O3OZONE

How O3OZONE Achieved Zero Defect Manufacturing in Flexible Packaging

The Challenge : Why Traditional Quality Control Wasn't Enough

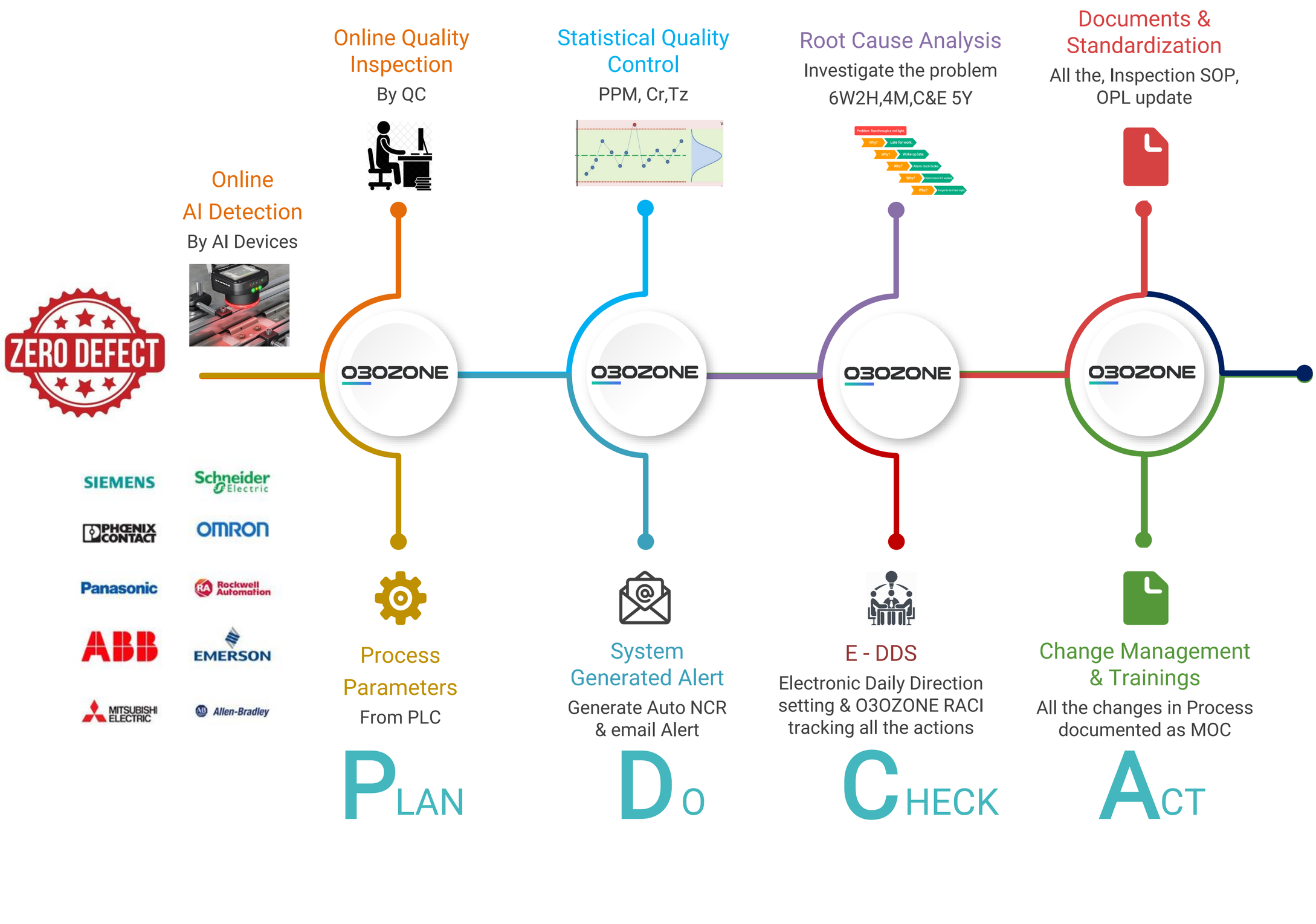
Manufacturers in the flexible packaging sector face constant pressure to maintain high quality standards while minimizing waste and downtime. In such a competitive landscape, traditional quality control approaches fall short of delivering the precision and speed needed.

Recognizing these challenges, Obeikan Flexible partnered with O3OZONE to integrate digital tools that would help identify, analyze, and eliminate defects at every step of the production process. The goal: Zero Defect Manufacturing a standard that ensures no product leaves the line with imperfections.

The Challenge

Flexible packaging lines operate at high speeds with complex machinery and delicate substrates. Quality assurance in such environments is often challenged by:

- Reliance on manual inspections that detect issues only after they occur
- Inconsistent data recording and limited real-time visibility
- Reactive problem-solving and delayed corrective actions
- Variability introduced by operators, equipment, and raw materials



PLAN : Building the Digital Quality Framework

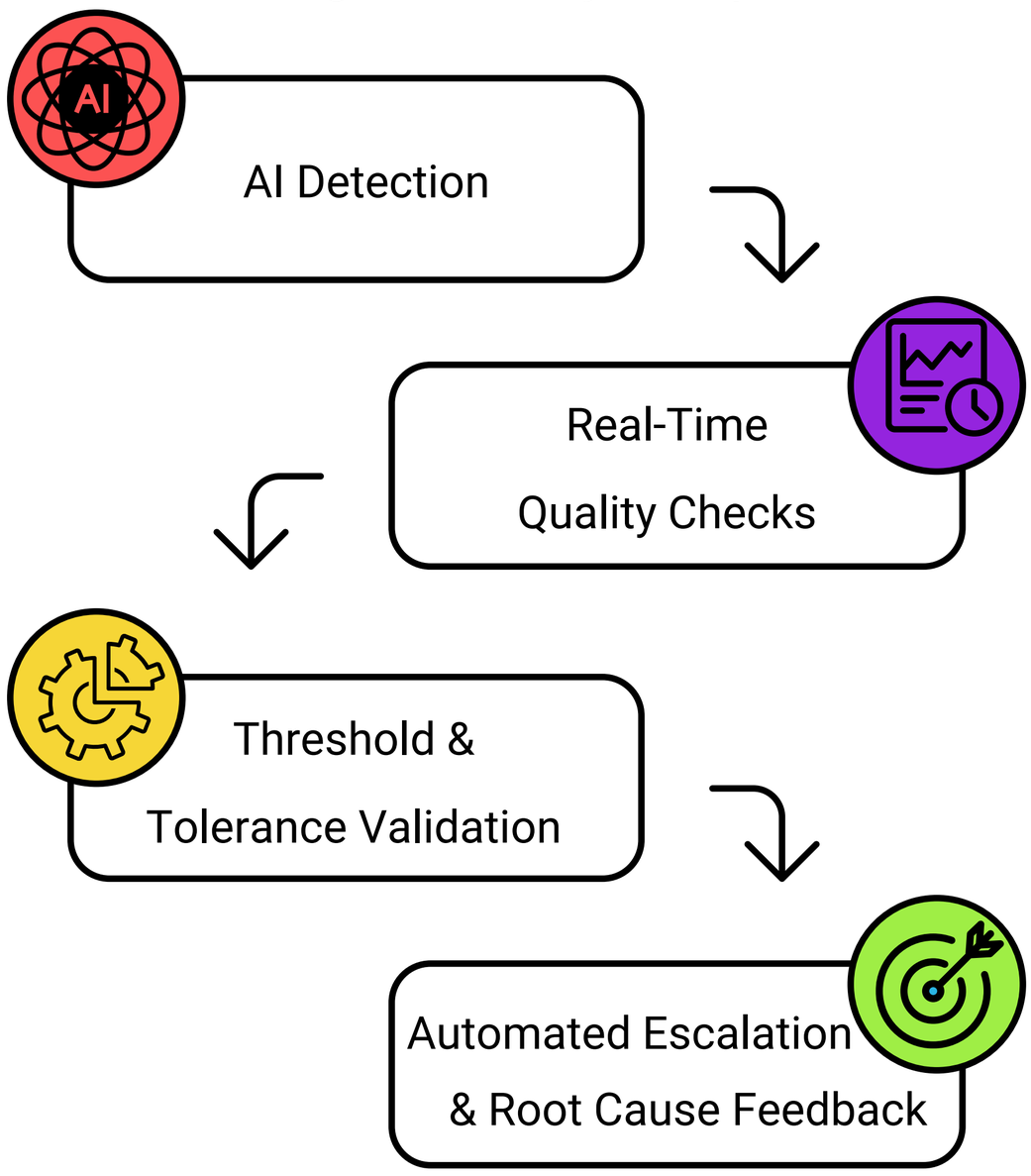
Integrated smart vision systems to perform Online AI Detection, enabling early defect identification at high speeds.

Deployed Real-time Quality Inspection tools accessible to QC inspectors and machine operators via tablets and terminals.

Connected PLCs from multiple vendors (Siemens, ABB, Allen Bradley, Omron) to pull real-time process data for continuous monitoring.

Defined quality thresholds and defect tolerances at each production stage for automatic validation.

Digital Quality Setup



DO : Automating Defect Detection and Response

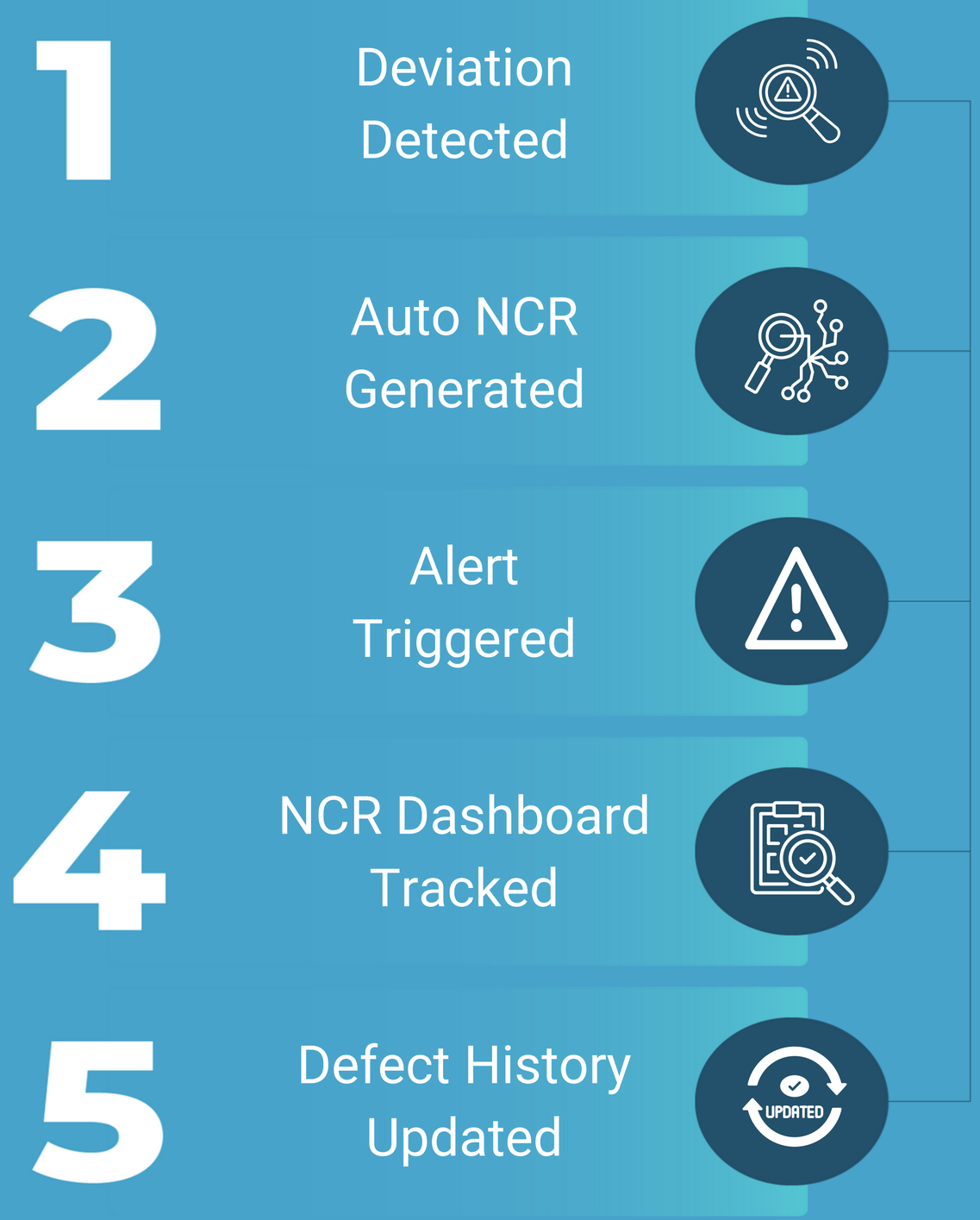
NCRs were automatically generated upon deviation from predefined standards, eliminating manual reporting delays.

Email alerts and task assignments were triggered instantly, allowing frontline teams to react quickly.

A centralized NCR dashboard gave real-time status updates and tracking across shifts and departments.

Historical NCR data was used to map recurring defects and improve operator training.

Defect Detection and Response



CHECK : Analyzing and Learning from Defects

Applied Statistical Quality Control (SQC) using metrics such as PPM (parts per million), Cp/Cpk, and Control Charts.

Implemented structured Root Cause Analysis frameworks:

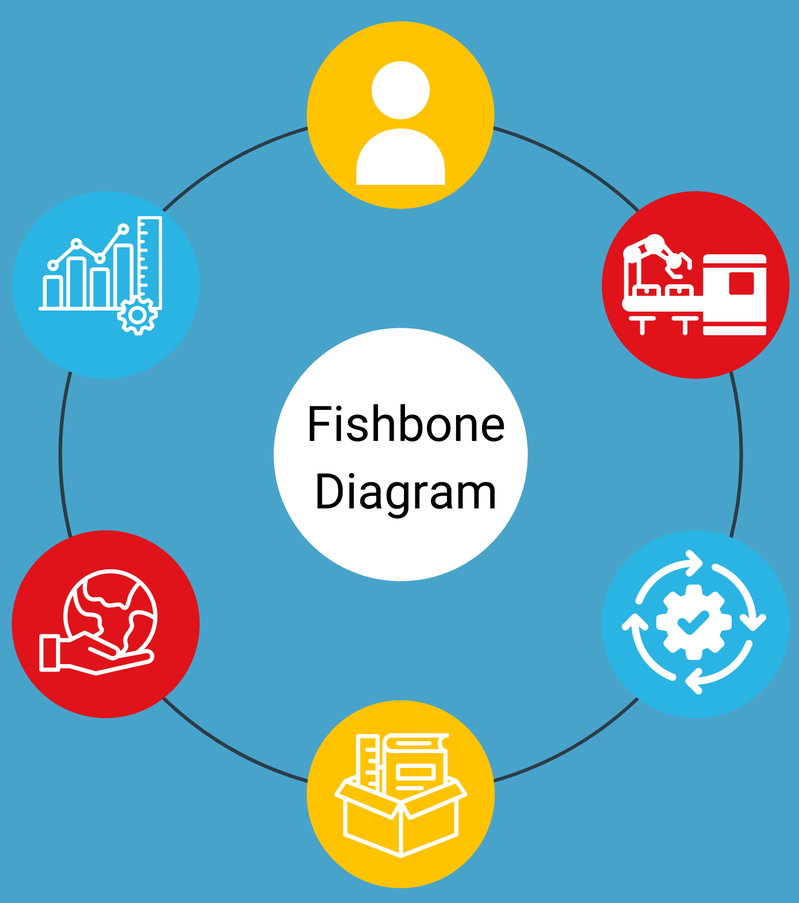
5 Whys for drilling down on process breakdowns

Fishbone (Ishikawa) diagrams for mapping contributing factors

6W2H (What, Why, Where, When, Who, How, How Much) for structured investigation

Every quality issue triggered a corrective loop, forming part of the company's knowledge repository.

Analyze and Learning from Defects



ACT : Institutionalizing Continuous Improvement

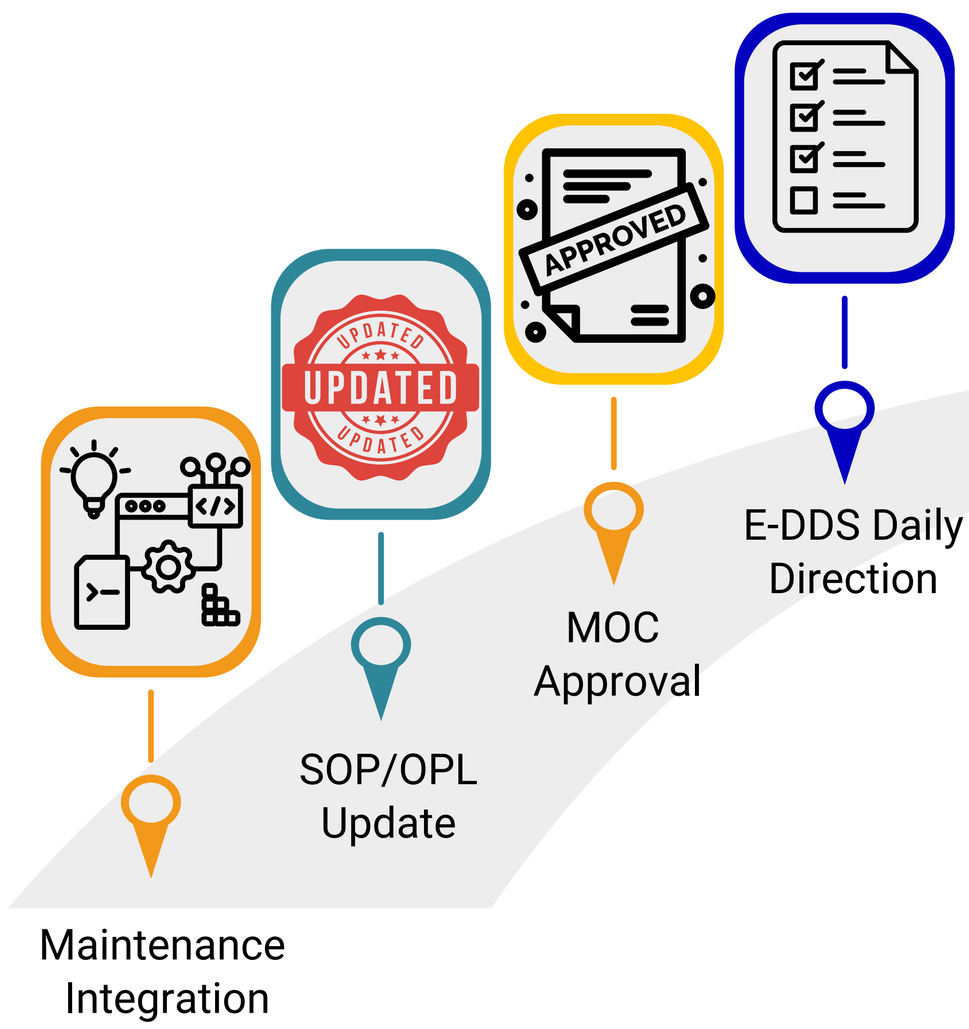
Introduced E-DDS (Digital Daily Direction Setting) to align teams on daily performance and escalate quality tasks with ownership mapped via RACI (Responsible, Accountable, Consulted, Informed).

Ensured that all improvement actions were documented and approved through MOC (Management of Change) protocols.

Updated and version-controlled SOPs and OPLs to reflect changes in process, equipment, and materials.

Reinforced reliability through integrated Preventive and Reactive Maintenance systems that addressed the root cause of quality failures at their source.

Continuous Development



Results: A Culture of Zero Defect

70% reduction in internal defect rates across key packaging lines

60% decrease in rework and scrap over 12 months

90% improvement in NCR closure times due to automated alerts and accountability tracking

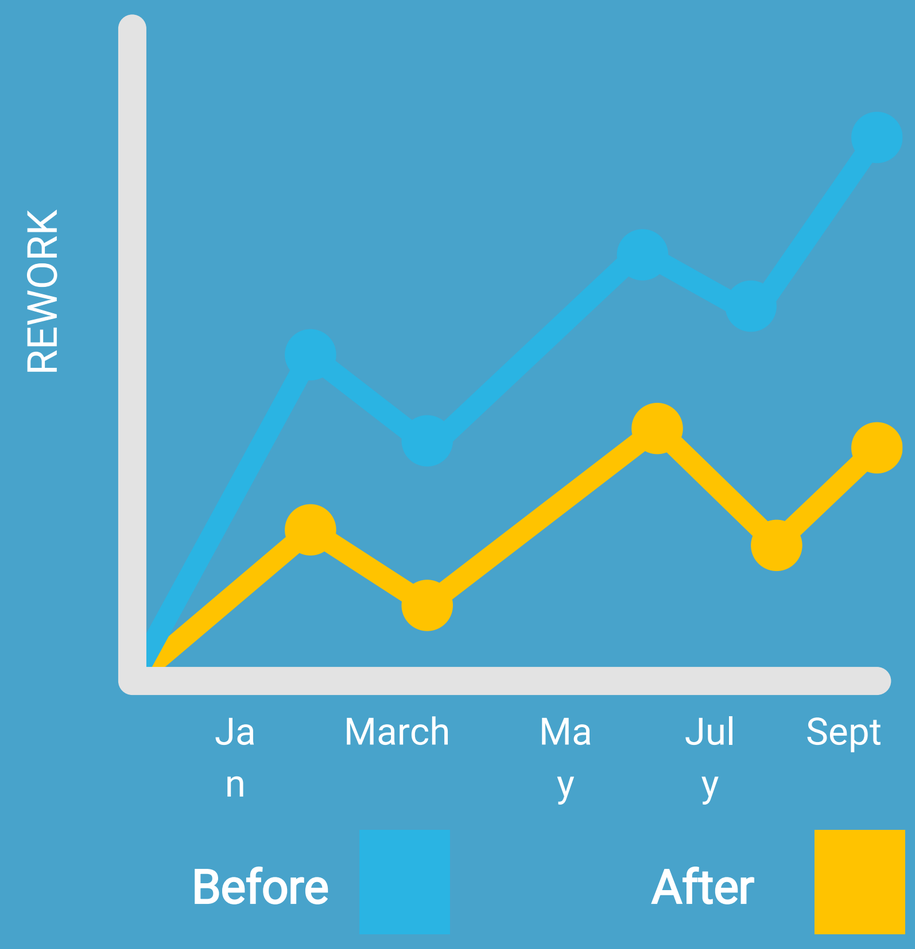
Stronger collaboration between production, maintenance, and quality teams through transparent workflows

More importantly, the company nurtured a workforce culture that values root cause thinking and proactive quality control.

Conclusion

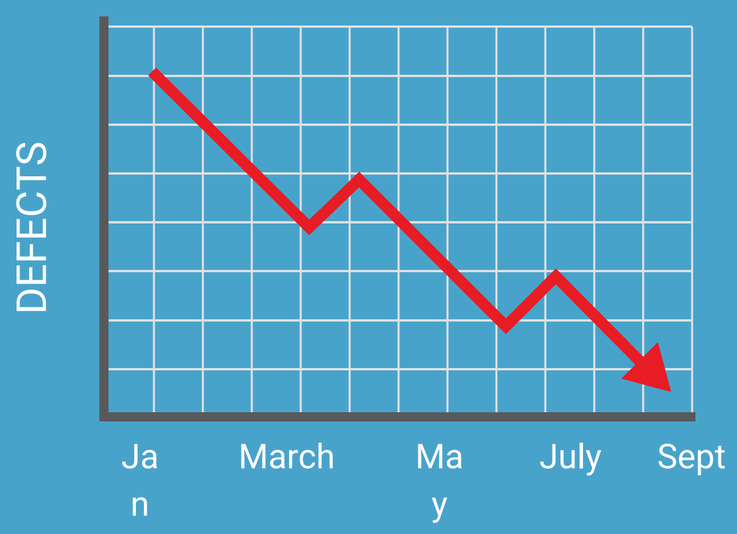
Obeikan Flexible's journey proves that Zero Defect Manufacturing is achievable with the right mix of technology, methodology, and mindset. By adopting O3OZONE, they turned their shop floor into a smart, responsive environment where data drives every quality decision. For other manufacturers looking to replicate this success, this case serves as a roadmap for leveraging digital transformation to deliver excellence.

Before vs After KPI Chart



Improvement in NCR Closure Times

Significant Reductions In Internal Defects



Monitor Batches Throughout Your Factory with O3OZONE

O3OZONE seamlessly integrates with your ERP system, enabling real-time data capture, analysis, and traceability across your entire manufacturing process. Built on globally recognized GS1 standards, it allows batch tracking at any operational stage, providing instant insights on machine numbers, production timestamps, supplier details, and other critical data.

With advanced analytics, intelligent reporting tools, and AI-driven insights, O3OZONE transforms raw data into actionable intelligence. Manufacturers can detect trends, identify inefficiencies, prevent costly issues, and optimize performance in real-time.

By streamlining operations, enhancing regulatory compliance, and supporting predictive maintenance, O3OZONE empowers industries to drive efficiency, quality improvement, & sustainable growth.

Meet Regulatory Compliance

Many industries have strict traceability requirements and regulation, especially food and beverages, pharmaceuticals, and automotive. O3OZONE makes audits easier by collecting, processing, and analyzing traceability data and producing reports.

Improve Quality Control

Identify and address quality issues early for improved consistency. Integrating O3OZONE with your ERP for full traceability helps reduce waste and meet customer quality expectations.

Optimize Supply Chains

Reduce costs by optimizing your supply chain. Track products and components back to their origin to identify bottlenecks and inefficiencies. This leads to better inventory management, reduced lead times, and improved resource allocation.

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