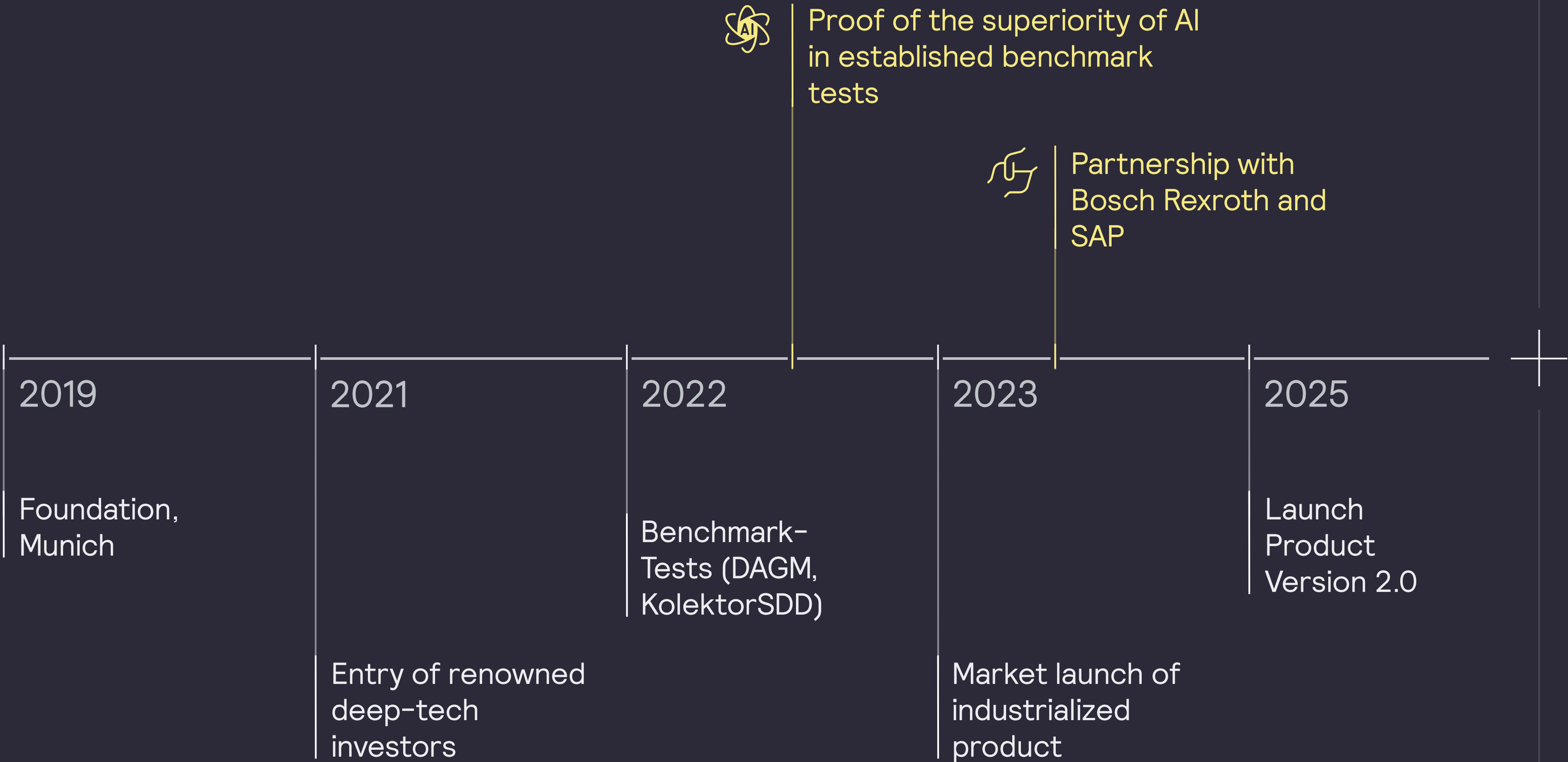


AI FOR VISUAL QUALITY INSPECTION



About us



Heiko Huber
CEO



Zeeshan Karamat
CTO



Munich
Office location



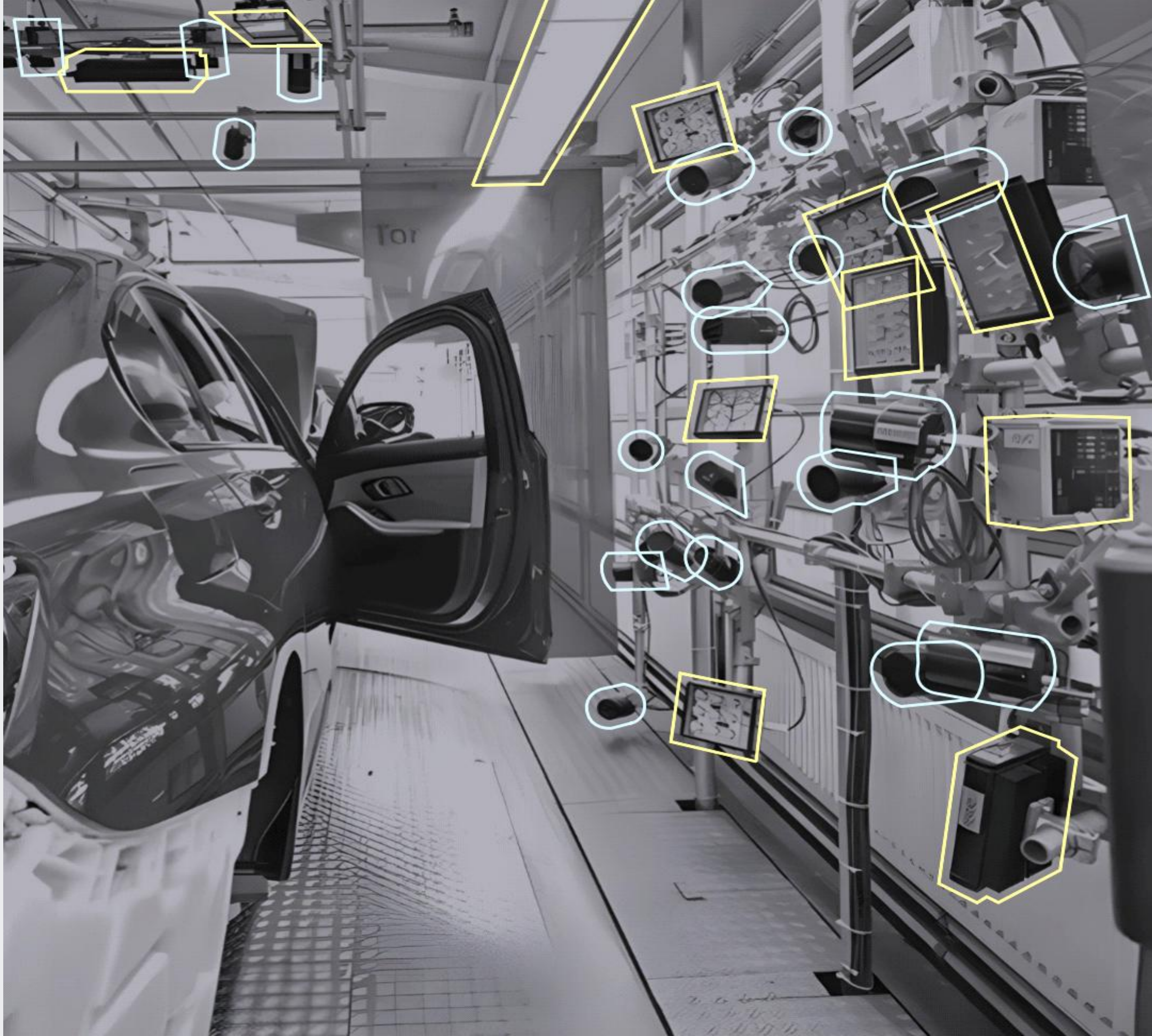
20
Employees
Own Lab and Test
Centre

01

Software-defined & AI-based
error pattern recognition

STATUS-QUO

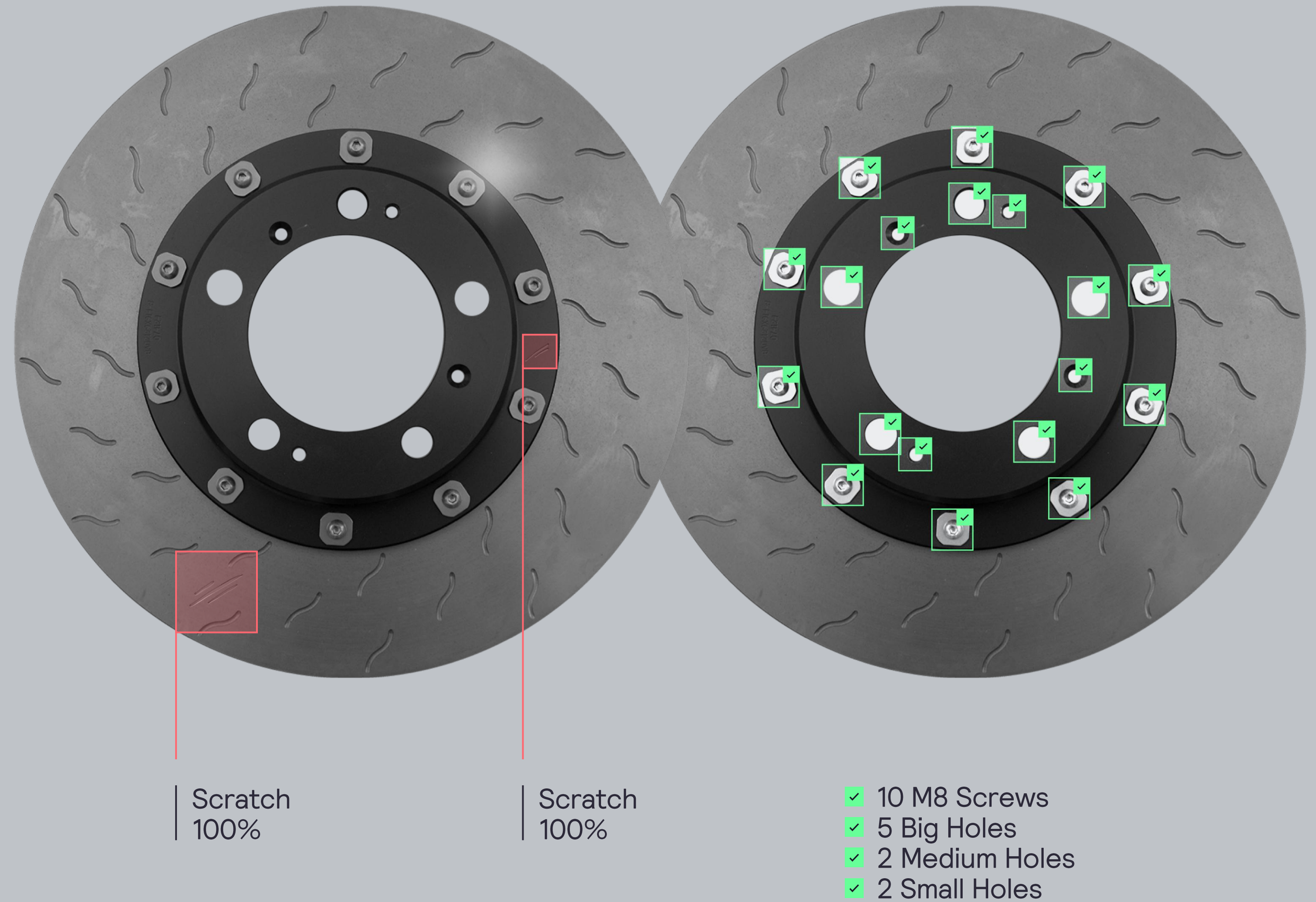
- Only checking anomalies
- Based on machine-learning and statistics
- Or even done manually
- Inflexible
- Error-prone
- Do often not meet market requirements



36ZERO VISION

36ZERO Vision

- Error classification
- Deep-learning based
- Scalable & flexible
- AI models for
 - Quality inspection
 - Missing part
 - Metrology
 - QR-Code / text reading



02

Facts – Figures – Benefits

Facts

- No-code self-service Platform
- Training on cloud, execution on premise
- Hardware-agnostic
- Analysis on pixel level, independent of industry and products
- Retrofit capable
- Data-centric Tech-stack

Figures

- 0 AI experience or programming skills required
- 1 image for multi-model quality inspection
- As of 4ms per image analysis
- Just 5-20 images to train the AI
- 31x improvement benchmarked to best-in-class competitors
- 3.000.000.000 executed inspections

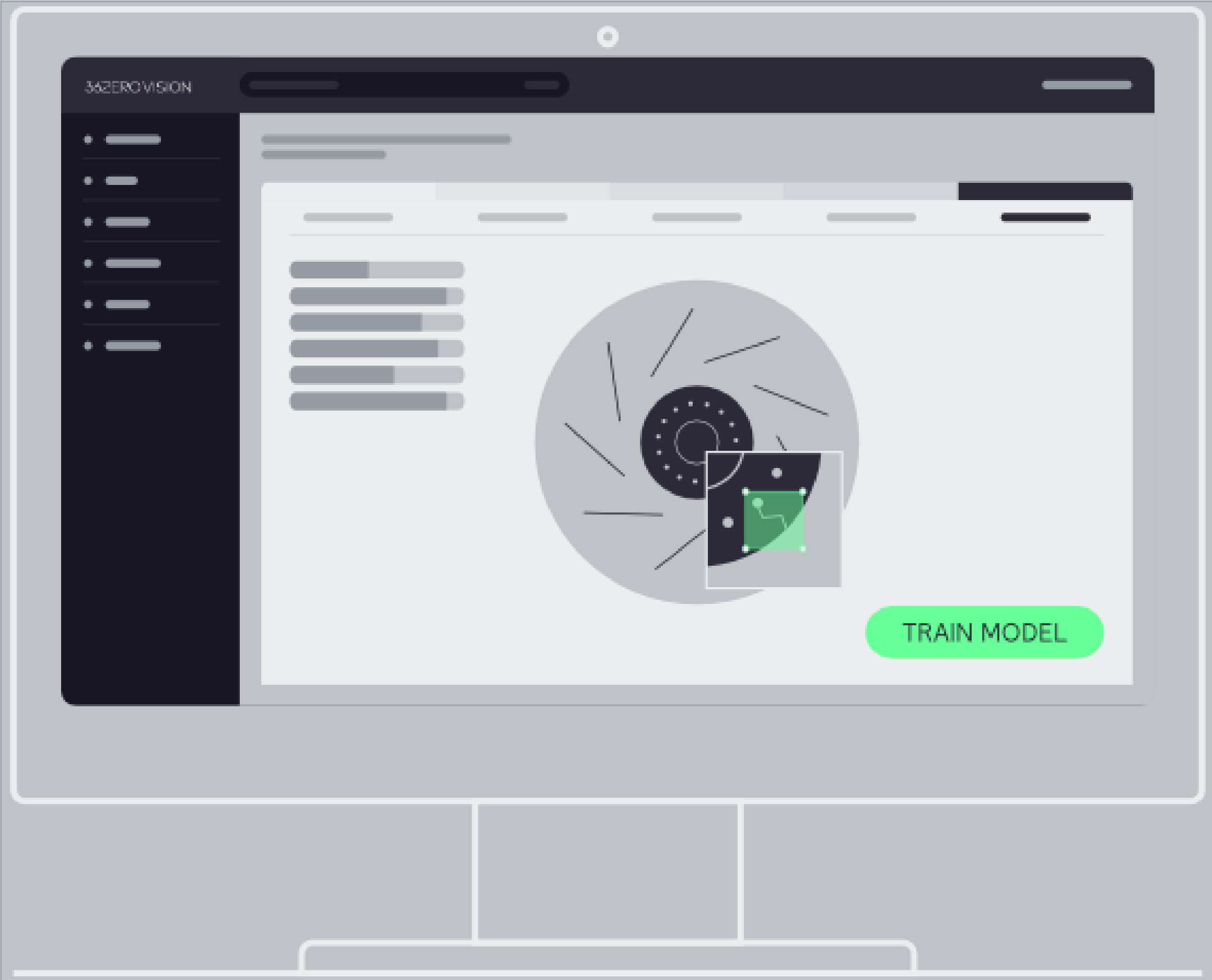
Benefits

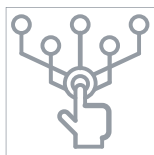
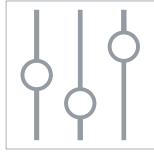
- High quality data creates highest accuracy
- Elimination of pseudo-defects
- Start simple, go complex
- Create value out of your (meta) data
- Your know-how is gold, use it
- Analysis of historical data
- Hybrid AI with purpose

03

Scalable Solution

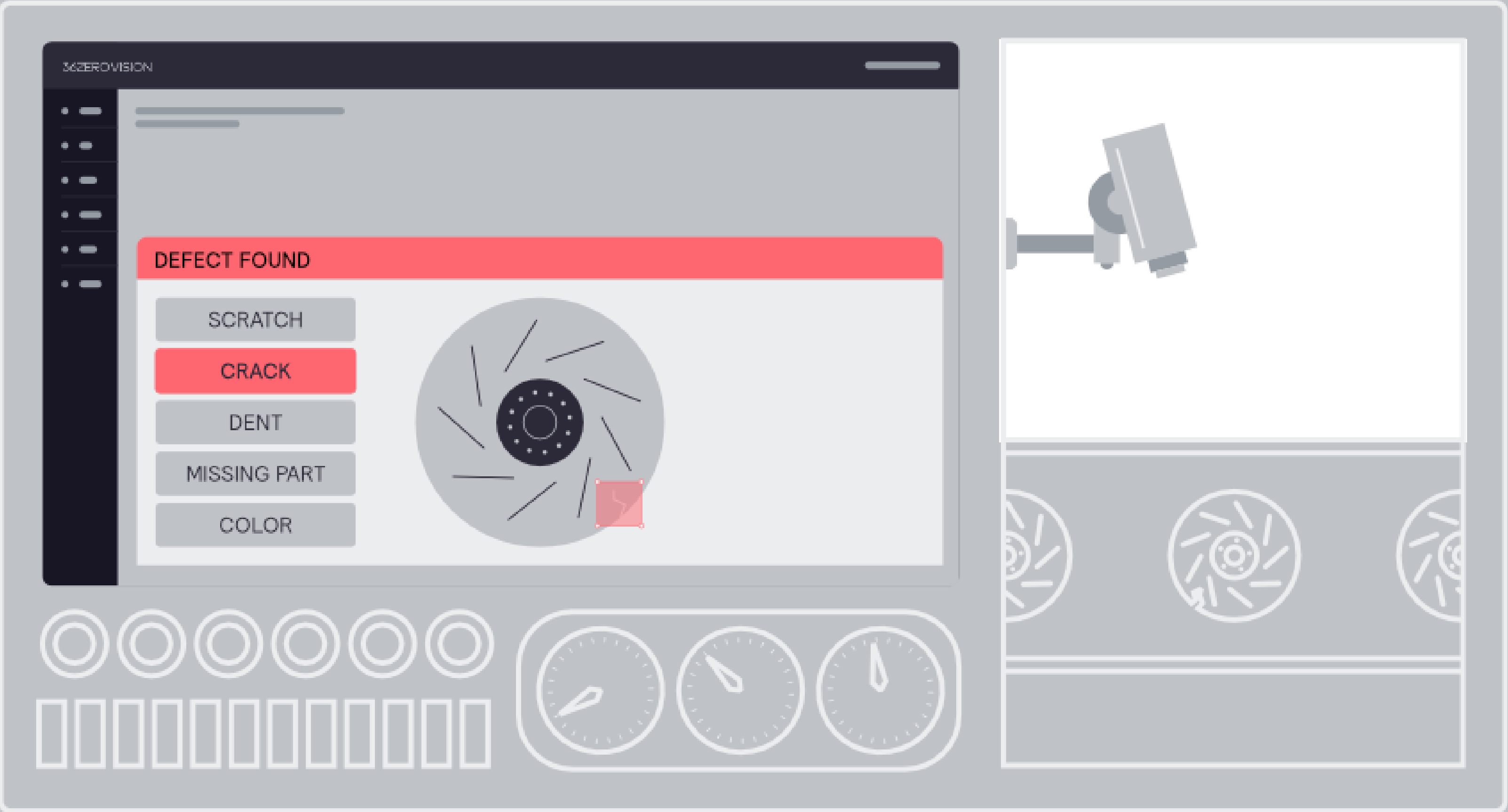
Cloud: Centre of Quality



-  Customize your AI model
-  Digitalize your Know-how
-  Receive User Training and support



On-premise: Execution excellence



-  Hybrid AI with purpose
-  Easy integration & maintenance
-  Hardware agnostic



SIEMENS

04

Succes stories & summary

Automotive: Wiring harness inspection

Quality Challenge



- ⊕ High product variety and complexity
- ⊕ No/minimal inspection possibilities
- ⊕ Inspections are prone to errors

Solution

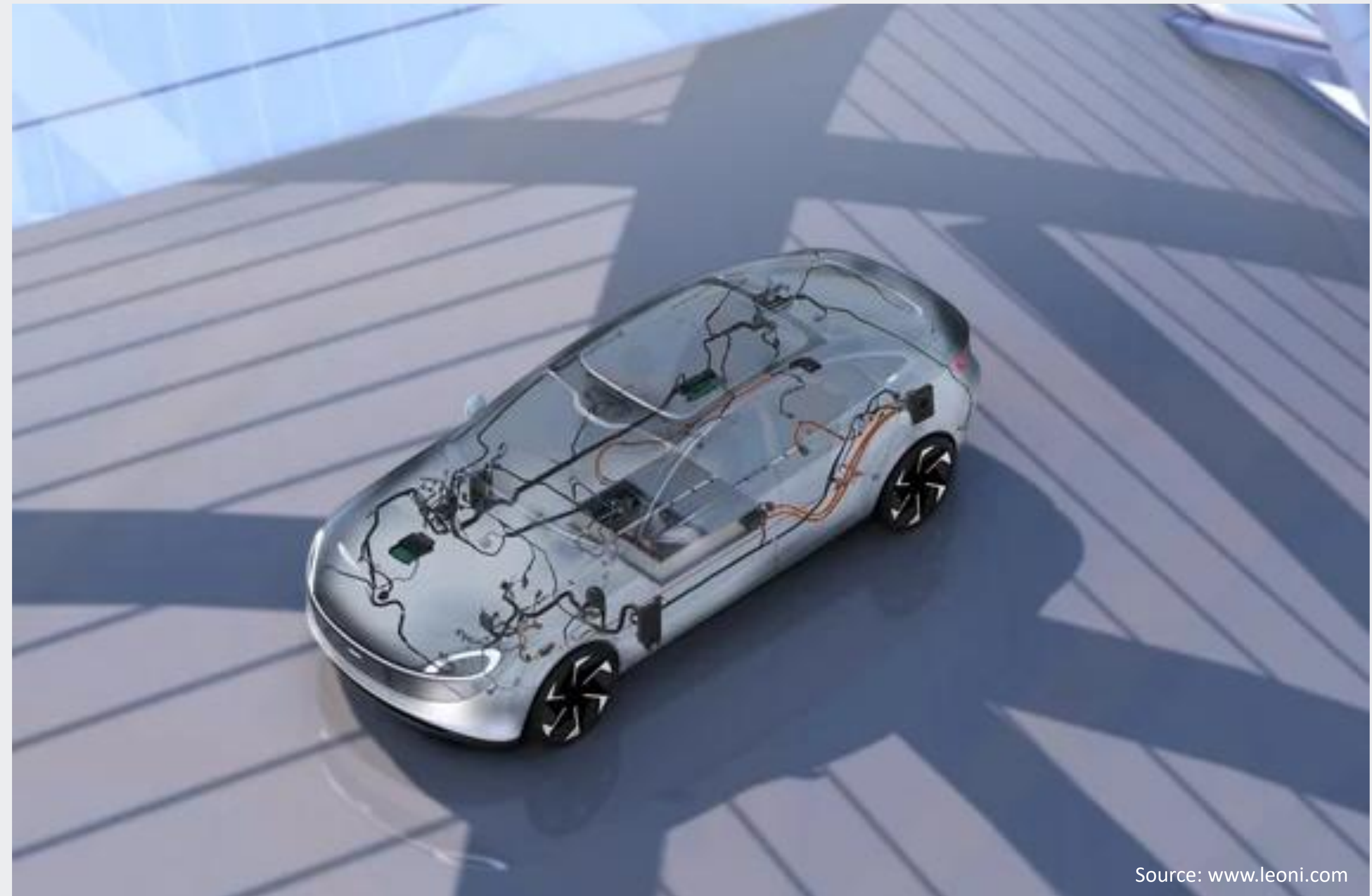


- ⊕ Verification of wind-up process
- ⊕ Inspection of applied check marks
- ⊕ Quality assessment of clip-in process

Value-add



- ⊕ Precise error-pattern classification
- ⊕ Elimination of false-positives
- ⊕ Proof of each harness



Source: www.leoni.com



Quality Challenge



- ⊕ 4,000 different parts
- ⊕ Time consuming, manual inspection
- ⊕ No process standardisation

Solution



- ⊕ Presence detection
- ⊕ Classification of surface defects
- ⊕ Retrofit with existing cameras

Results



- ⊕ Higher throughput
- ⊕ Consistent quality standard
- ⊕ Highly flexible and scalable solution

Automotive: Inspection on assembly line



Source: <https://zettl-automotive.com/leistungen/>

Metal & Steel

Quality Challenge



- ⊕ Incomplete fusion
- ⊕ Porosity / gas bubbles
- ⊕ Irregularity of weld seam

Solution

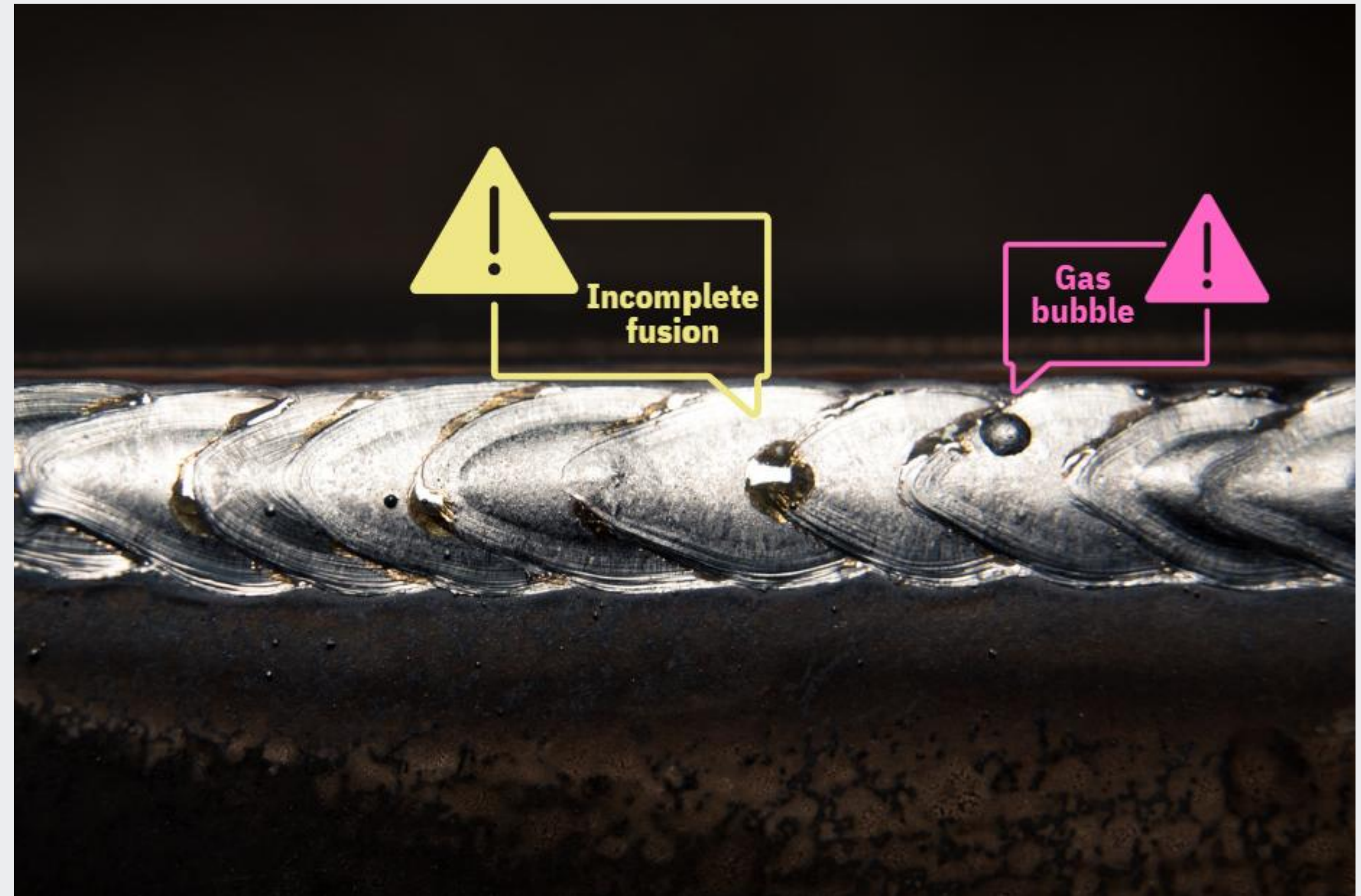


- ⊕ Labeling in AI setup “Quality Inspection”
- ⊕ Error pattern recognition
- ⊕ Pixel analysis

Results



- ⊕ Increased product safety
- ⊕ Data for business logic
- ⊕ Reduced return rate



Wood industry

Quality Challenge



- ⊕ Knotholes
- ⊕ Cracks and splits
- ⊕ Colour inconsistency

Solution

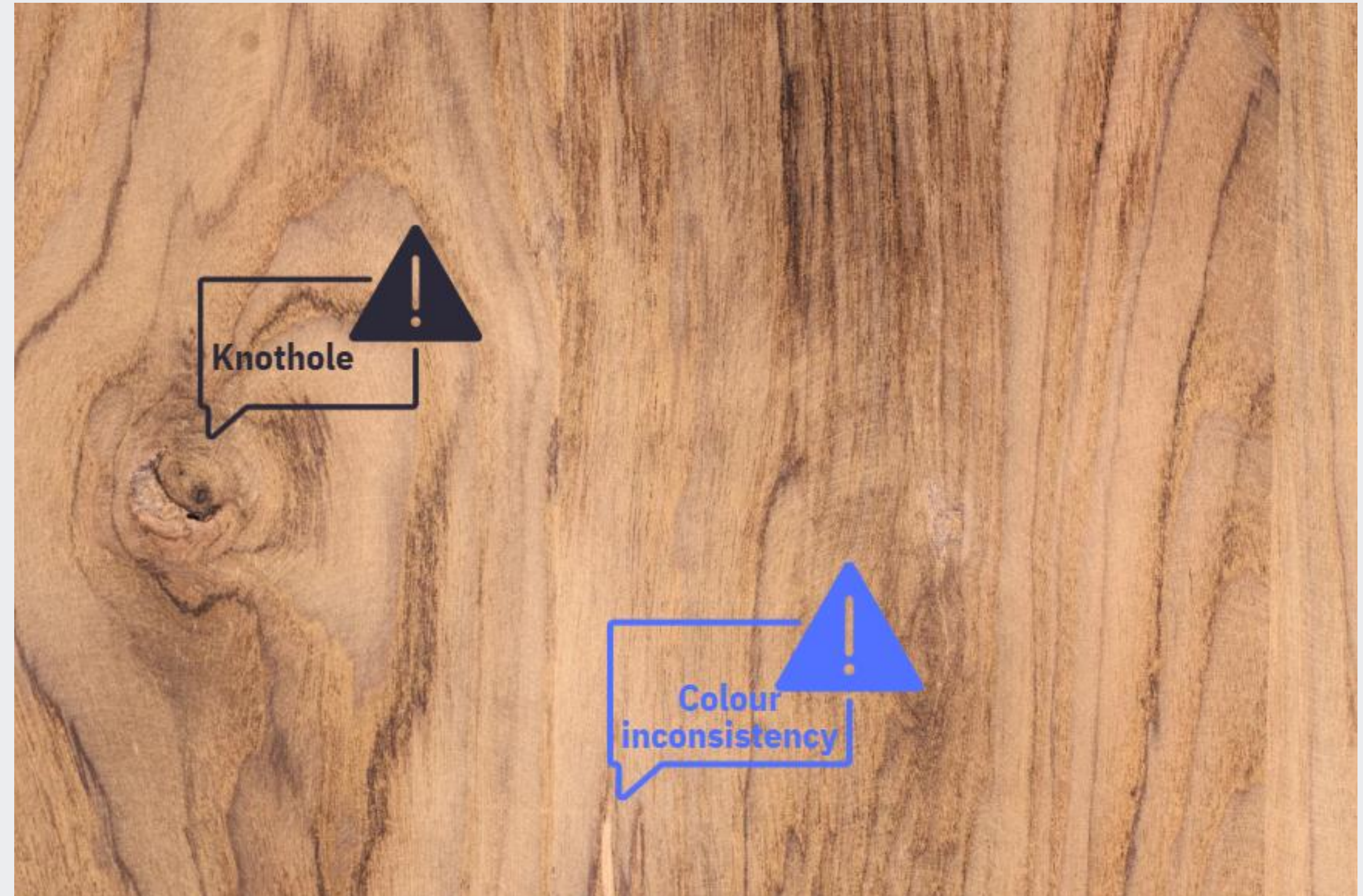


- ⊕ Labeling in AI setup “Quality Inspection”
- ⊕ Error pattern recognition
- ⊕ Pixel analysis

Results



- ⊕ Count of knotholes per unit area
- ⊕ Increased load capacity
- ⊕ Reduced scrap rate



Natural Materials

Quality Challenge



- ⊕ Colour inconsistency
- ⊕ Cracks and fissures
- ⊕ Inclusions (minerals, air pockets)

Solution

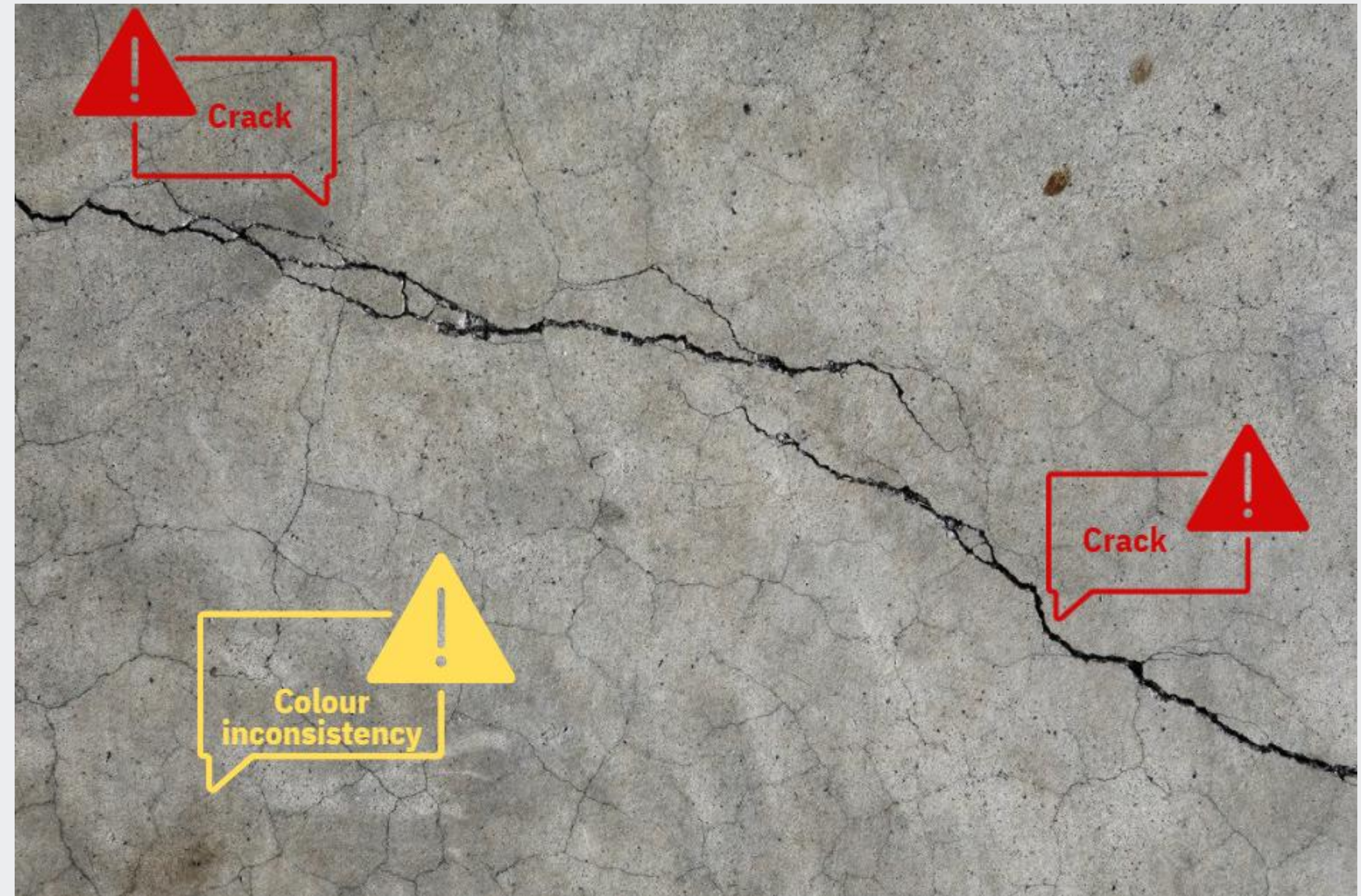


- ⊕ Labeling in AI setup “Quality Inspection”
- ⊕ Error pattern recognition
- ⊕ Pixel analysis

Results



- ⊕ Enhanced load-bearing capacity
- ⊕ Better weather and thermal resistance
- ⊕ Reduced cracking and chipping



Pharma and Medicals

Quality Challenge



- ⊕ Surface defects
- ⊕ Misaligned components
- ⊕ Mold Flash and burrs

Solution

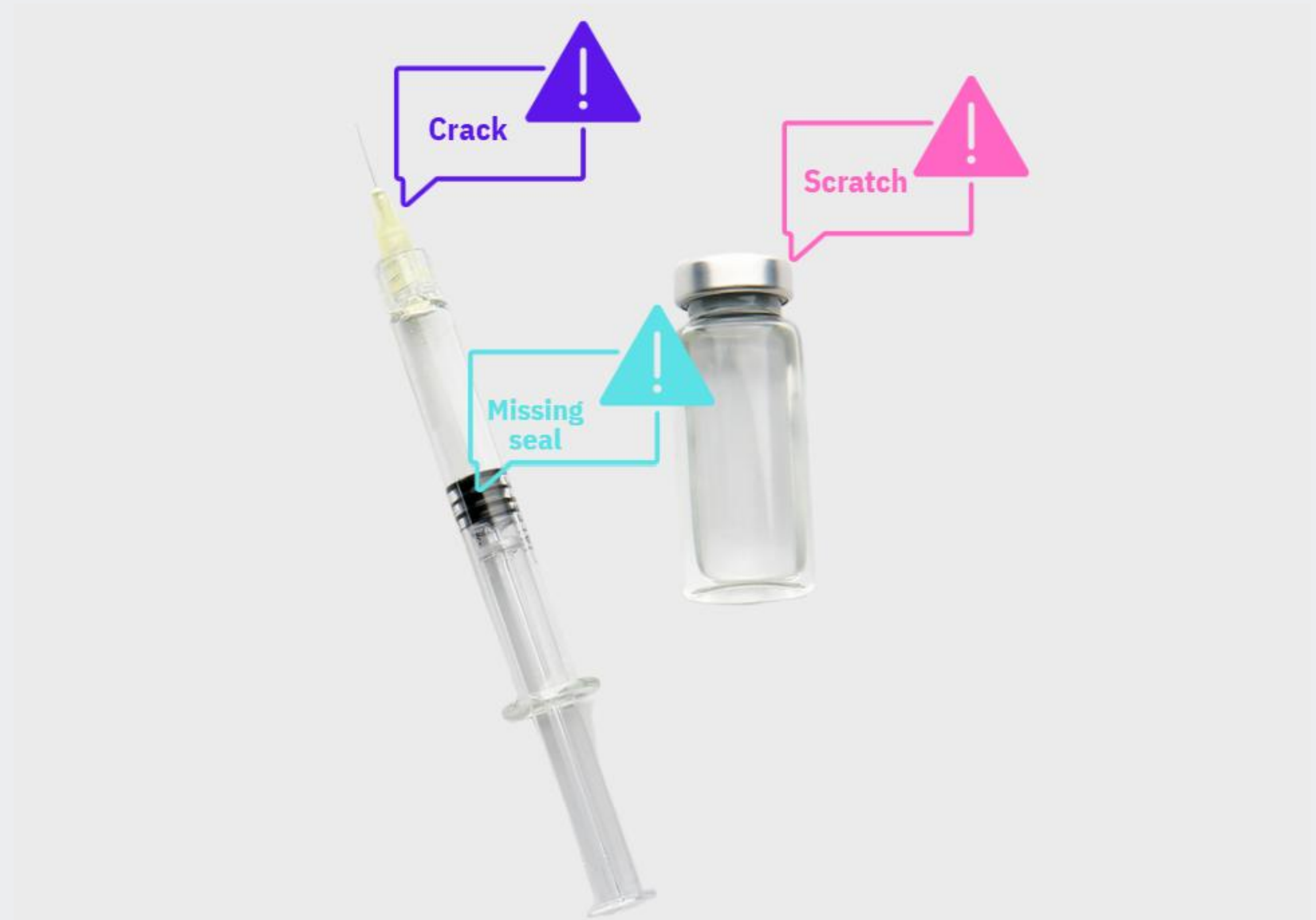


- ⊕ Labeling in AI setup “Quality Inspection”
- ⊕ Labeling in AI setup “Missing Part”
- ⊕ Pixel analysis

Results



- ⊕ Consistent functionality
- ⊕ Reliable assembly
- ⊕ Enhanced component durability



Textile Industries

Quality Challenge



- ⊕ Yarn breakage
- ⊕ Uneven yarn thickness
- ⊕ Snarls and loops

Solution

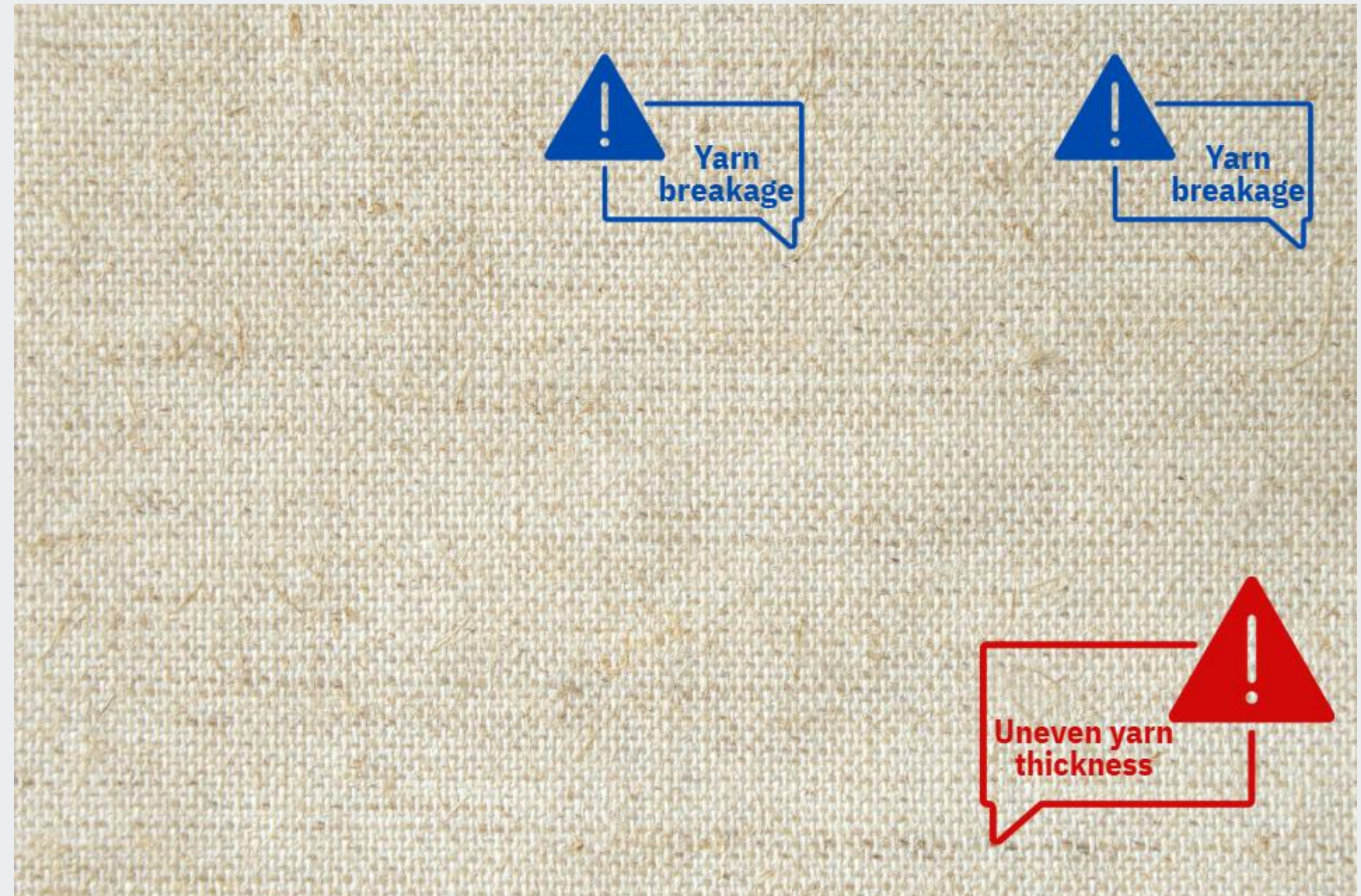


- ⊕ Labeling in AI setup “Quality Inspection”
- ⊕ Line scanning
- ⊕ Pixel analysis

Results



- ⊕ Higher throughput, reduced downtime
- ⊕ Strong and durable fabric
- ⊕ Enhanced surface finish



Executive Summary

- SaaS Solution for Error-pattern recognition
- No-code self-service Platform
- Global standardization capability
- Training on cloud, execution on premise
- Hardware-agnostic
- Retrofit capable
- Data-centric Tech-stack

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