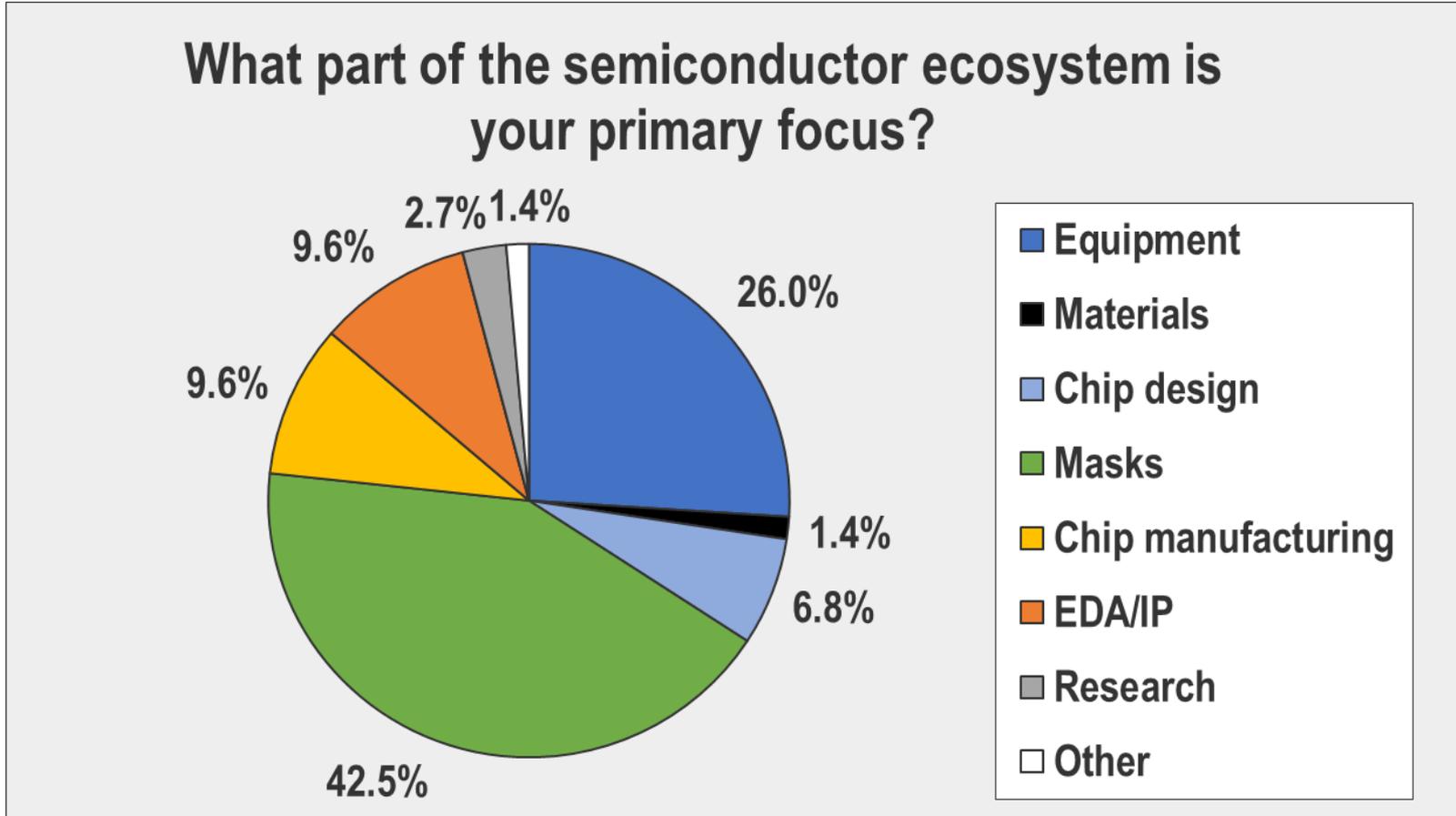


Our 5th Annual Perceptions Survey – 2016



Masks & Equipment total 68.5% of responses

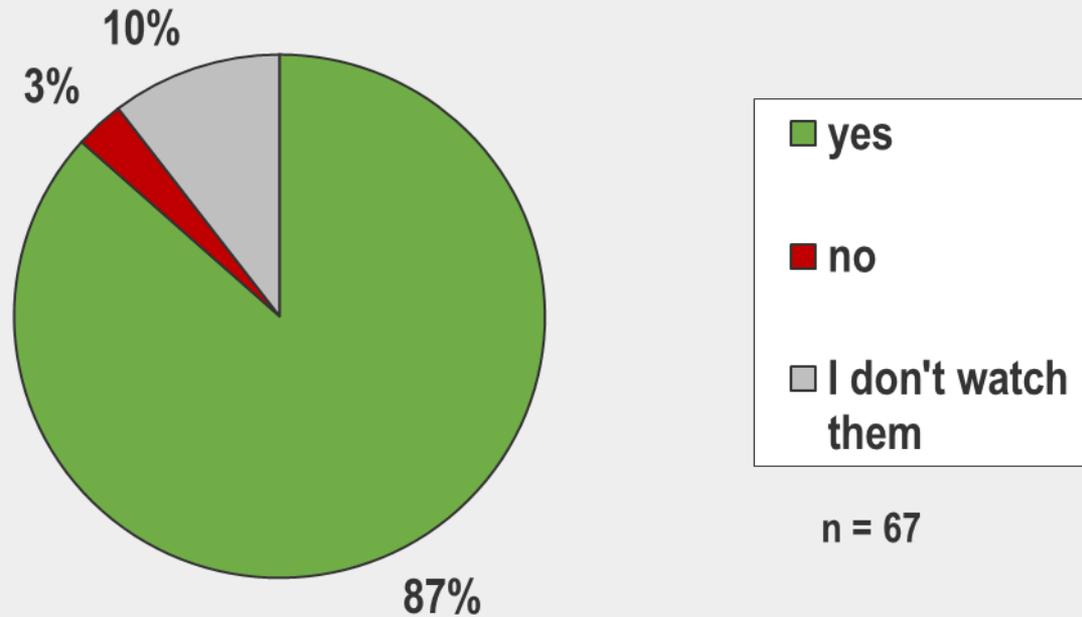


Thank you to the 73 luminaries and members for your responses
(~30 companies represented)

Thanks for Watching Our Videos

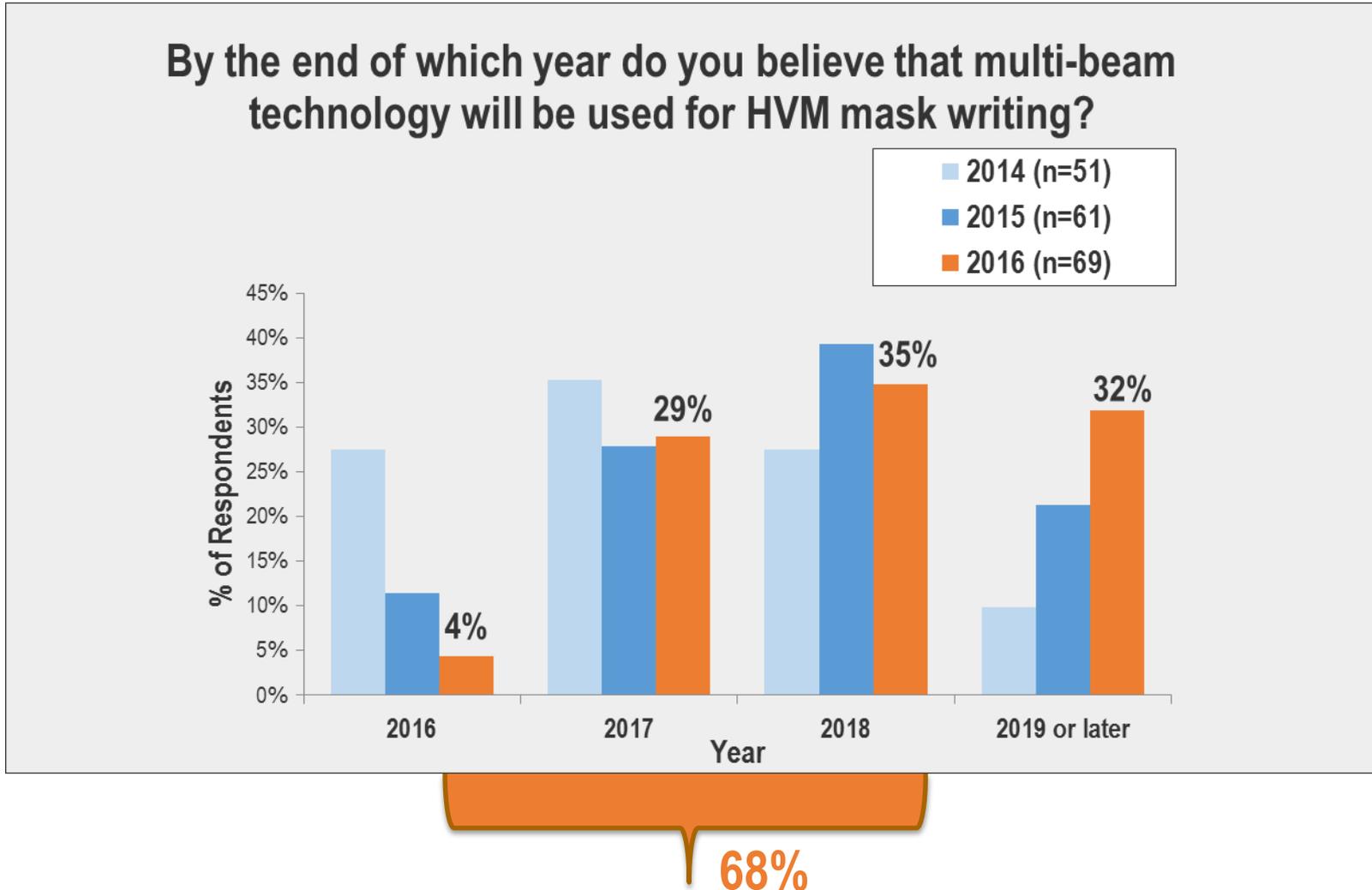
87% would recommend the Fine Line Journal Videos

Would you recommend the eBeam Initiative
Fine Line Journal videos?



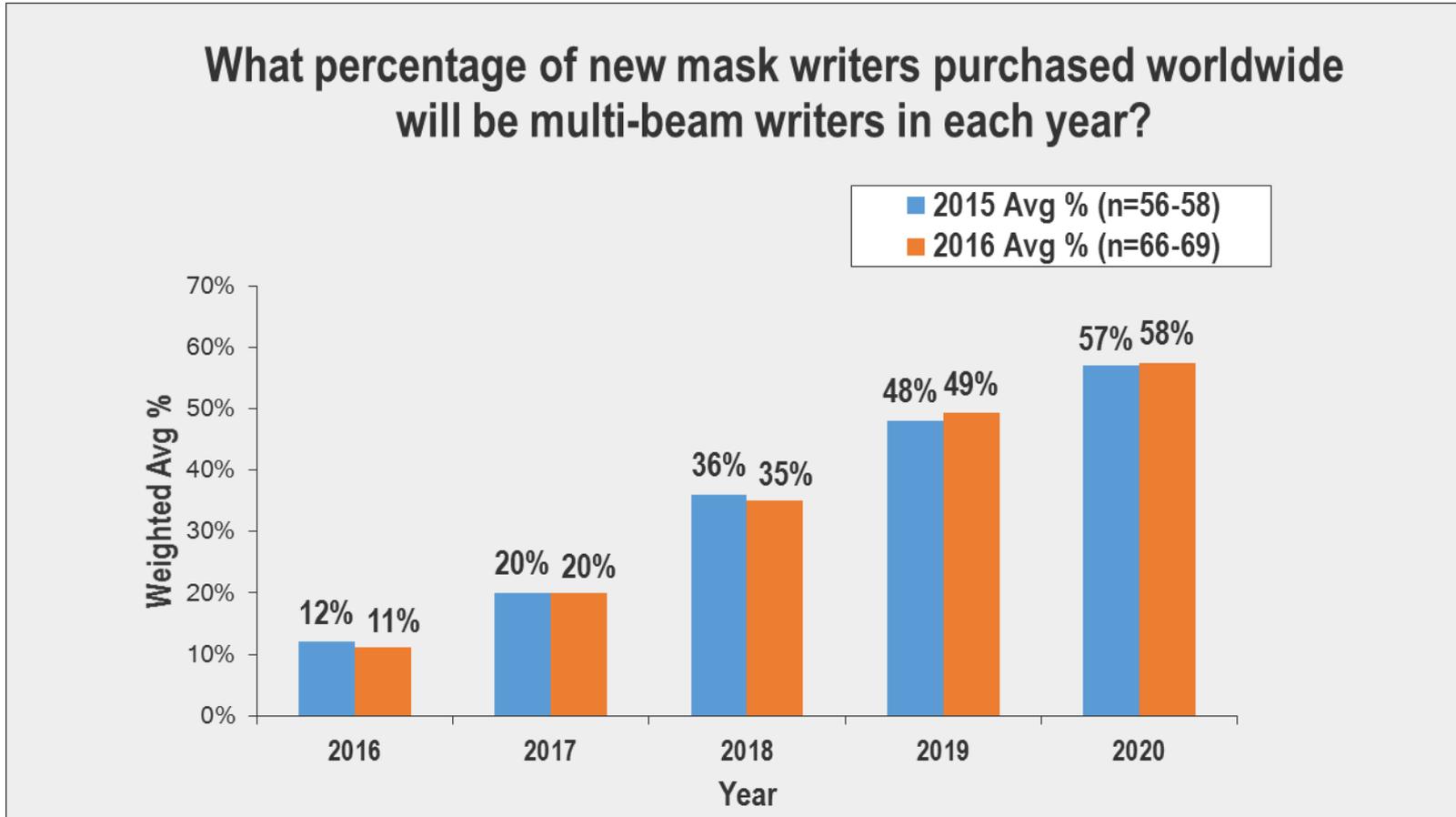
68% Say Multi-beam HVM by end of 2018

3 month change from 2015 Survey results



No Change in Multi-beam Purchasing Trend

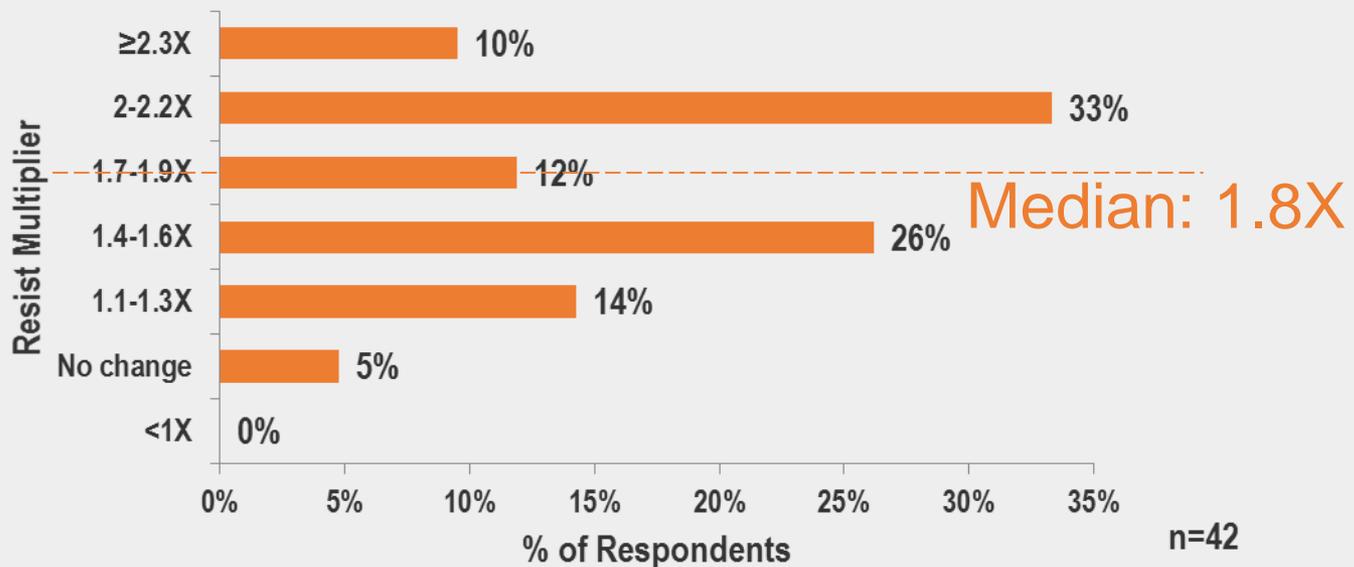
Some responded 100% for 2018 and beyond



Resists likely to be ~2X slower in 2 years

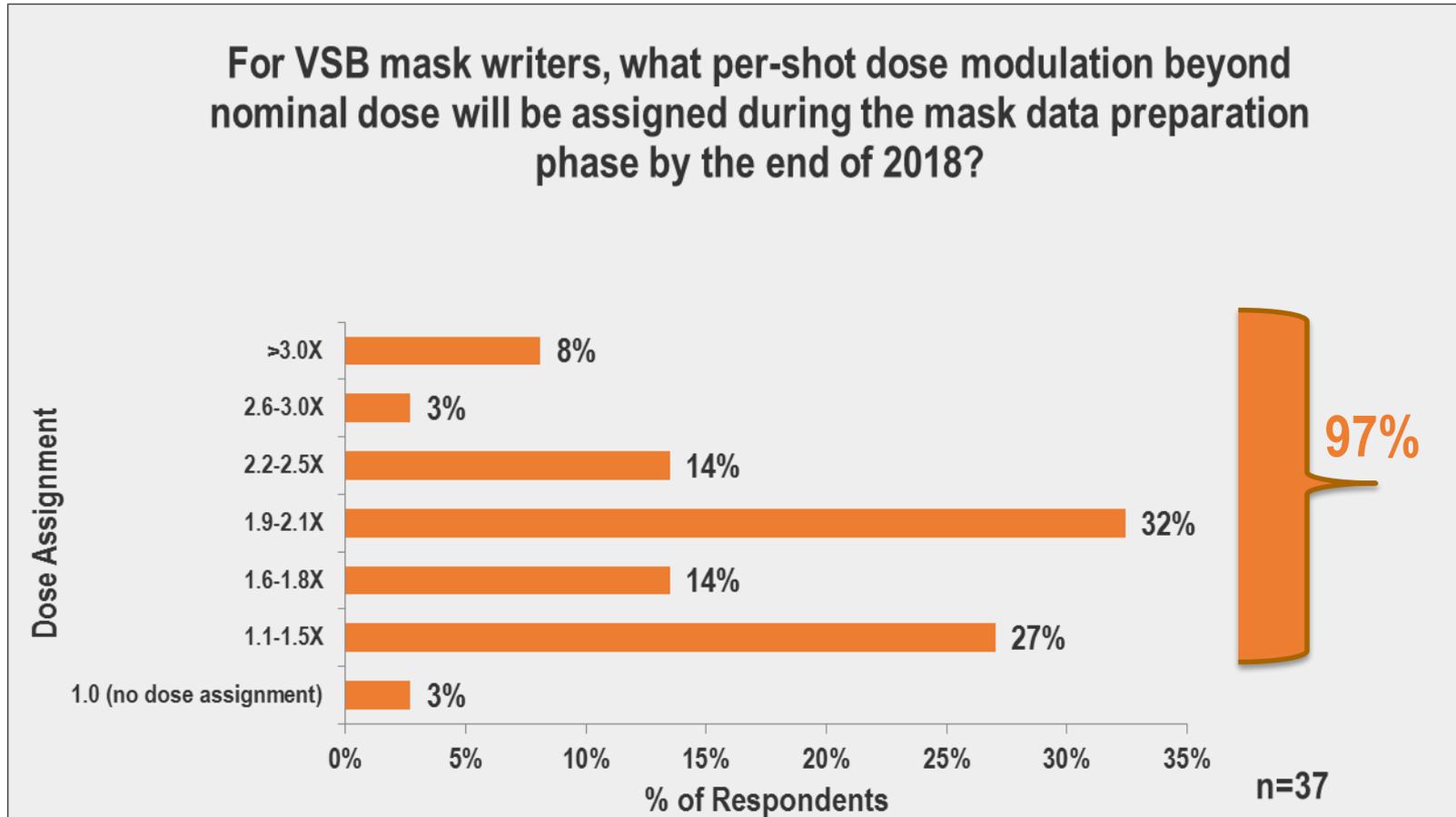
Median response around 1.8X slower than today

For HVM production masks intended for production wafers, how much slower will the nominal dose of the slowest resist be at the end of 2018 compared to today?



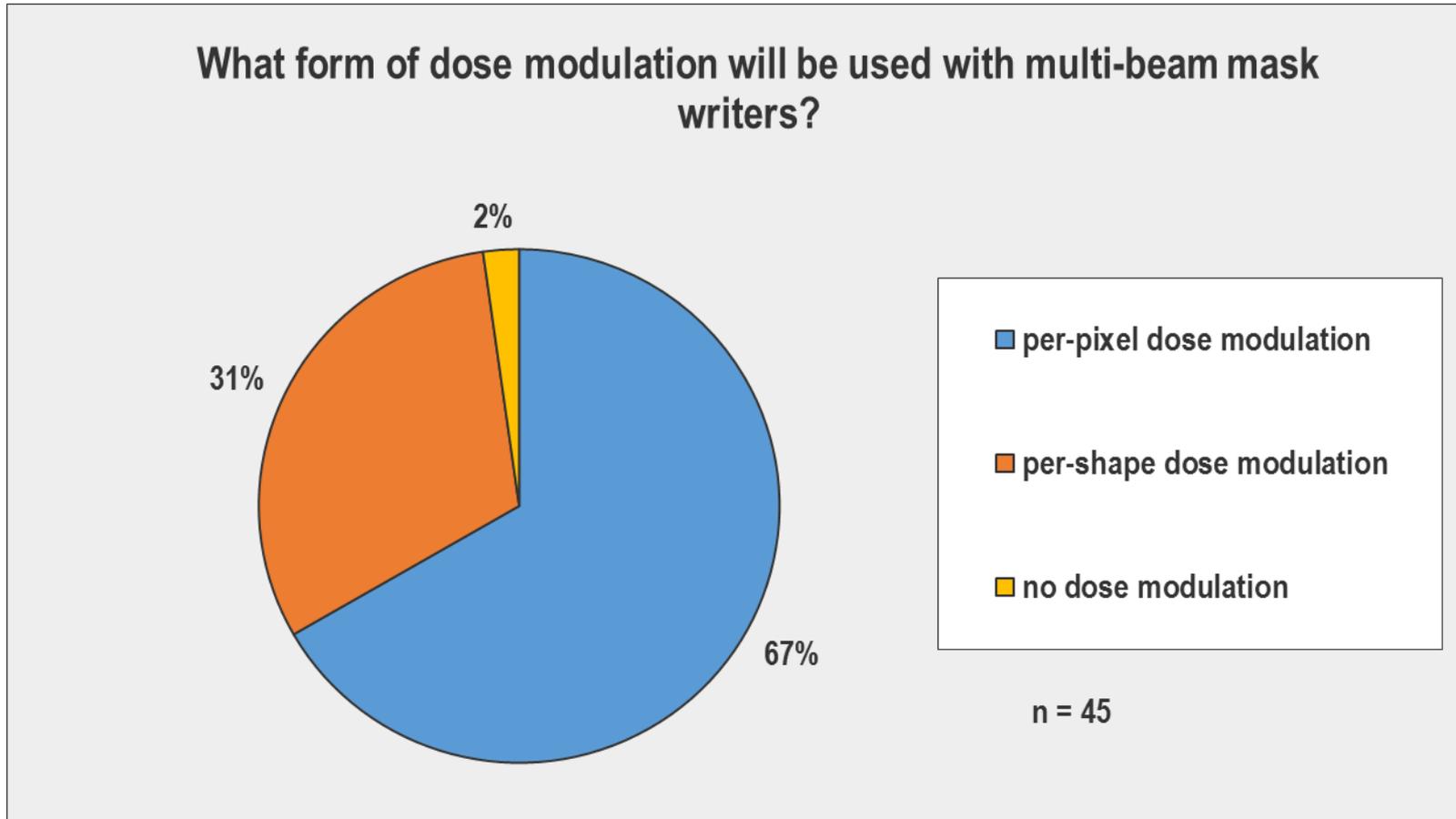
Almost Everyone Predicts Dose Modulation

97% predict dose assignment by end of 2018



Dose Modulation Debate for Multi-beam

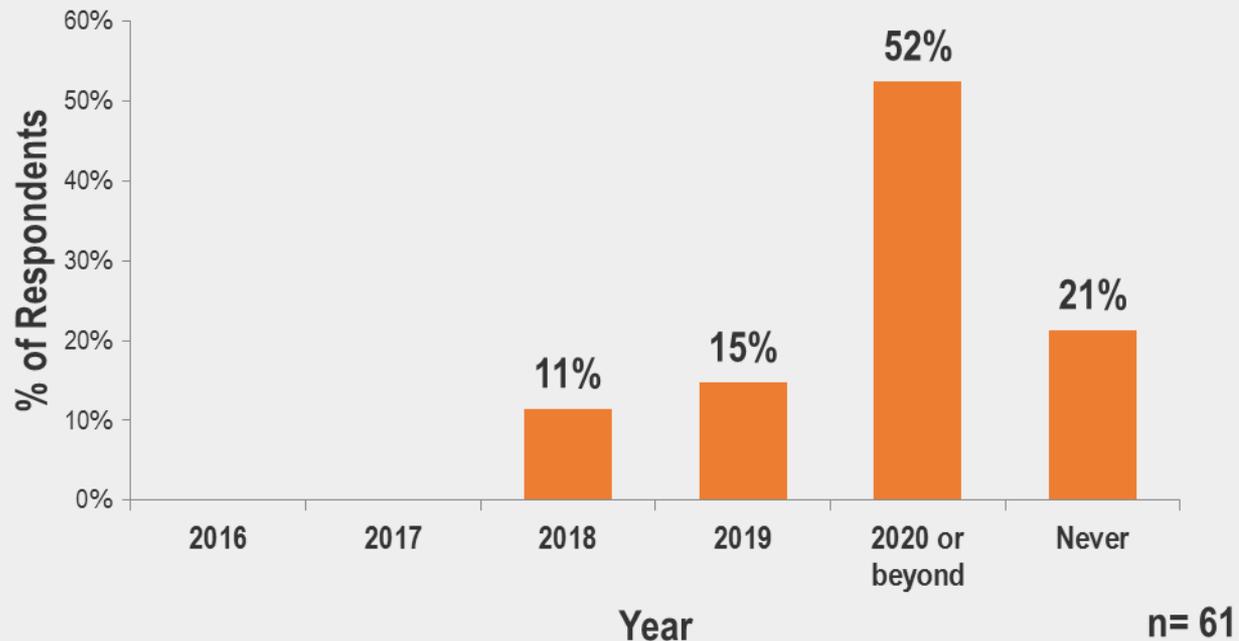
67% predict per-pixel; 31% per-shape



Actinic Inspection Predicted...Sometime

21% predict “never” in this year’s survey

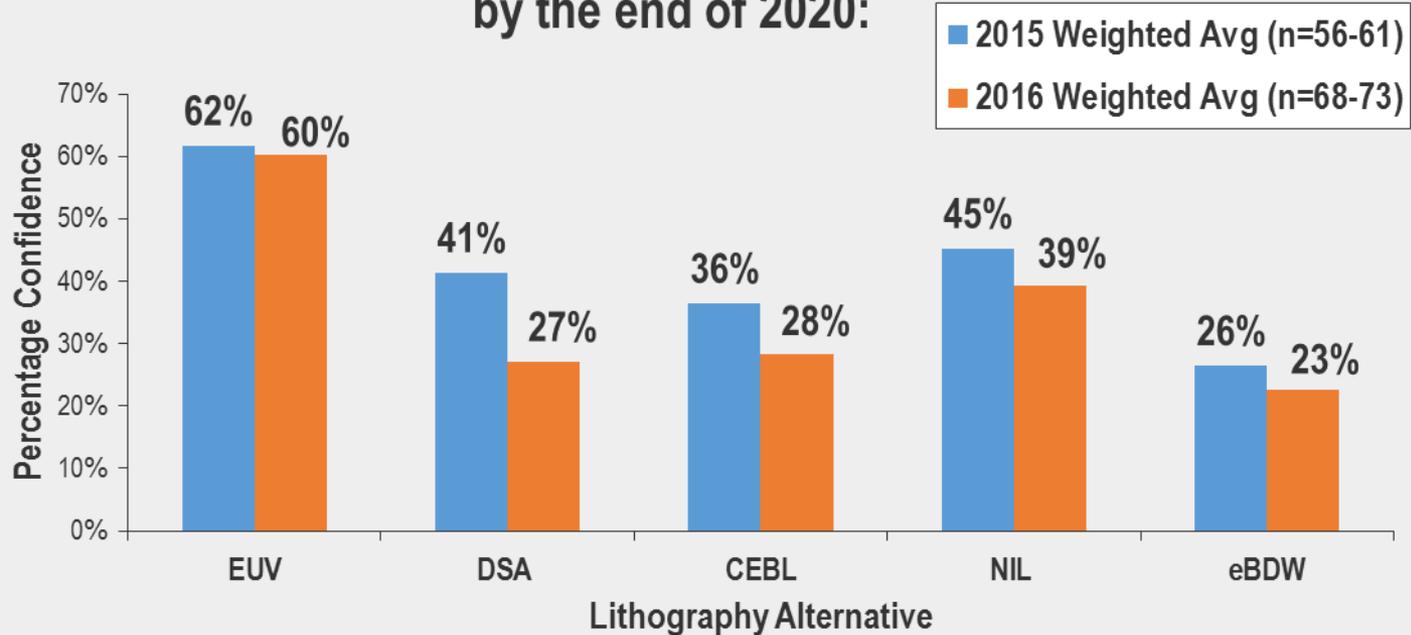
By the end of which year do you predict actinic pattern inspection for EUV will be used in high volume manufacturing?



EUV Confidence Over Others Increased

EUV confidence at 60% overall

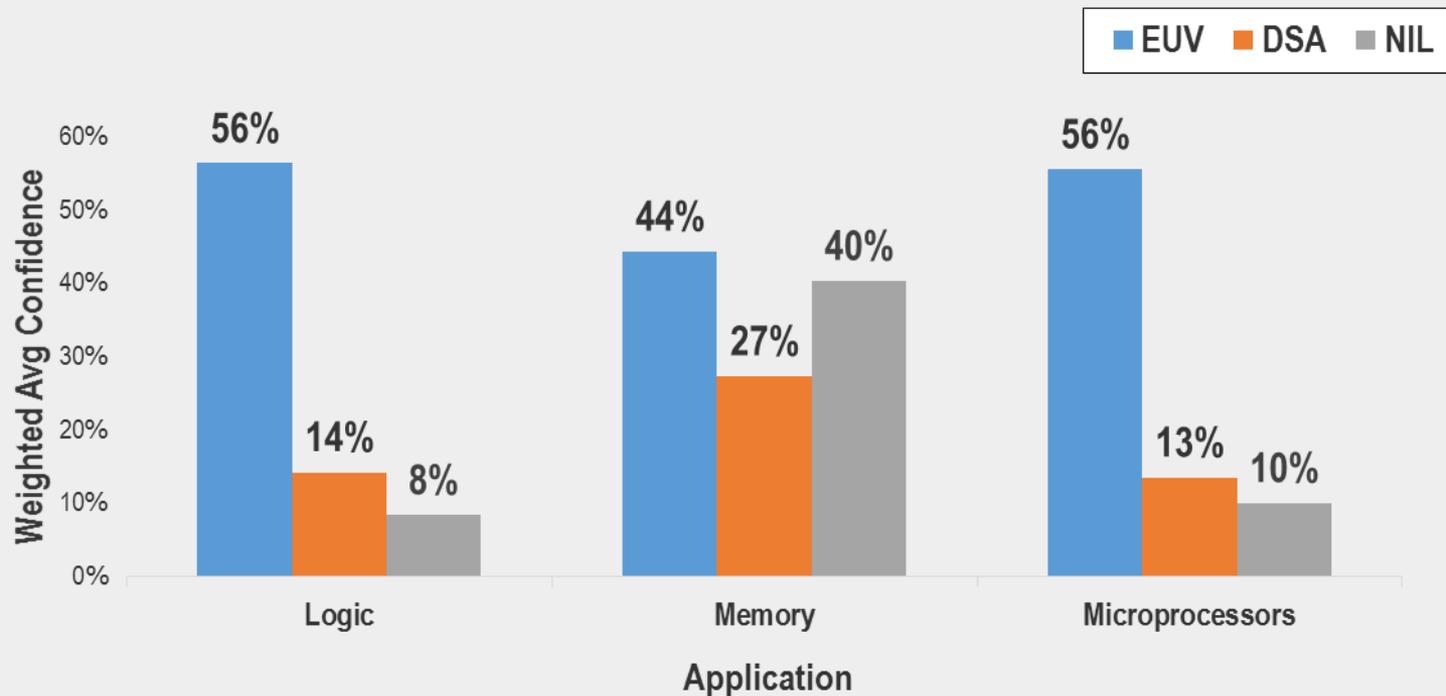
Please rate your confidence that the following lithography solutions are used for at least one manufacturing step of at least one production chip being manufactured in the world by the end of 2020:



NIL Rivals EUV for Memory in Perception

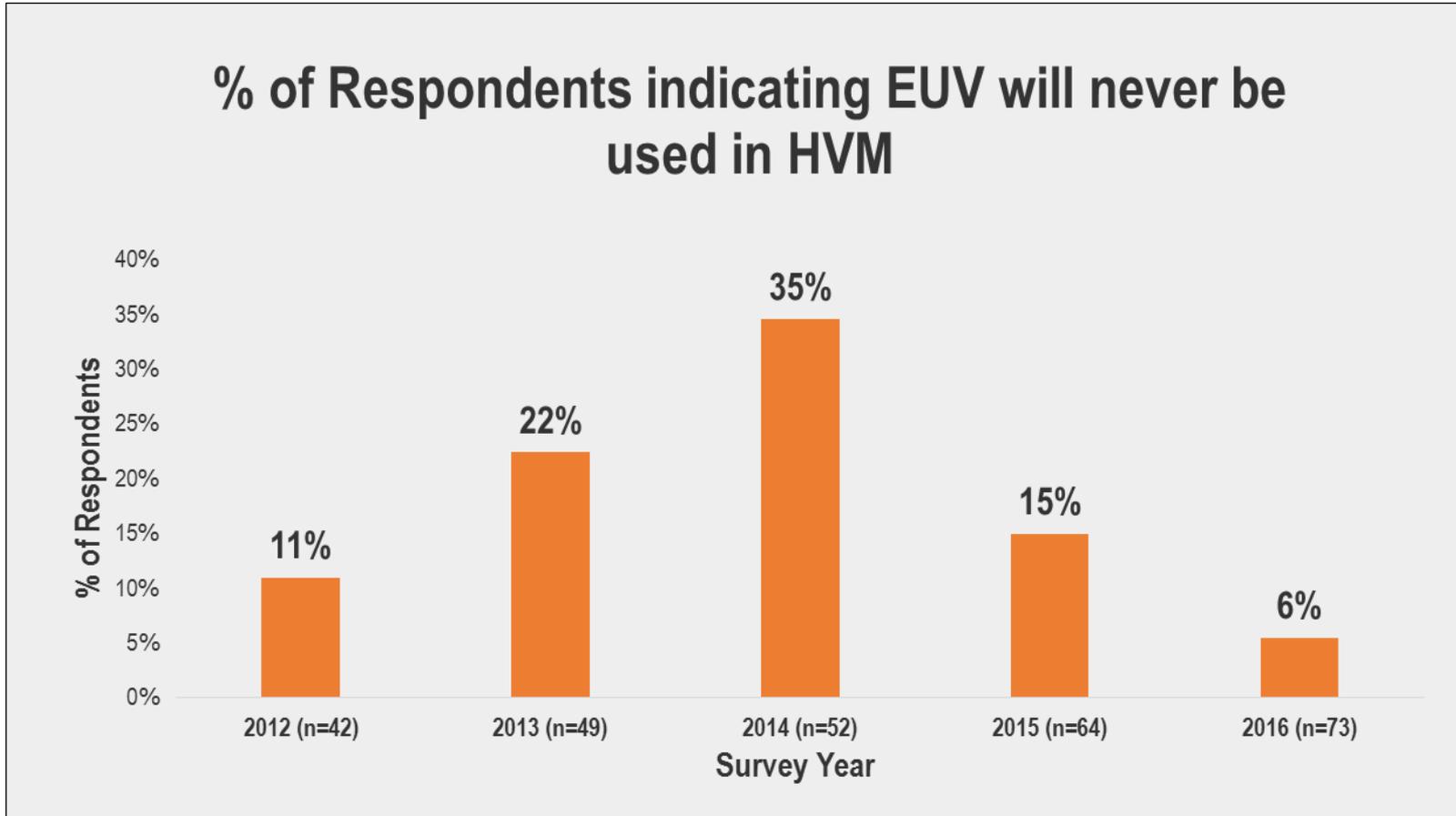
NIL confidence at 40% for Memory

Per application segment, please rate your confidence that the following lithography solutions are used for at least one manufacturing step of at least one production chip being manufactured in the world by the end of 2020:



EUV Pessimism is the Lowest in 5 Years

Only 6% responded with “never” in this year’s survey



Exciting Times Ahead

- **Multi-beam for masks**
- **Dose modulation**
- **EUUV and NIL**
- **And how will EUUV masks be inspected?**

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

**Feedback and questions for future
surveys welcome – send to
jan@williscalibra.com**