



FIRST-TIME-RIGHT MANUFACTURING

From Aspiration to Default — The Case for a Built-to-Evolve, Closed-Loop Vision AI

First-Time-Right is not a quality target. It is the correct default state of manufacturing.

Every product built to specification. Every process step executed correctly. No rework. No scrap. No customer complaint. Today, quality is still managed in silos — product inspection in one corner, process supervision in another, neither designed to prevent defects at source. That must change.

WHY QUALITY STAYS REACTIVE

Most quality systems were built to catch defects — not prevent them. They inspect the output. They do not verify the process that produced it. They detect. They do not act.

The result: a quality system always one step behind production. Rework is a line item. Customer escapes are a risk, not an anomaly. First-Time-Right stays an aspiration because the architecture was never designed to deliver it.

THE TWO-LAYER GAP NO SINGLE SYSTEM CLOSES

Product Layer	Process Layer
Was it built correctly?	Was it built the right way?
Covered by inspection — but only for defects systems were programmed to find. Fast-moving lines and variable products make detection inconsistent. Each SKU needs a separate configuration.	Almost never covered. Manual checks via CCTV or supervisors. Limited SOP compliance visibility. Deviations noticed only after productivity loss or quality drift.
Fix only this layer — and defects recur because the process that made them is never corrected.	Ignore this layer — and every quality improvement stalls at the inspection gate.

Both are critical. Both remain largely manual, reactive, and disconnected.

WHY EXISTING TOOLS FALL SHORT

Approach	The gap it leaves
Rule-based vision	Fails on edge cases, new SKUs, surface variations. Cannot adapt without reprogramming.
Manual inspection	Inconsistent across shifts and fatigue. Cannot keep pace with modern line speeds.
SOP checklists	Documents the correct process. Cannot enforce it step by step in real time.
Hardware poka-yokes	Fails on complex, variable, or manual operations. High capex. Cannot adapt.
End-of-line inspection	Catches defects after they are made. Does not prevent rework or scrap.
Point AI solutions	Cover the product or the process — never both. Report; do not act.

WHAT FIRST-TIME-RIGHT ACTUALLY REQUIRES

Three gaps keep quality reactive: product correctness — inspection that can't keep pace with line speed, SKU variation, and edge cases; process correctness — no system verifying execution step by step before errors become defects; and closed-loop intelligence — the missing layer that turns detection into action, and action into learning.

Each gap is solvable on its own. All three, closed together, make First-Time-Right the default.



THE JIDOKA ANSWER

BUILT-TO-EVOLVE, CLOSED-LOOP VISION AI FOR BOTH LAYERS

KOMPASS and NAGARE — each a complete closed-loop system. Together, they eliminate both gaps simultaneously.

KOMPASS™

AI for Product Integrity

Inspects every product at up to 12,000 PPM with patented 2D & 3D AI models. Detects known and unknown defects. Automatically rejects, routes, or flags without stopping the line. Works with existing industrial cameras; modular vision hardware available where needed. Fewer than 50 good samples to deploy via DOJO – and as products evolve, new SKUs and variants are trained without ML expertise.

NAGARE™

AI for Process Integrity

Tracks components and worker actions in real time. Verifies every step against SOPs and quality rules. Guides operators through correct execution, blocks incorrect steps, and escalates deviations before they become defects. Deploys on existing cameras — no new infrastructure required. As processes evolve, updated SOPs and assembly sequences are absorbed without re-engineering.

SEE → THINK → ACT → LEARN → INTEGRATE

				
SEE	THINK	ACT	LEARN	INTEGRATE
Multi-angle capture at full production speed	AI detects defects, dimensions & labels	Auto-rejects and routes, no human delay	DOJO refines models as variants emerge	Non-conformance data to MES, ERP & QMS

SEE → THINK → ACT → LEARN → INTEGRATE

				
SEE	THINK	ACT	LEARN	INTEGRATE
Captures actions, components & sequence	Validates each step vs SOPs & rules	Guides operators, blocks errors instantly	Patterns surface across shifts & stations	Connects to MES, QMS & training programs

PROVEN IMPACT

99.9%	40%	33%	8–12mo
Detection accuracy	Fewer false rejections	Throughput increase	ROI payback

PROVEN IMPACT

+15%	+20%	35%	30%
Yield increase	Productivity improvement	Rework reduction	Lower supervision costs

PROVEN IN THE FIELD

Maruti Suzuki	Faurecia	Diageo	Nestlé
---------------	----------	--------	--------

PROVEN IN THE FIELD

Maruti Suzuki	P&G
---------------	-----

WHY NOW

The technology case is settled. Vision AI at production speed, on existing cameras, with minimal training data — is real, deployed, and delivering measurable outcomes across Automotive and FMCG manufacturing. The business case is straightforward: COPQ reduction, rework elimination, and throughput improvement, all measurable from the first week of pilot, with ROI established before capital is committed. Critically, the closed loop does not stand still. KOMPASS adapts as products evolve and NAGARE adapts as processes evolve. Both systems get sharper as the factory changes.

First-Time-Right is not a transformation project. It is a decision: verify both the product and the process, in real time, and act when either one deviates from standard.

FMCG

\$150K savings per annum
35%+ efficiency improvement in yield and throughput

AUTOMOTIVE

\$32K savings per annum
20%+ efficiency improvement in yield and throughput

Start with a feasibility assessment.

ROI case established on your actual line before any capital is committed.

www.jidoka-tech.ai