



Collaboration Opportunities for 450mm Development

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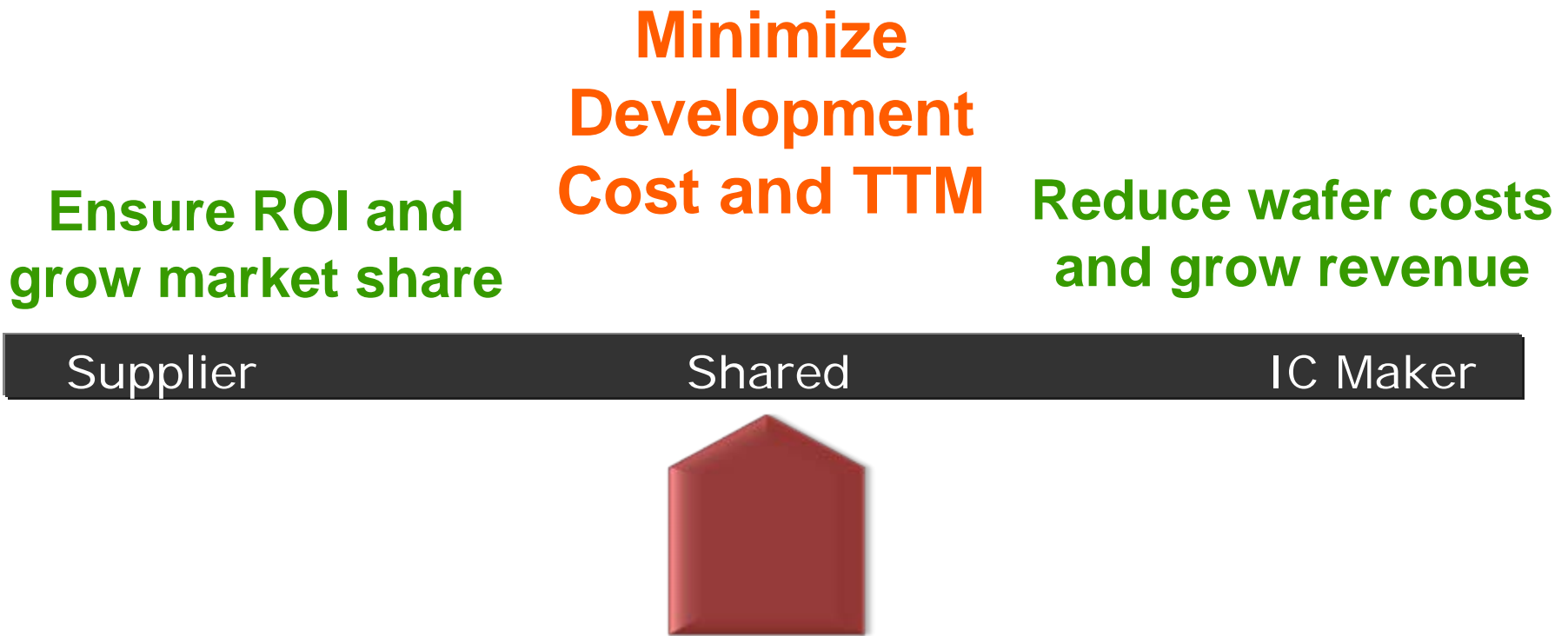
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Agenda

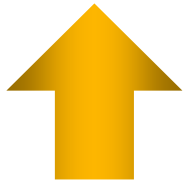
- 450mm challenges
- The benefits of collaboration
- Collaboration opportunities
- Approaches for cost reduction
- Key Messages / Summary

450mm industry challenge



450mm collaboration benefits

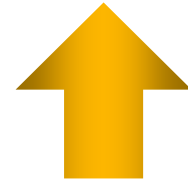
Affordability



Integrated data collection on your platforms

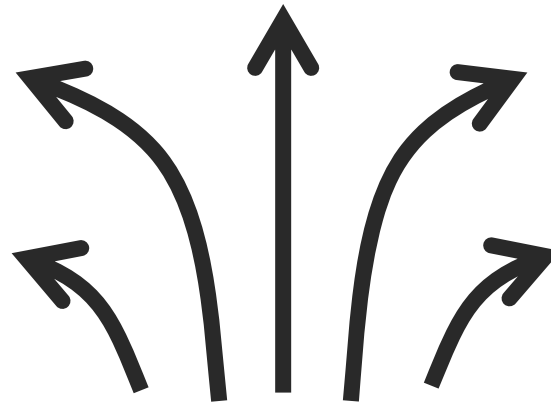


Test & patterned wafers that only IC makers can have



Detailed feedback on proprietary areas of interest

First-mover advantage

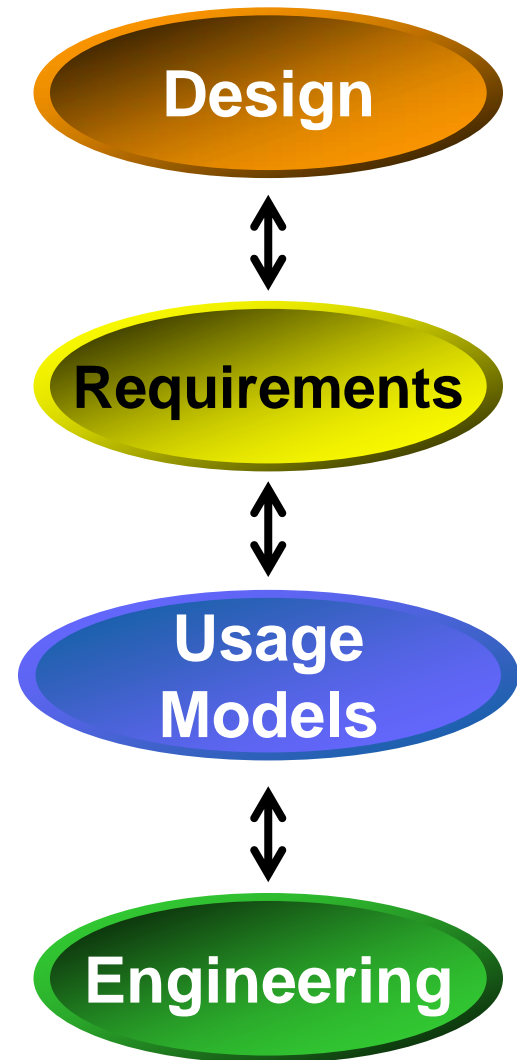


Equipment Certification

Secure IP

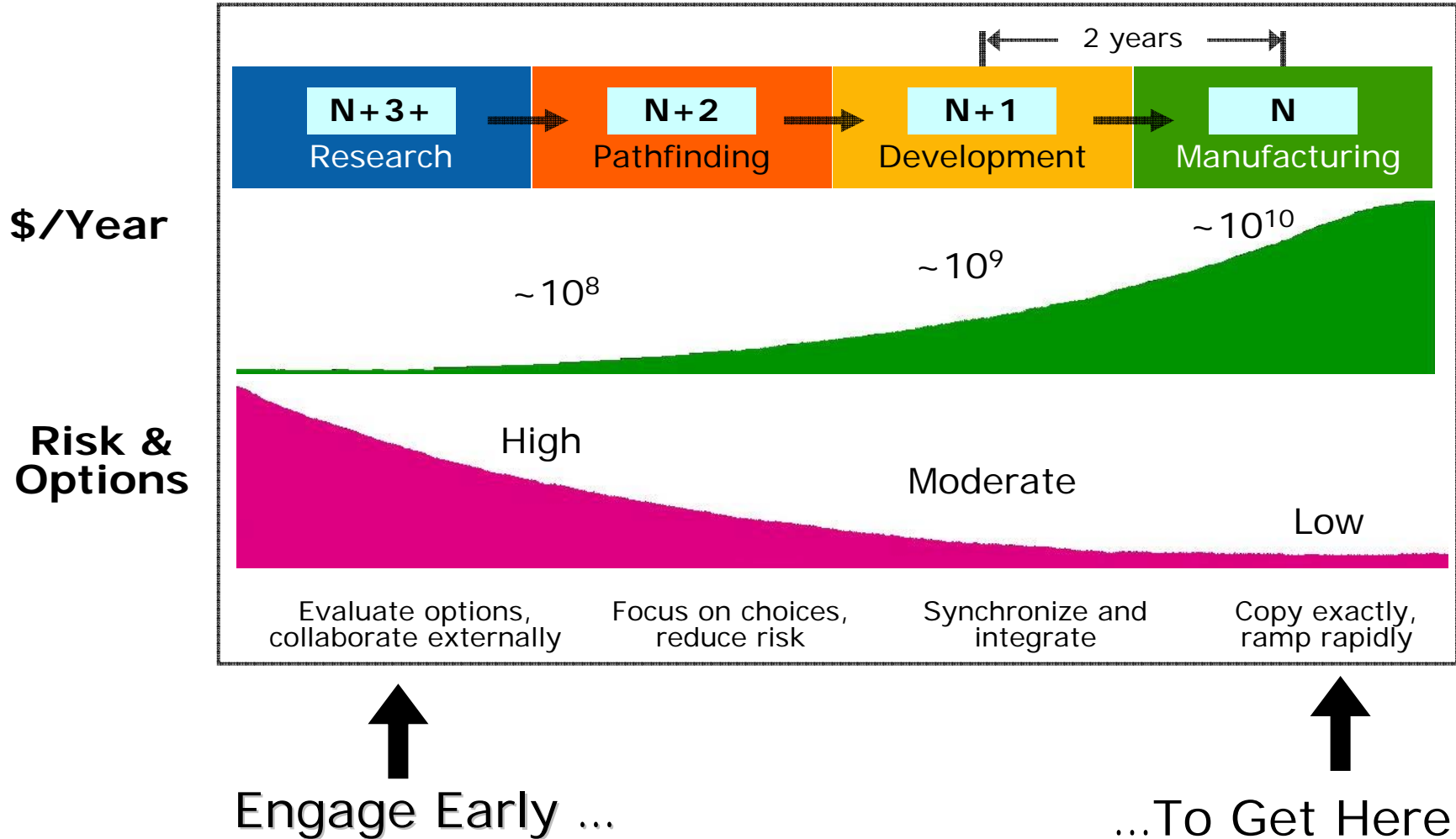
Collaboration ROI

- Quick and efficient evaluation of new & emerging technologies:
 - Early module and integrated data collection helps with equipment implementation.
 - Non-viable technologies eliminated quickly (reduces R&D).
- Answers fundamental technology questions upfront to address high-volume manufacturability needs.
- Working with key customers enables suppliers to stay on the leading-edge.
 - Leading-edge is the key differentiator for profit growth¹.



[1] Courtesy: D. Hutcheson, VLSI Research

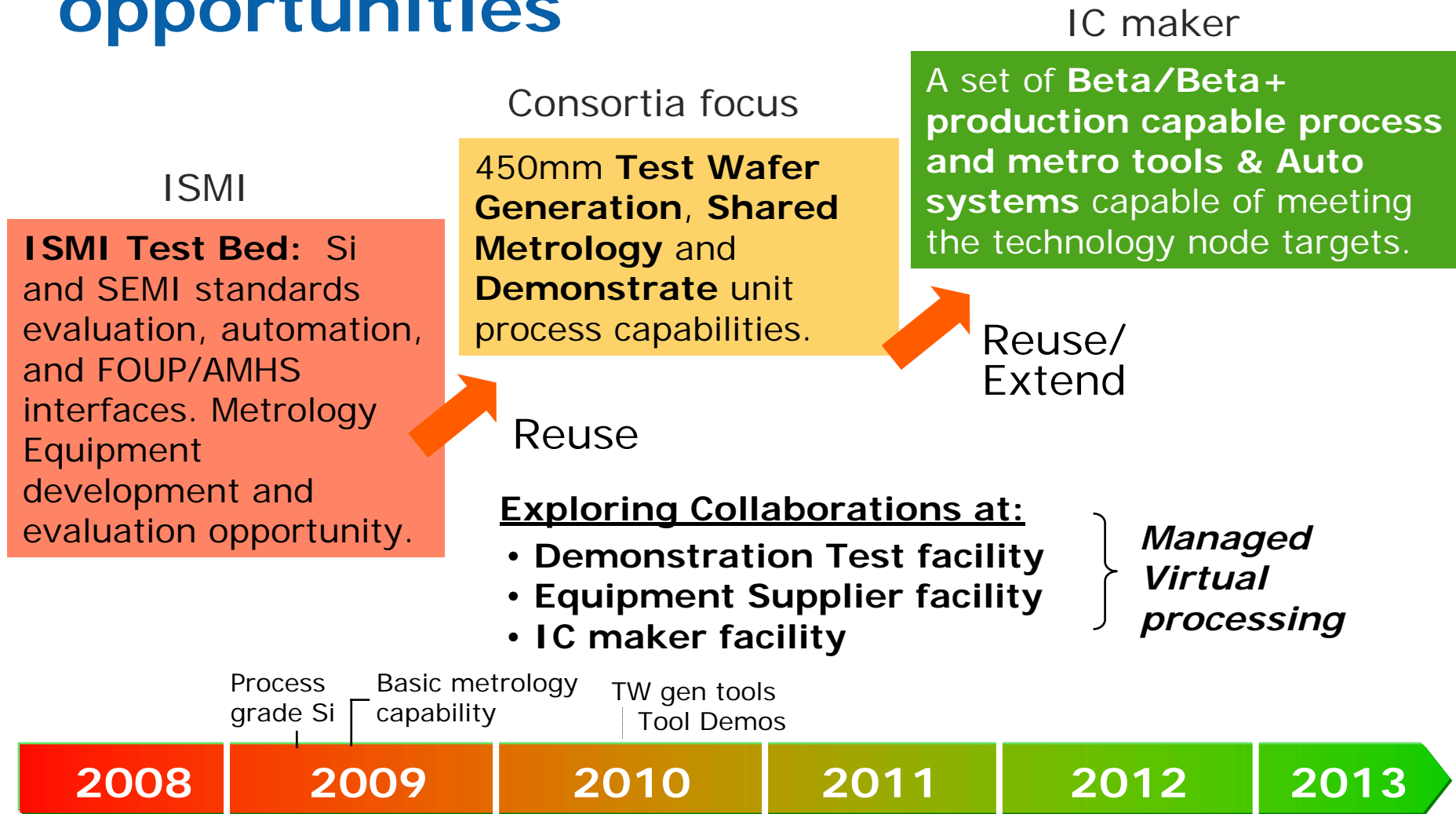
Early collaboration enables industry roadmap



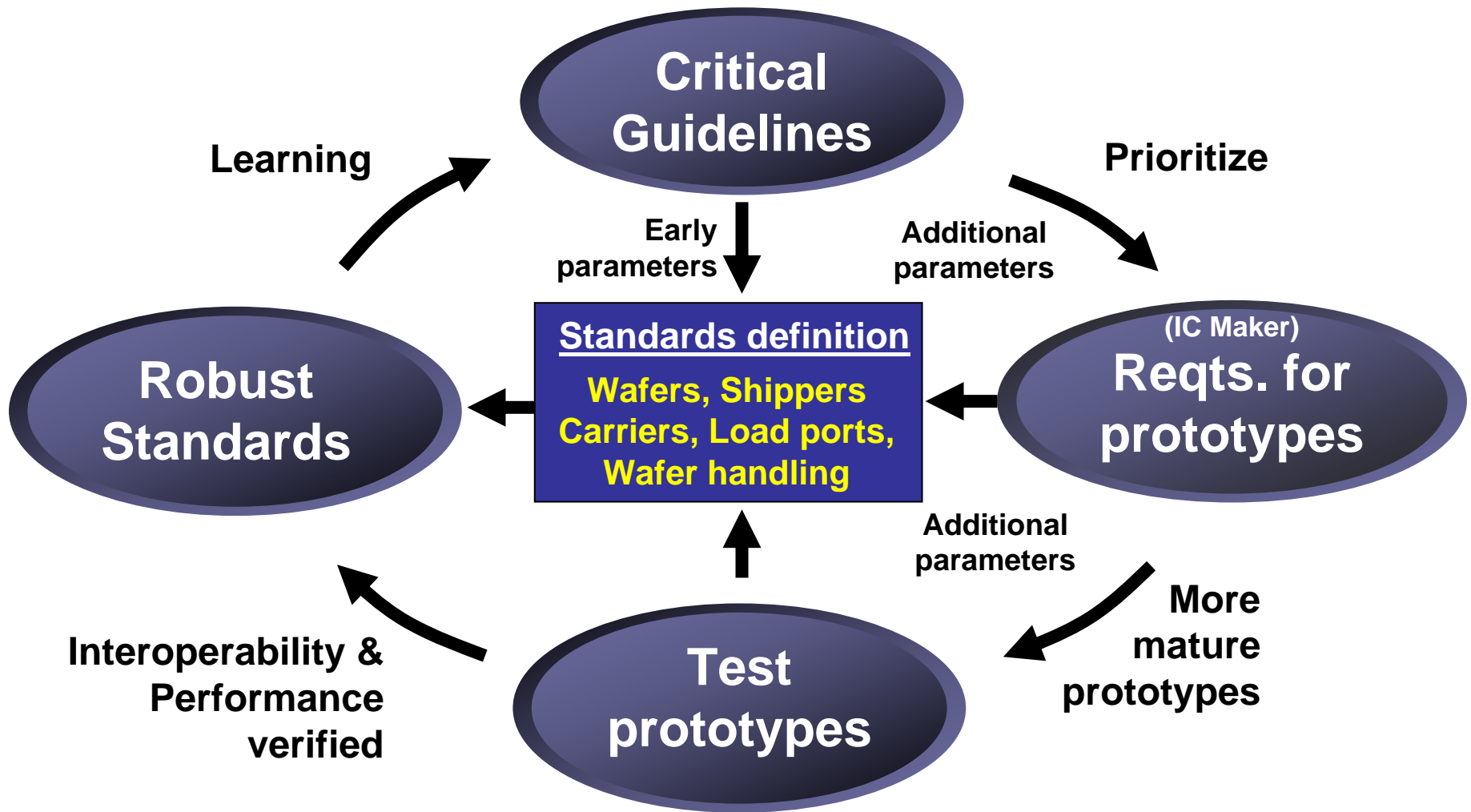
Early Access to Process Integration Data Helps
Disposition Ideas for R&D Efficiency



450mm collaboration phases & opportunities



ISMI test-bed benefits



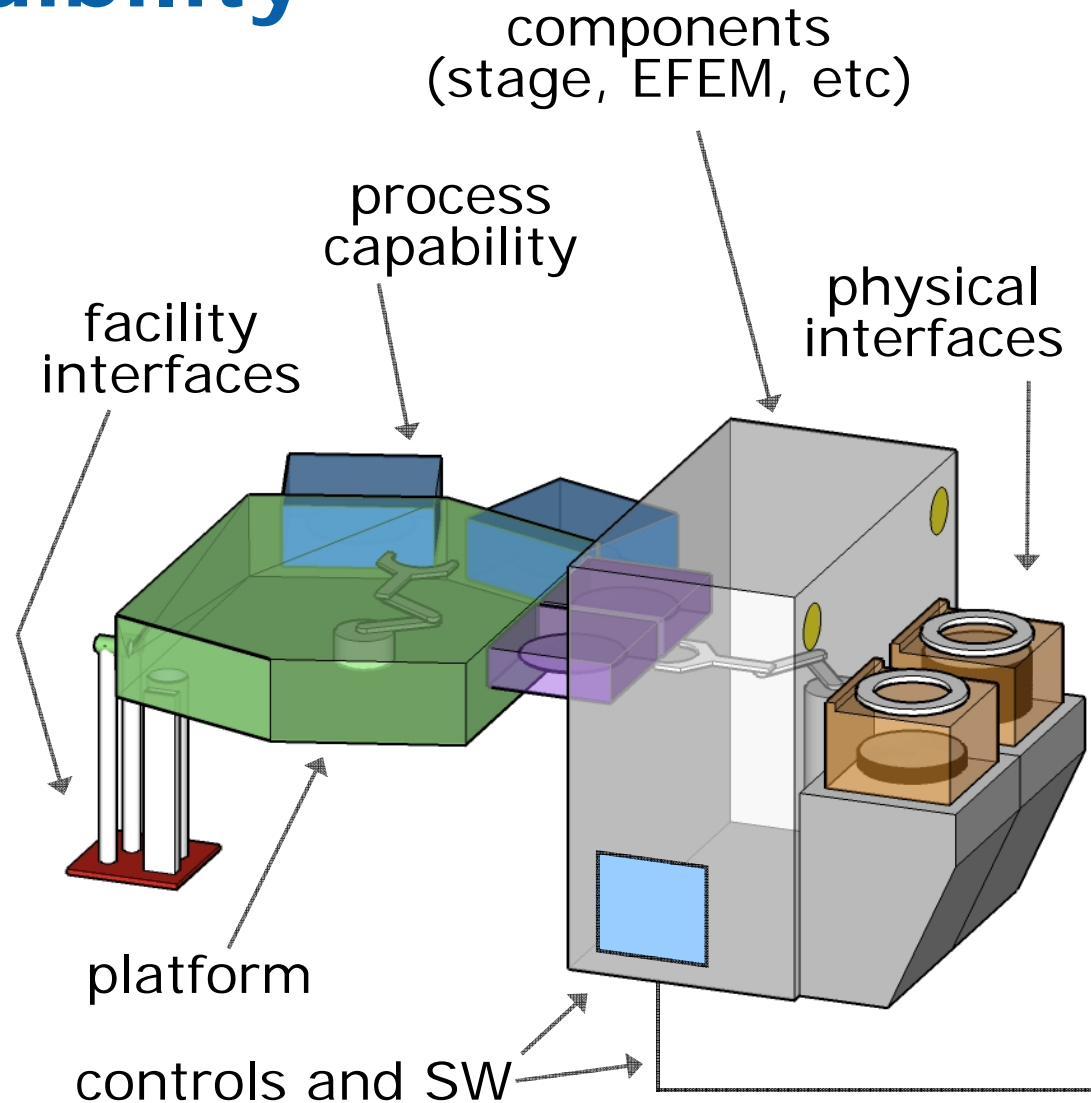
Applying key learnings from 300mm



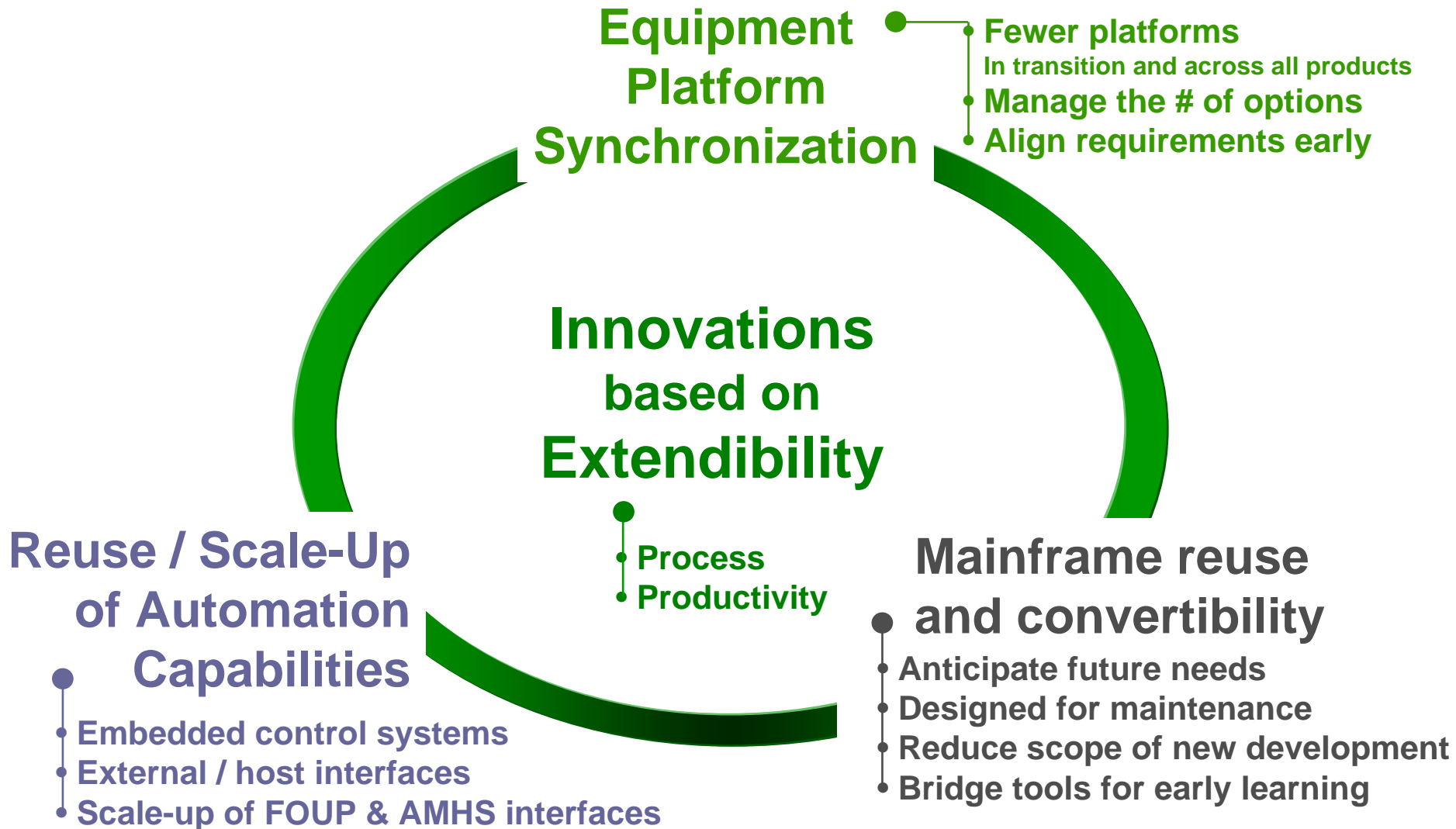
300mm extendibility

Can your
300mm
platform be
extended to
450mm?

- Consider extendibility during next generation equipment design to maximize reuse.
- Equipment that can support 300mm and 450mm may have cost and capability advantages.

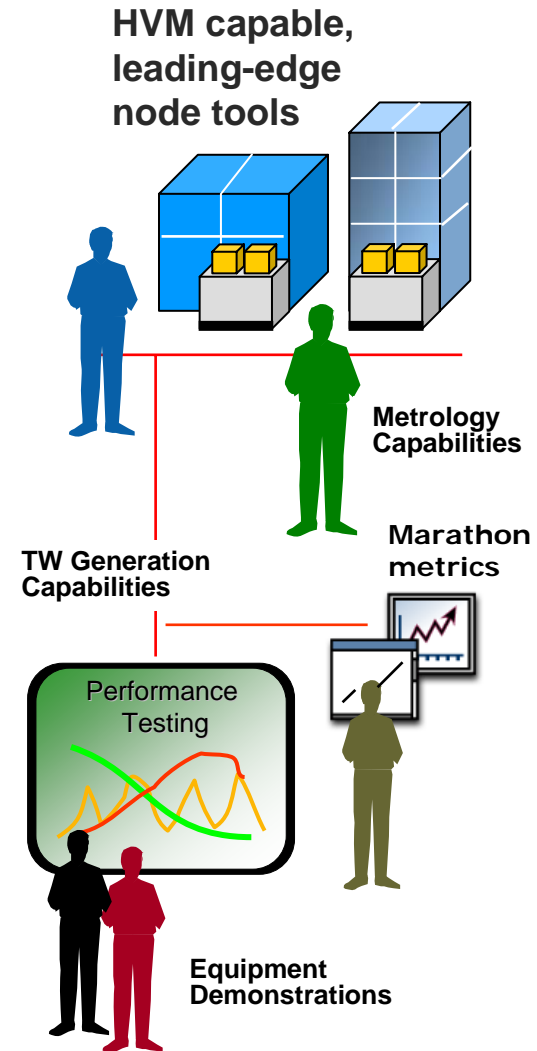


Opportunities for cost reduction



How we see collaboration working

- Not a “one-size fits all” model.
- Collaboration: complementary domains of expertise (users & developers) create solutions with low implementation risk.
- Key differentiator will be supplier innovations.
 - Driven by timing/progressive improvements
- High-speed information turns enabling rapid-learning for the participants.



Summary/Next Steps

- 450mm development presents unprecedented opportunities for collaboration between IC makers and suppliers.
- Collaboration provides an opportunity to save development and testing time, while accelerating implementation and improving ROI.
- Current priorities are: test-wafer generation, metrology and key equipment demonstrations.
- Intel strongly supports 450mm collaborations.
 - Need input on requirements and suggested proposals



