Arena–1factory Integration
Driving Quality Processes From Development Through Production

OVERVIEW

Ensuring that products are well designed, tested, produced, and supported is critical to customer adoption and market success. Arena has partnered with 1factory to provide end-to-end quality management from early development through production.

THE PROBLEM

Delivering high quality products with today's complex manufacturing processes is challenging. Bringing new products to market requires flawless execution within the factory and across the entire supply chain. Many product parameters must be controlled including raw material specifications, dimensional specifications, special processing requirements (e.g., heat-treatment, anodization, cleaning, coloring), and functional parameters (e.g., voltage, speed, torque).

This parameter-level product quality control data has traditionally been collected and managed on paper and spreadsheets, resulting in many data-related challenges.

Change Control
As designs change, manufacturing processes and inspection plans must stay in sync. Manufacturers with paper or spreadsheet-based processes struggle to keep inspection plans synchronized as new engineering changes are introduced. Managing these changes becomes significantly more difficult when these documents must be synchronized across the extended supply chain.

Data Management and Reporting
On the production floors throughout your supply chain, every time a new lot is produced, technicians must locate the correct revision of the specific inspection plan, print inspection sheets, and collect measurement data. Measurement data must then be transcribed into a spreadsheet, summarized, and formatted for reporting. This process repeats itself thousands of times each year, generating large volumes of paper and spreadsheet data, which results in wasted productivity. Problems such as data transcription errors, incorrect or lost files, and incomplete inspection records are commonplace.

Analysis
The vast majority of quality control data is transcribed from raw data collection formats and is rarely analyzed for process control in real time. Hence, lots may pass inspection before trends that would improve product quality and yields can be understood. When inspection results are analyzed immediately after identifying defects or other anomalies, corrective actions and design improvements can be applied to maximize product quality.

Audits
Manufacturers are often audited multiple times a year by customers and/or regulatory bodies. Audit preparation can take several days and involve reviewing documentation for completeness and accuracy. Preparing paper records and electronic files for audit is labor-intensive as creating and maintaining references between inspections and corrective actions is difficult. Because searching is slow and inflexible, auditing paper records is time-consuming and error-prone.

THE SOLUTION

The Arena–1factory Integration ensures inspection procedures are connected to your product record and quality actions. It drives a closed-loop quality and inspection process with inspection plans, results, and notifications to affected teams as issues are identified.

BENEFITS

- ⊘ Accelerates product quality improvements with integration between 1factory inspection data and Arena CAPA process

- ⊘ Informs design improvements with immediate access to inspection plans, inspection data, and analysis

- ⊘ Ensures factory and supply chain inspectors have access to the current revision of all inspection procedures

- ⊘ Optimizes manufacturing processes and records the changes

QUALITY PROCESSES LINKED WITH INSPECTION DATA

Arena's quality management solution (QMS) automates issue resolution using corrective action preventive actions (CAPAs), non-conforming material reports (NCMRs), and other quality actions. Arena's quality processes are integrated with engineering change processes and the complete product record. Now, with inspection data integrated, you can trace why changes were initiated. CAPA and NCMR processes linked to inspection data minimizes audit preparation efforts. Digital records ensure completeness, accuracy, and audit readiness.
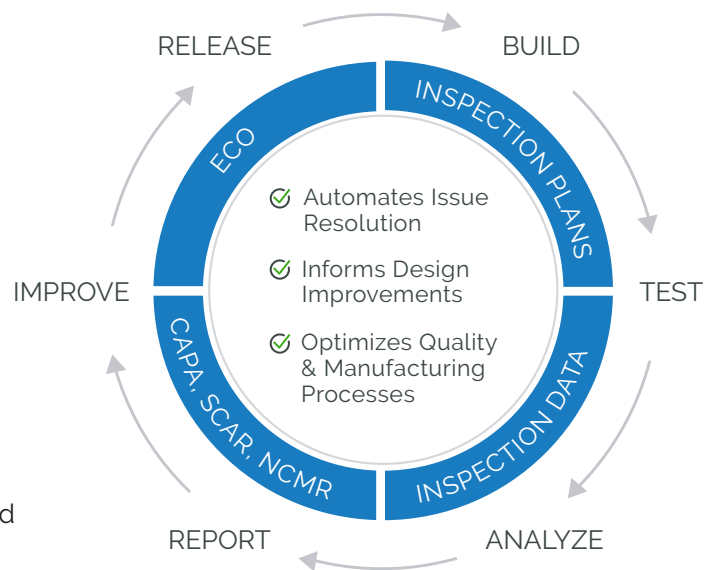
The integration provides more traceability from design through production. The 1factory solution enables data traceability, making it easy to retrieve parameter-level data by part number, batch, serial number, gage ID, purchase order number, and other information. A supplier dashboard provides batch-level and parameter-level risk assessment for all incoming material, along with a Defect Part Per Million (DPPM) score for each supplier. Similarly, a factory dashboard provides batch-level and parameter-level defect risk assessment for all outbound shipments.

INSPECTION PROCEDURES IN SYNC WITH PRODUCT REVISION

An integrated change control process ensures that inspection plans are revised as part of the engineering change process, so the production floor always has the correct revision.

ACCESS TO REAL-TIME INSPECTION DATA

Data is collected digitally, eliminating transcription errors and automating the reporting process. Manufacturing and design engineers have real-time access to inspection plans, inspection data, and analysis from the factory floor and across the supply chain. Design and manufacturing problems can be quickly identified with access to parameter-level data and automated analysis that highlights high-risk parameters before the product leaves the factory.

RELEASE → BUILD

ECO — INSPECTION PLANS

IMPROVE — TEST

⊘ Automates Issue Resolution

⊘ Informs Design Improvements

⊘ Optimizes Quality & Manufacturing Processes

CAPA, SCAR, NCMR — INSPECTION DATA

REPORT — ANALYZE

ABOUT ARENA

Arena, a PTC Business, helps companies create innovative products that change the world. Arena unifies product lifecycle management (PLM) and quality management system (QMS) processes, allowing every participant throughout product development and commercialization to work together fast and effectively. With Arena, dispersed teams accelerate the design and delivery of quality products. For more information, visit Arena, a PTC Business.

ABOUT 1FACTORY

1factory provides a web-based platform for manufacturing and supplier quality control, enabling the continual collection, analysis, and exchange of quality control data within the factory and across the supply chain. With 1factory, manufacturers can control all aspects of product quality from first articles and process capability analysis through finished product inspection and root cause analysis. For more information, please visit 1factory.com.

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