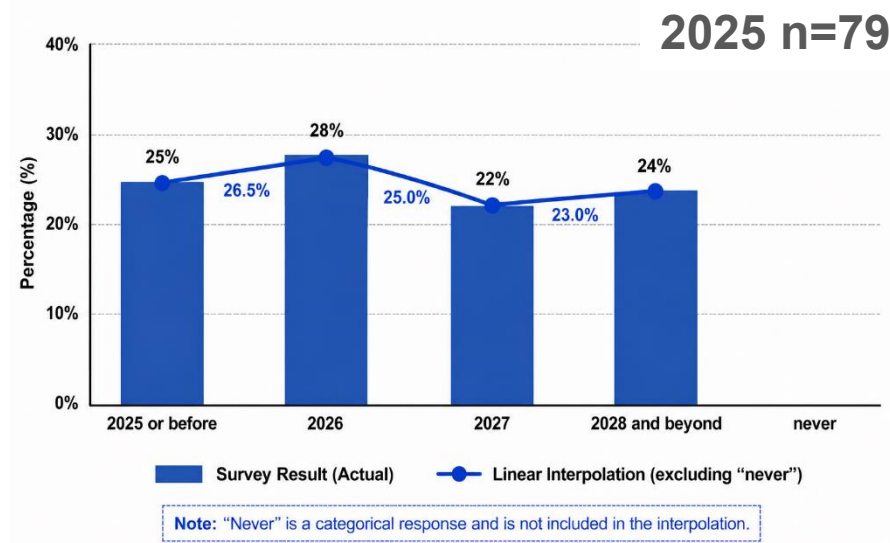
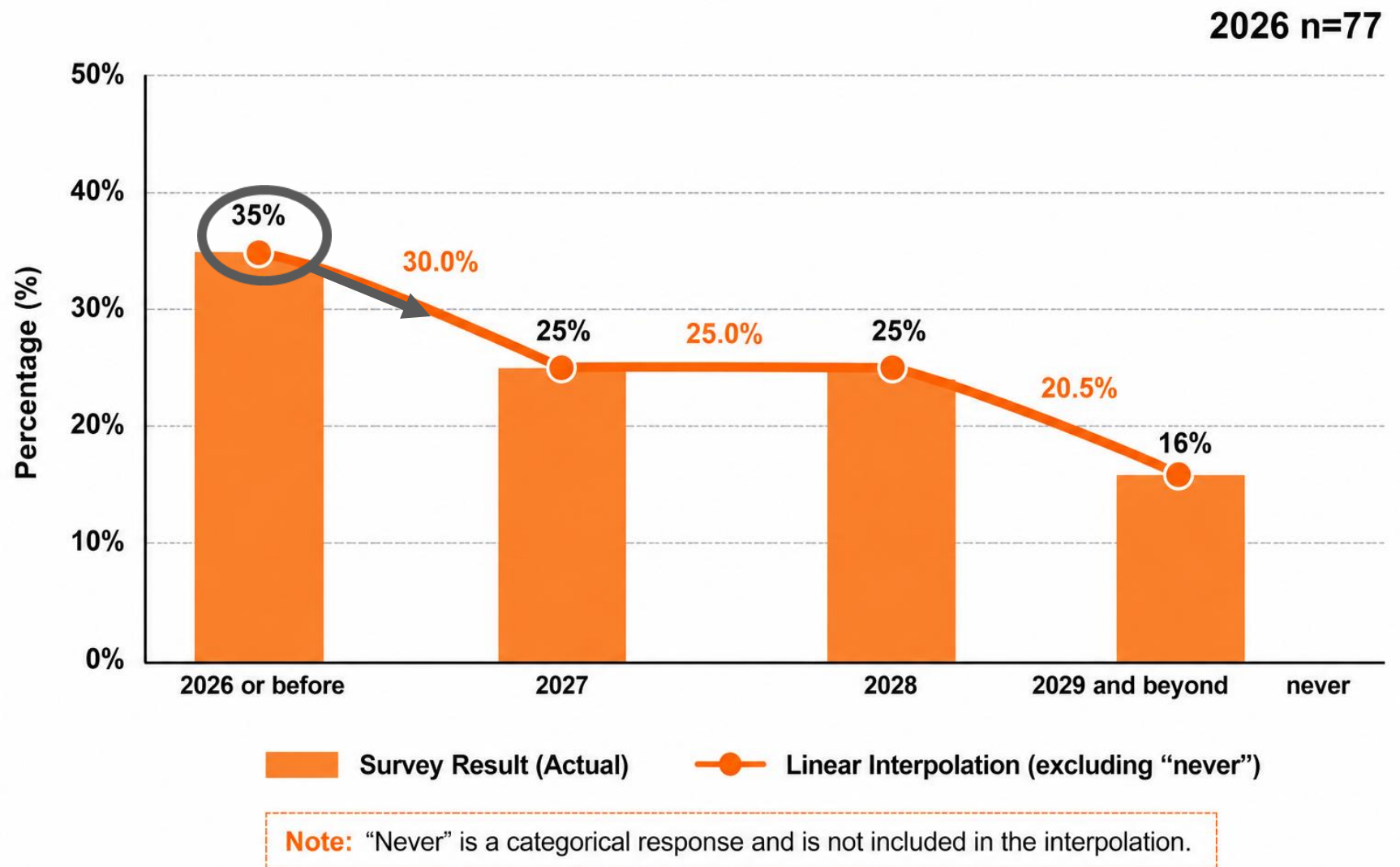
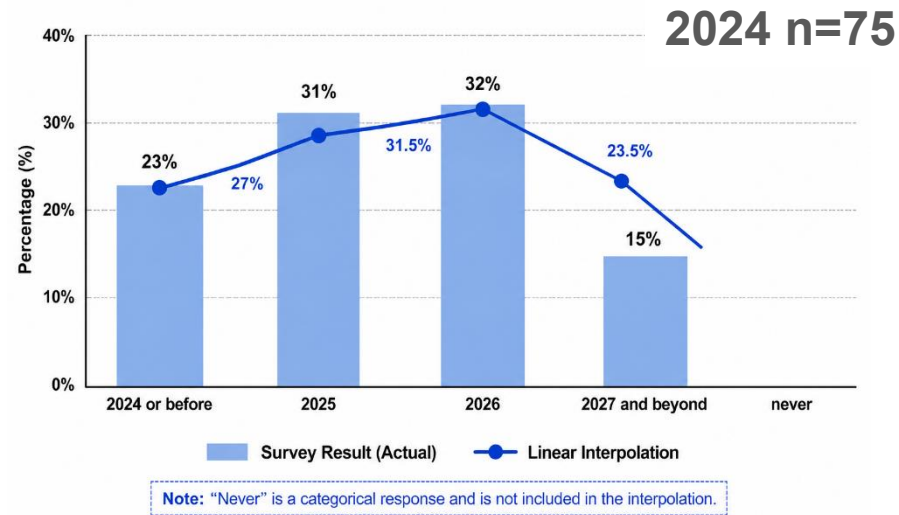


Views on Deep Learning Competitive Advantage Improved

More Luminaries think DL is already a competitive advantage



In the mask industry, when will capabilities based on deep learning become a competitive advantage for any step in the mask making process?

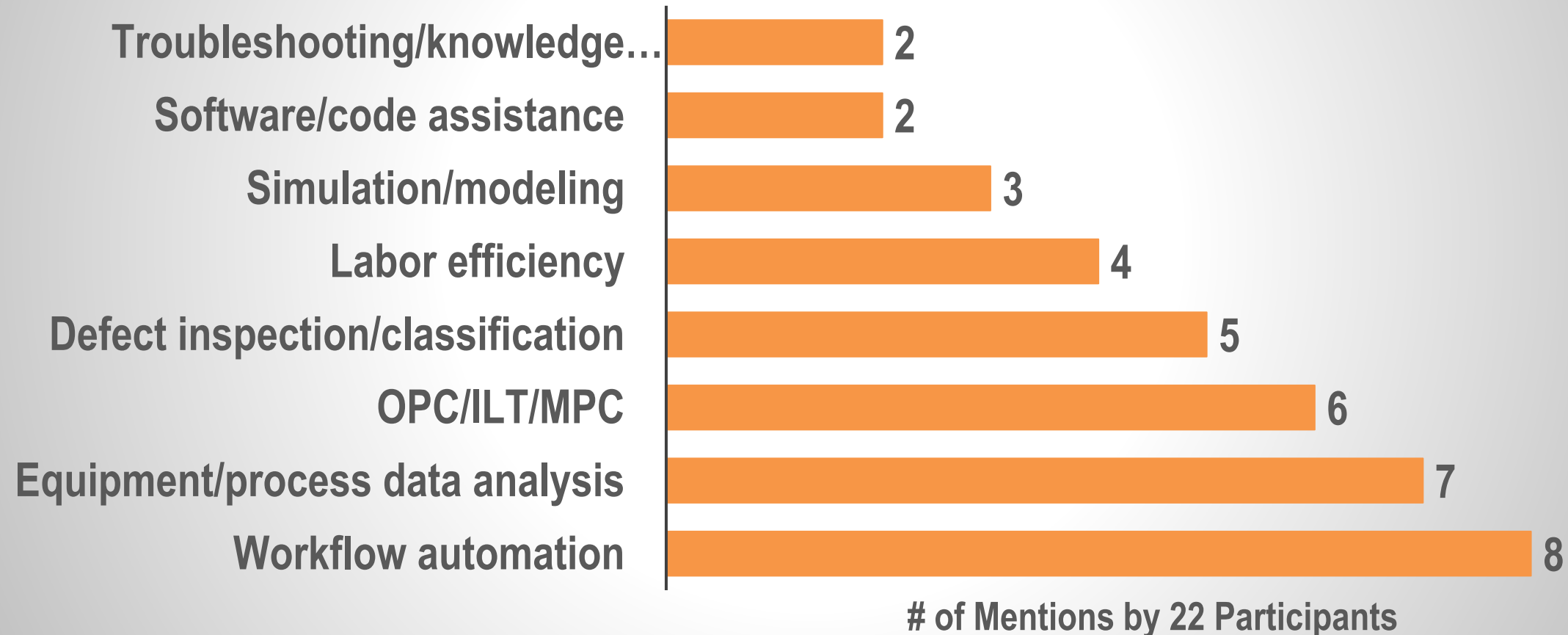


GenAI Making an Impact in Mask Making Today

New optional question answered by 22 participants



New (optional): What's the most impactful way generative AI is being used for mask making today? (open comments)



EUV Mask Lifetime Loss Attributed to 3-4 Mechanisms

New optional question answered by 47 participants



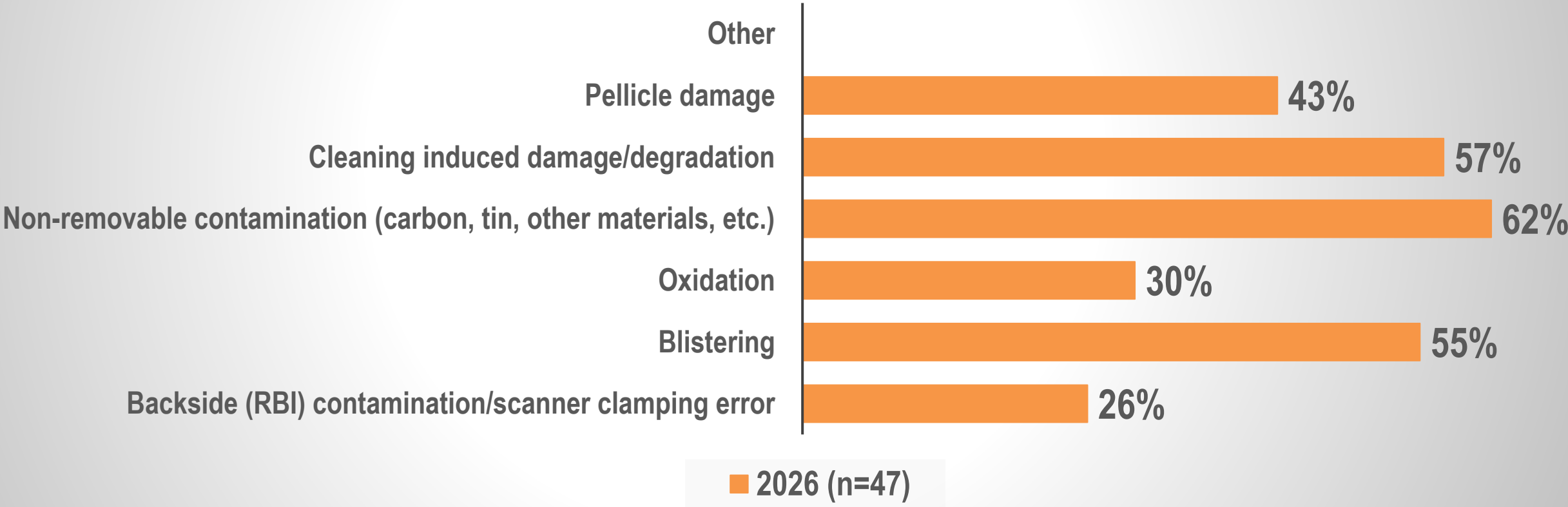
New (optional): Please select the top 3 EUV-specific mechanisms below resulting in loss of EUV mask lifetime in the wafer fabs. Please choose no more than 3.

#4

#2

#1

#3

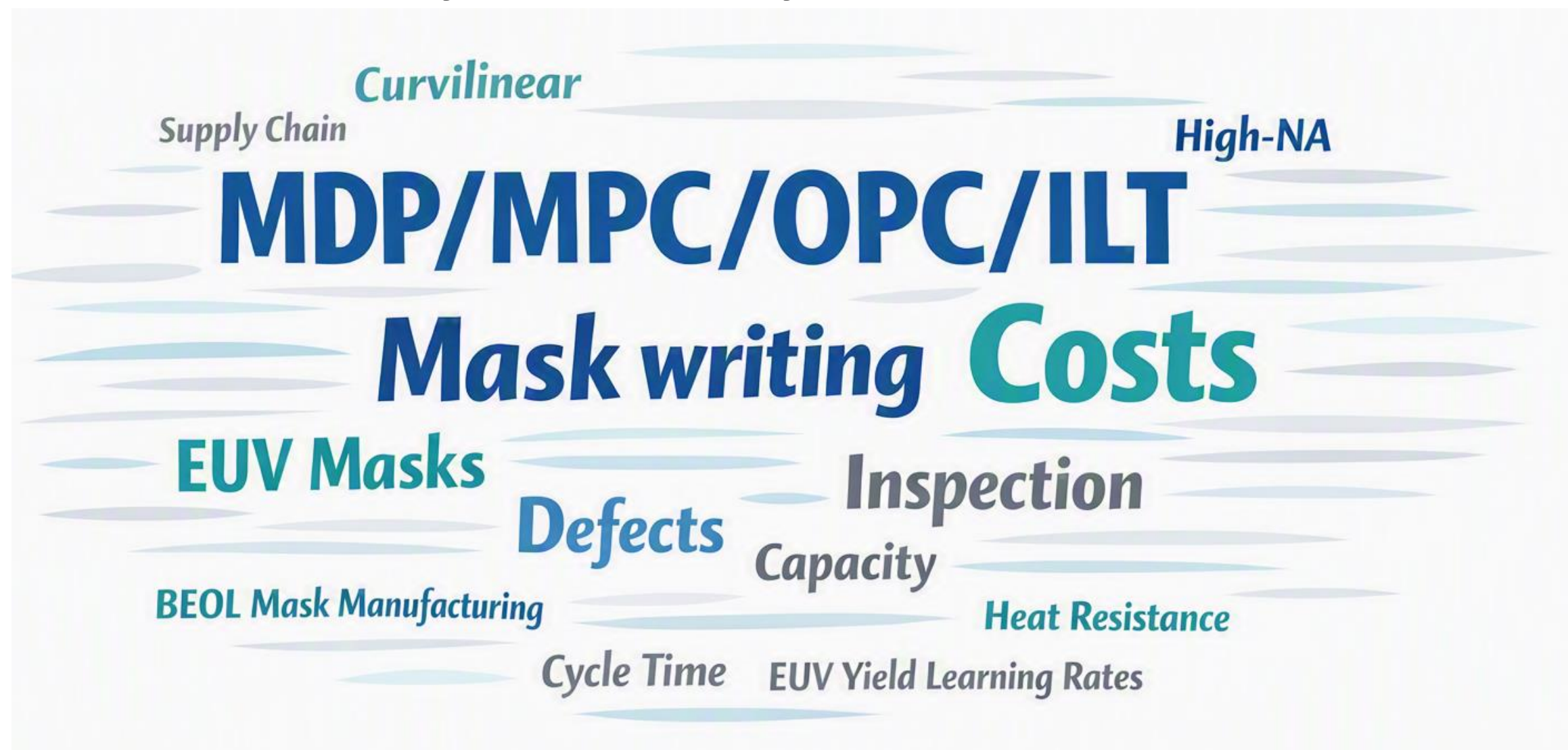


Costs, MDP/MPC/OPC/ILT, Mask Writing Top Bottlenecks

New optional question answered by 27



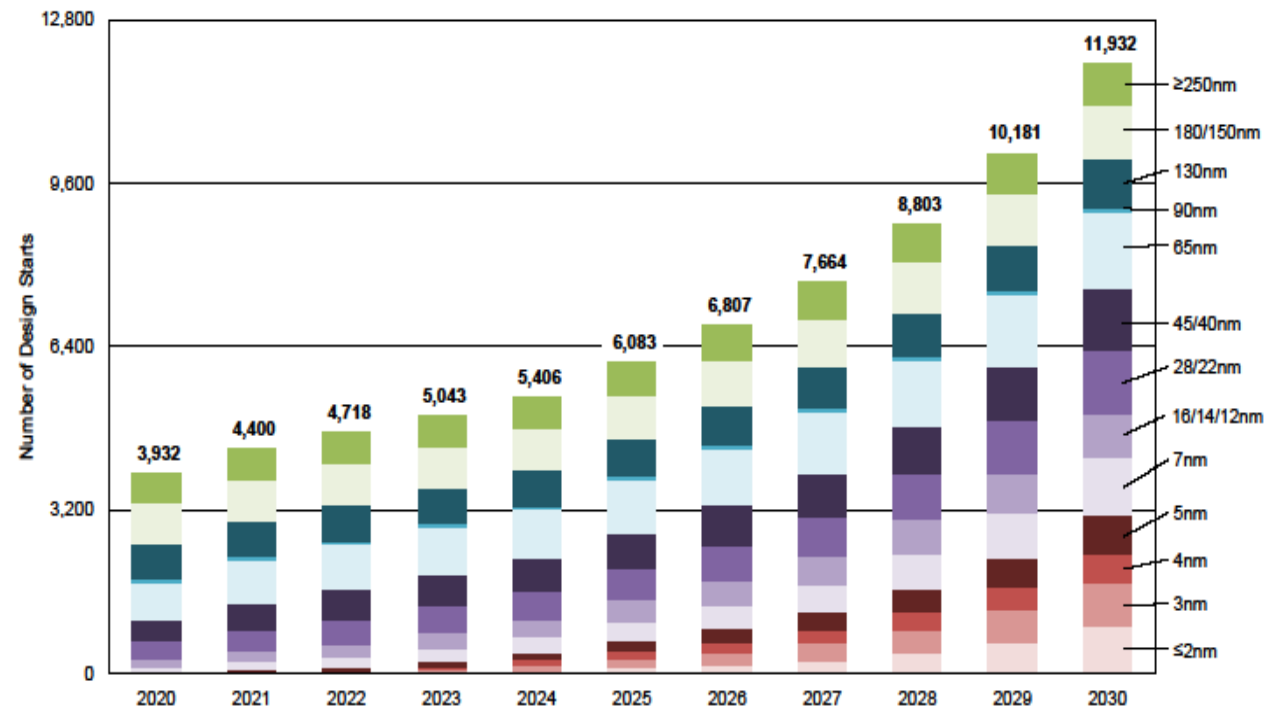
New (optional): What's at the top of your mind for the primary bottleneck in leading-edge mask production in the next three years? Please write your answer in the comment box.



Strong Outlook for Mask Ecosystem Growth

DESIGN STARTS BY TECHNOLOGY NODE

IBS



Luminaries in the 2026 survey said:

- Large Format Masks will be adopted in the next decade
- 2026 mask revenues will increase over 2025 revenues
- Mask equipment purchases will increase over the next 3 years for multi-beam writers, inspection, etching, and laser writers

**Thank you to those who participated
in the survey!**

Luminaries survey results available at www.ebeam.org
