



WHITEPAPER · MEASUREMENT

The Defects Statistical Sampling Was Never Designed to Catch

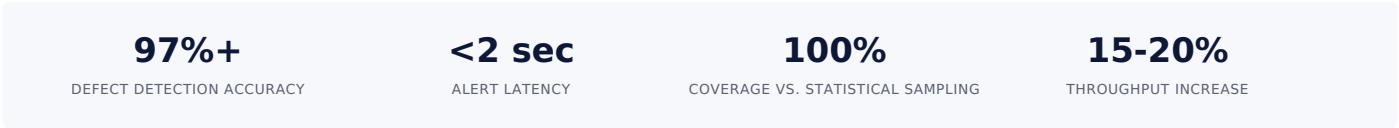
An IIIOT Infotech analysis, grounded in deployment data from Quality Inspection Video Analytics — IndustrValytics implementations.

IIIOT INFOTECH · BUILDING CONNECTED SUSTAINABLE ECOSYSTEMS

THE PROBLEM

Where this starts

Statistical sampling inspects a fraction of units by design — which means, by definition, most defective units in the unsampled majority reach the next stage of production or the customer before anyone catches them.



Figures reflect outcomes reported across comparable Quality Inspection AI deployments.

What's actually going on

Sampling was a cost compromise, not a quality choice

Statistical sampling exists because 100% manual human inspection was too slow and too expensive to run on every unit. It was never a quality-optimal choice — it was a resource-constrained one, and the resource constraint it was solving for no longer applies once inspection is automated.

Why 100% inspection changes the throughput equation, not just the defect rate

Counter-intuitively, moving from sampled manual inspection to 100% automated inline inspection often increases throughput rather than slowing the line — because automated inspection removes the sampling bottleneck (waiting for a human inspector) rather than adding one.

What good practice looks like

The QC headcount conversation worth having honestly

A 60-70% reduction in QC headcount requirement doesn't have to mean job losses — many operations redeploy inspection staff into higher-value process improvement and exception-handling roles, since the AI system handles the repetitive, high-volume detection work.

Multi-use camera infrastructure as a strategic asset

Once a camera network is deployed for quality inspection, the same infrastructure typically supports worker safety (PPE), process analytics, and security monitoring — meaning the marginal cost of adding a second use case is far lower than the cost of the first deployment.



HOW IIIOT HELPS

Quality Inspection Video Analytics — IndustrValytics

Intelligent vision for 100% inline quality inspection — real outcomes, built for the factory floor.

100% Inline AI Inspection

Replaces statistical sampling entirely — every unit is inspected, not just a sampled fraction, with 97%+ defect detection accuracy.

Multi-Domain Coverage

Quality control, worker safety (PPE), process analytics, and security & access — a single vision platform covering multiple use cases from the same camera infrastructure.

Real-Time Alerting

Under 2-second alert latency means a defect is flagged before the unit advances to the next production stage, not discovered downstream.

Works With Existing CCTV

Reuses existing camera infrastructure — no need for a purpose-built inspection hardware network on every line.

support@iiiot-infotech.com | www.iiiot-infotech.com

+91 124 403 2289 | +91-8800183840 | +91 99714 48680

7th Floor, Space Boulevard, 710-712, Badshahpur Sohna Rd, Malibu Towne, Sector 47, Gurugram, Haryana 122018, India