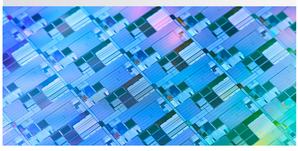
ROBOVISION

Detection Isn't the Problem. Decisions Are.

THE SITUATION

Rising cost. Rising complexity. Rising pressure on yield.

>€12,800
Cost per advanced-node wafer[1]



Automotive & power devices
Near-zero defect tolerance and long qualification cycles

Heterogeneous integration
Multiple high-value dies → single package

Hybrid bonding <10µm pitch
Single particles can cause bonding failure

Multi-die stacking
Each additional layer increases yield sensitivity

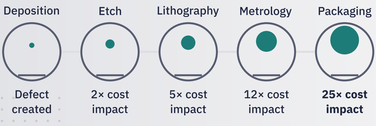
⚠ **For semiconductor equipment OEMs, tool value increasingly depends on decision capability**

[1] https://siliconanalysts.com/guide/semiconductor-costs

THE SHIFT

As costs rise, yield shifts to the tool-level

As wafers move through each process step:



Value increases + **Defect cost increases** = **Late decisions = expensive scrap**

Yield is now shaped earlier, inside the process:
- From final test → to in-process decisions
- From inspection → to action
- From detection → to yield impact

Tools are now measured by:
→ Impact on yield outcomes
→ Not just process execution

WHERE IT BREAKS

Detection is not the bottleneck. Disposition is.

Many process tools already identify anomalies early. The issue:
→ Inconsistent classification
→ Delayed disposition decisions
→ Tools unable to act on the data they already capture

The result: process visibility without process-level decision capability

THE COST

Classification ambiguity limits tool-level value

Uncertain classification leads to:
→ Conservative customer process settings
→ Preventable downstream failures
→ Reduced customer confidence at critical process steps
→ Yield impact tied directly to tool decisions

At production scale, small errors become measurable yield loss

THE GAP

Where value is lost

- Process tools increasingly capture relevant data
- Inspection systems flag anomalies
- Relevant data already exists

But it is not converted into decisions. What is missing:

- Real-time classification
- Immediate disposition
- Decisions at source

When this gap is closed, tools become active contributors to yield performance

THE OEM IMPACT

Unlocking measurable outcomes

When a tool supports yield improvement:

Increased production value
A more central role within the customer process flow

Stronger tool value
Measured by contribution to customer yield, not just process step

Competitive advantage
Built-in decision capability that competitors do not offer

ROBOVISION

Learn more about the OEM opportunity in in-process defect decisions

READ BLOG