

# The Multimillion-Euro Impact of Uncertain Decisions

€ Millions in recoverable yield lost per fab, per year due to defect review decisions

**Inspection is automated.**  
→ Decision-making is not.



## Uncertainty Drives Yield Loss, Not Inspection

AOI systems flag increasing volumes of anomalies. **When unsure:** the default is conservative.



## The Sampling Trap

Sampling amplifies the problem and small losses quickly add up

- Only a small fraction of wafers are observed ↓
- Decisions are based on incomplete evidence ↓
- Actions are applied across the full lot ↓
- The rest are never evaluated — only inferred

One uncertain sample can trigger lot-level scrapping

## The Hidden Bottleneck: Manual Review Doesn't Scale

As volume increases, human review becomes the limitation

At scale, manual review becomes a **production constraint.**

- Fatigue reduces decision consistency
- Same defect, different classifications
- Decisions made under time pressure
- Thresholds tighten when production ramps
- Decision logic is not captured or reused

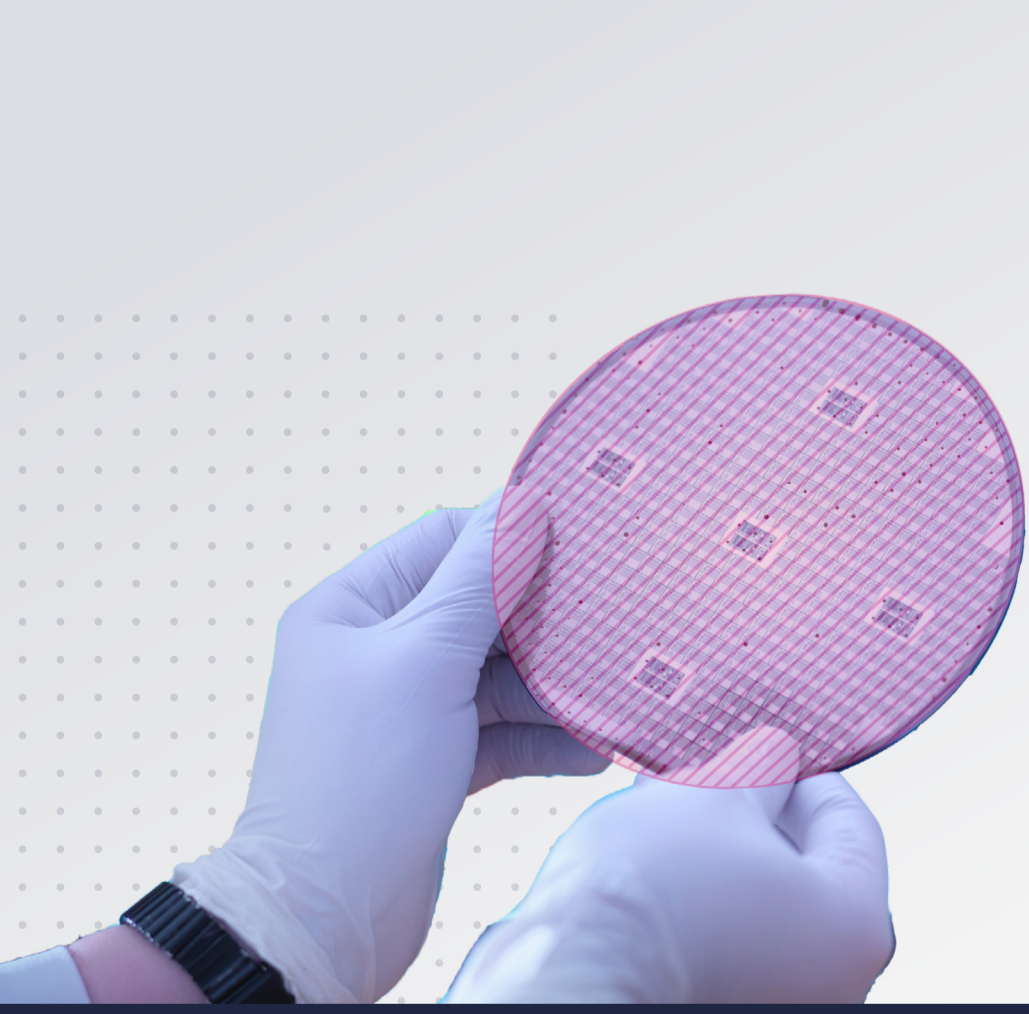
- **Review queues grow**
- **Decision cycles slow**

## Massive Inspection Data, Limited Decision Intelligence

The link between inspection and yield breaks down

<b>PROBLEM</b> Inconsistent classifications	<b>OUTCOME</b> Weak link to yield impact
<b>PROBLEM</b> No systematic learning	<b>OUTCOME</b> Decision logic remains invisible

**RESULT**  
Data grows. Insight doesn't.



## Shifting the Review Model for Scale

To break this pattern, the review model must change

- INSTEAD OF**
- ✗ Broad sampling + manual interpretation
- MOVE TOWARD A TARGETED, EXCEPTION-DRIVEN APPROACH:**
- ✓ Data-driven structured classification
  - ✓ 100% wafer-level consistency
  - ✓ Human review focused on edge cases
  - ✓ Ground-truth integrity through selective audit

## Remove Uncertainty, Recover Yield

Structured decisions turn uncertainty into recoverable yield

- Reduce unnecessary lot scrapping + recover good wafers → Turn inspection data into decision intelligence → Improve existing infrastructure ROI

**Outcome**  
Multi-million-euro impact per fab, per year