

Panel Fan-Out Manufacturing: Why, When and How

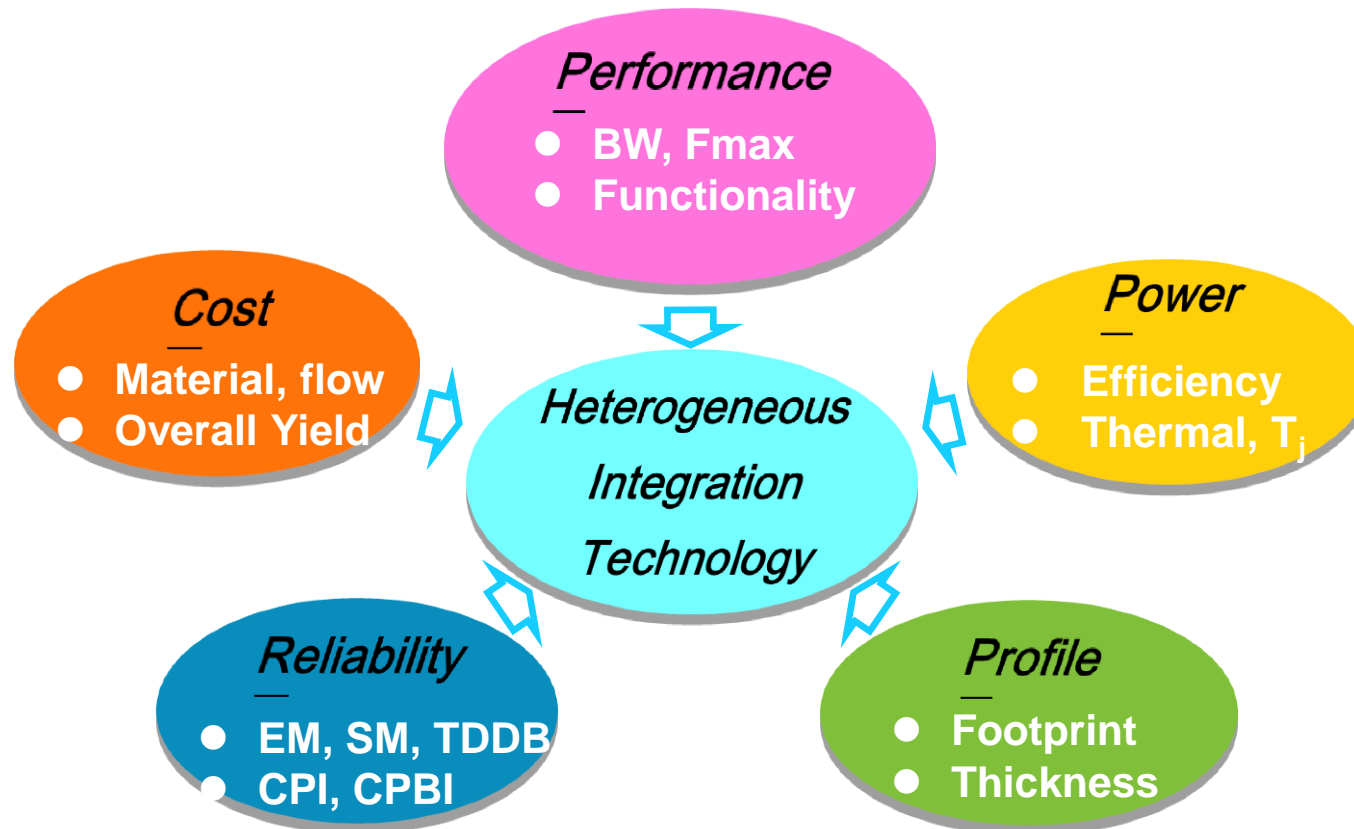


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Goals to Reach

● System Integration KPIs



● Mutual leverage of company core business

Cost and Target Market

● Target products:

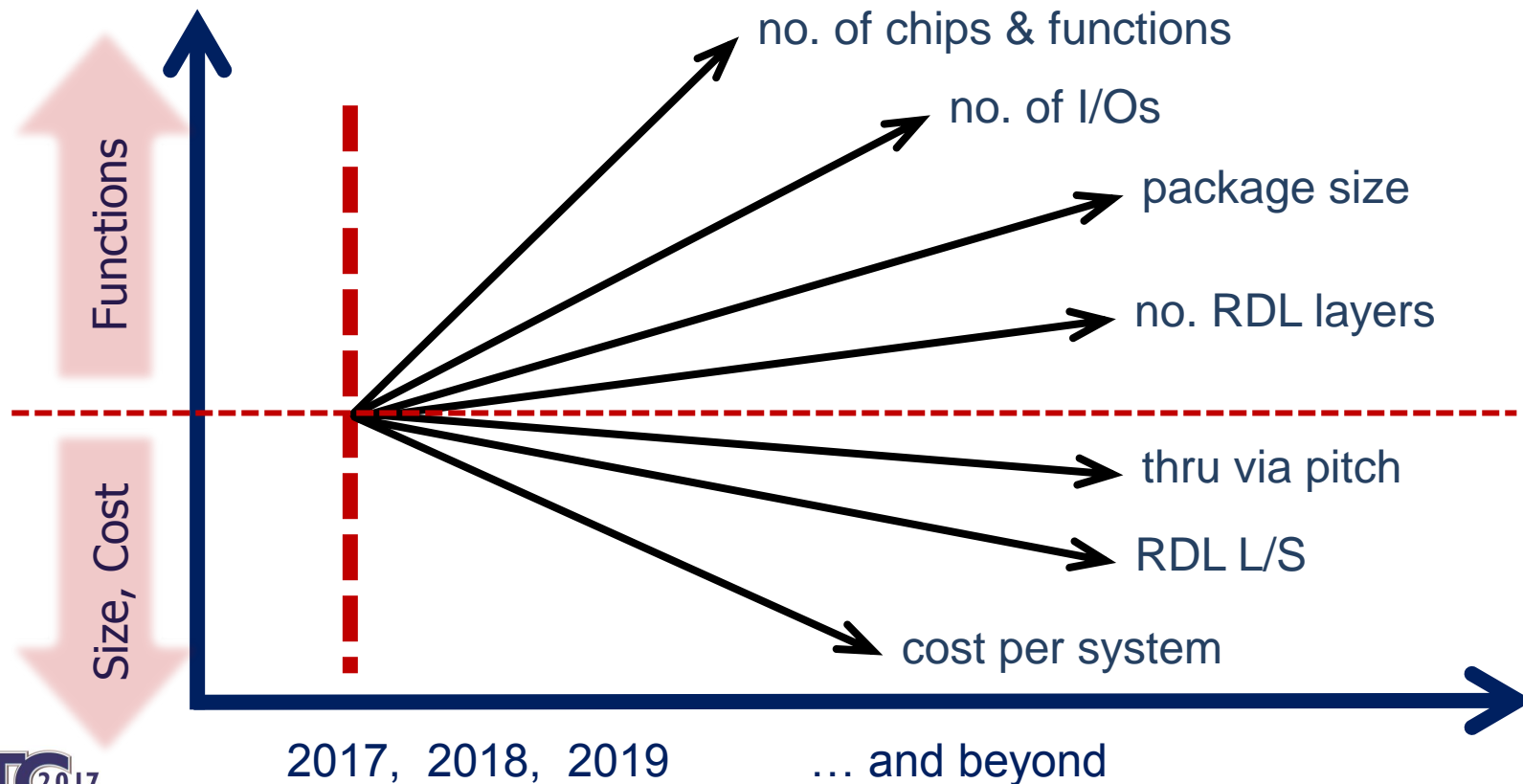
- ✓ Low-end, low pin-count and small size products.
PLP can leverage PCB/LCD tool/capacity. TBD.
WLP HVM proven. Tools/capacity being depreciated.
- ✓ High performance, high density applications
PLP need both new tool and new tech. TBD.
WLP HVM proven. Leverage front-end infrastructures

● Cost:

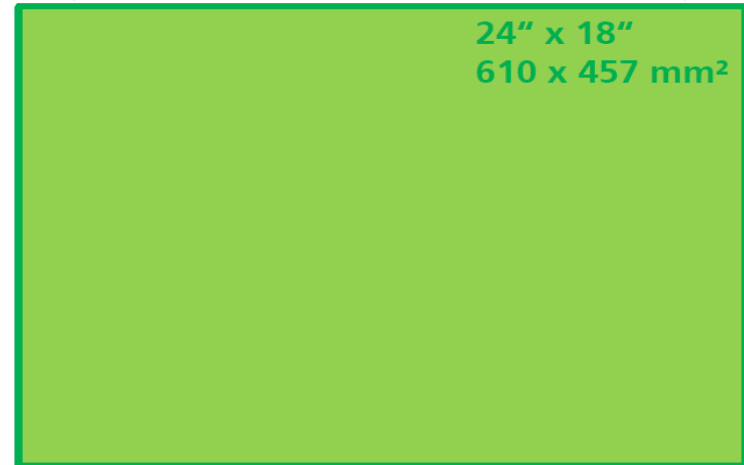
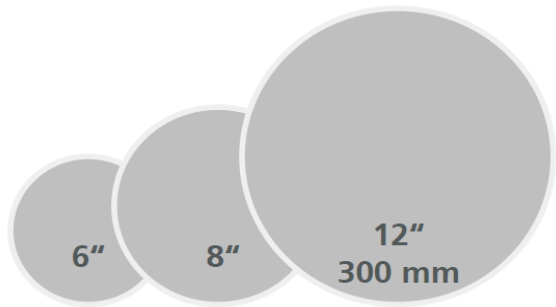
- ✓ Size dependency of tools and materials
- ✓ Total Yield more critical (expensive KGD/KGP)
- ✓ Economics of scale: manufacturing vs. market size
- ✓ Return of Invested Capex (ROIC). Risk management
- ✓ FO-PLP a new, potentially lower cost solution

System Scaling Needs

- More functions, higher packing densities...
- Opportunities and challenges for post Moore's era.



Wafer Level and Panel Level



Big Sales

Big Sizes

HVM, Wide Adoption

HVM to be Proven

High Performance, Low Power

High Risk, High Potential