Critical manufacturing

# Industrial Operations Platform for Industrial Equipment Manufacturing

MES-powered execution, connectivity, analytics, and trusted AI.



# Closing the loop between execution and decisions

Industrial Equipment manufacturers are building more configurable products, across more plants, with fewer experienced people. Trade uncertainty, rising input costs and the skilled-worker shortage leave little room for slow decisions. Manufacturers need to know **what is happening, why it is happening, what is affected, and what action to take**.

Critical Manufacturing closes this loop with an MES-powered Industrial Operations Platform, **unifying execution, equipment connectivity, and operational intelligence**, on a Canonical Data Model that creates a common manufacturing context for actionable data.

By connecting intelligence back to execution, factories can manage materials, equipment, people, processes and quality, while building a trusted foundation for analytics and AI.

**1.**

## Model Operations

Structure the factory into one common data model.

**2.**

## Connect Everything

Equipment, IoT, ERP, PLM, and enterprise systems share a unified data layer.

**3.**

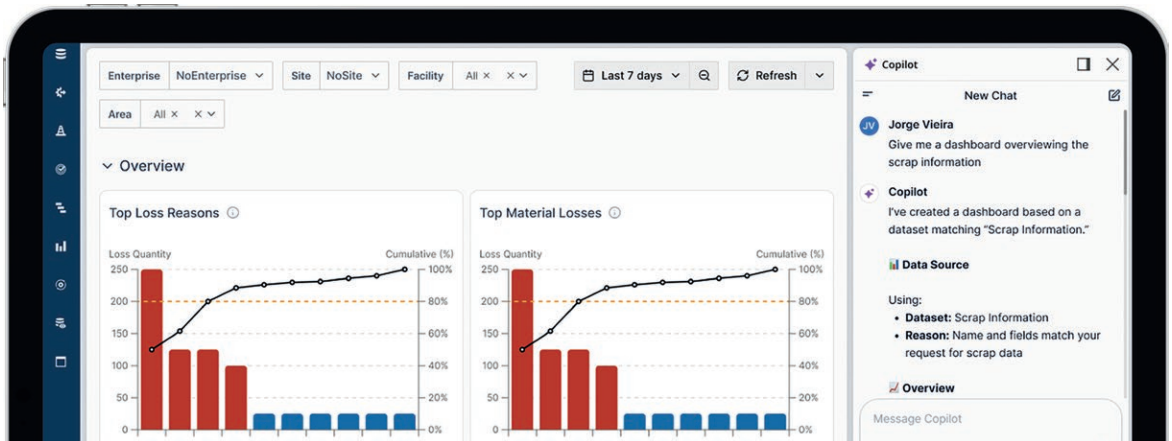
## Generate Intelligence

Gen AI turns structured context into real-time decisions.

**4.**

## Act and Improve

Continuous improvement built into daily work.



# The pressures industrial equipment manufacturers face every day

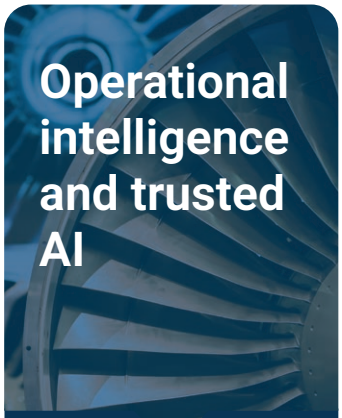
**More configurations. Same delivery date.**
High-mix production of configure-, make- and engineer-to-order products, with complex bills of materials, assemblies and sub-assemblies, all delivered on time and with the right quality.

**More plants. One standard.**
Adding plants means products, flows and recipes must reach every site consistently, without re-entering data.

**Fewer experienced people.**
The skilled-worker shortage means new people have to be onboarded faster and supported at every workstation.

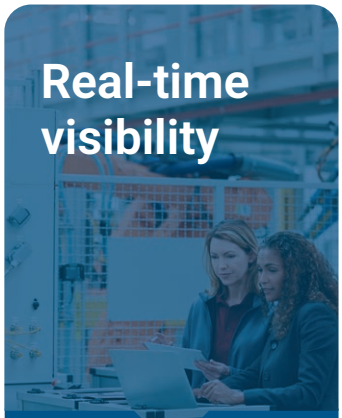
**Complex products need complete traceability.**
Maintenance, warranty claims and recalls depend on knowing every component that went into each unit.

# Meeting complexity with control and intelligence



## Operational intelligence and trusted AI

Contextualized production, quality and equipment data feeds visibility, analytics and AI.



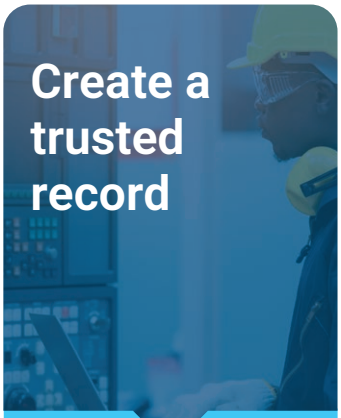
## Real-time visibility

See what's happening on the shop floor and resolve any issues faster.



## Build quality in

Data collection, inspections, SPC and nonconformance management run inside production, not after it.



## Create a trusted record

Complete traceability and genealogy captured as the work is happening, at the batch, lot, and unit level.

# Make Every Decision Count.
# A platform built for industrial manufacturers.

## Configurable products, built right every time

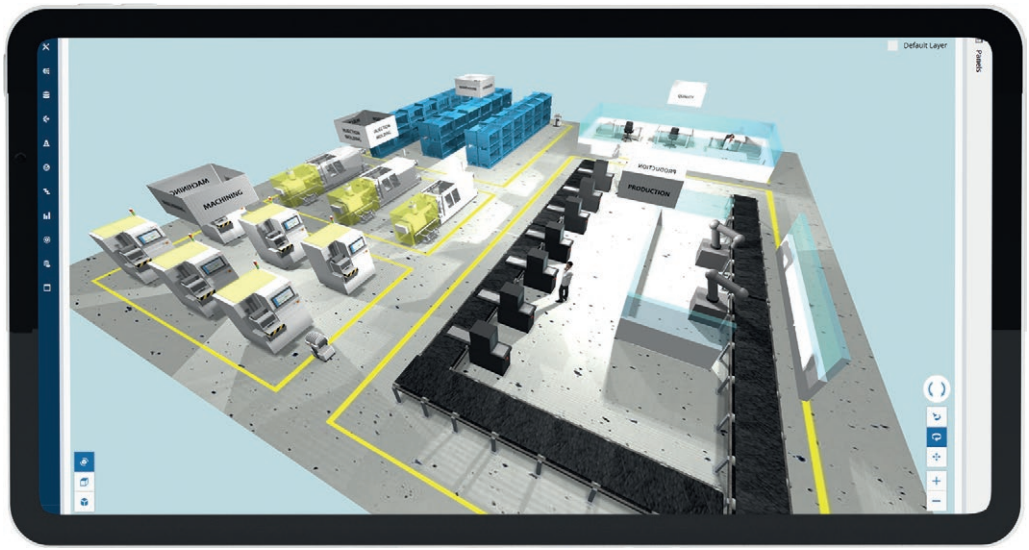
With many products that have multiple configurations, managing quality and production is complex. Critical Manufacturing manages bill-of-materials variations, with all the components and sub-assemblies and the product characteristics of each variant, for configure-, make- and engineer-to-order, so operators can identify differences for error-proof production.

Improved work instructions avoid confusion and delays in manual assembly. Manage checklists for configurable products and material deviation requests, and execute process steps with role-specific UI cockpits (User Workspaces) that support users at each workstation.

## Traceability and quality, end to end

As products gain assemblies and sub-assemblies, tracking every component that goes into the end product becomes essential to support maintenance, warranty claims, recalls and other customer-oriented activities. Critical Manufacturing provides complete end-to-end traceability and genealogy by individual batch, lot or serialized unit.

Meet and exceed your quality goals with sampling and statistical process control, alarm and exception management, quality protocols and maintenance management.



## Turn manufacturing data into operational context

Machines, lines and systems already generate huge amounts of data. The challenge is giving it manufacturing meaning.

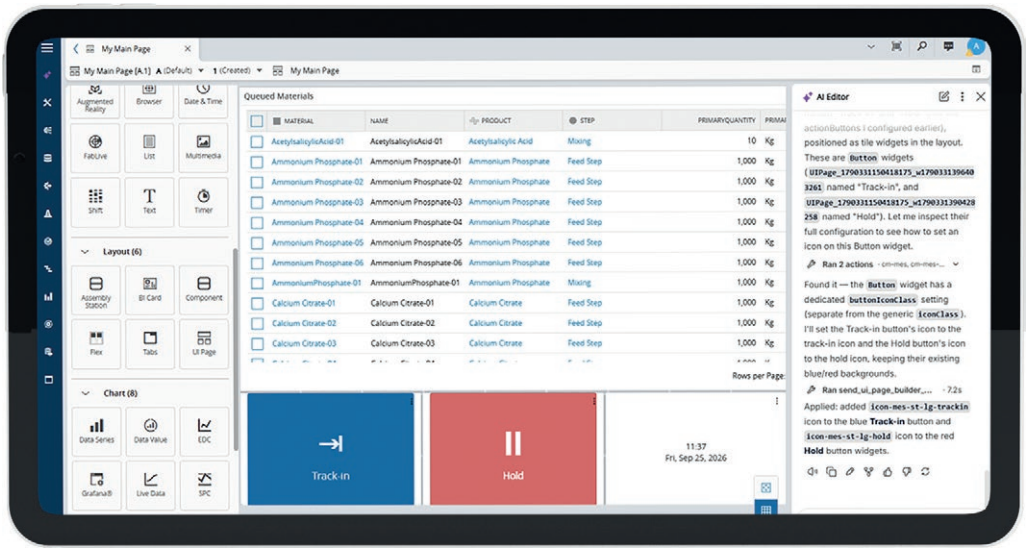
The Canonical Data Model ties equipment and system data to the product, serialized unit, lot, equipment and process step.

Then, purpose-built AI agents put that context to work. Users can ask questions of records, documents and attachments, get performance insights, compare results side by side, generate shift handover summaries, build dashboards, all from a natural language description.

AI actions follow the same security features as the rest of the platform. Engineers spend their time deciding what to do, not reconstructing what happened.

## Real-time visibility for every factory

Shop floor visibility lets you know what production decisions need to be made and how well they perform, reducing human error and improving OEE. fabLIVE Digital Twin provides a real-time, enterprise-wide virtual window into the shop floor with interactive performance monitoring.



# Why Critical Manufacturing

Built on manufacturing. Designed to evolve.

**Deep manufacturing foundation**
Execution isn't one capability among many. It is the foundation that connects products, materials, processes, equipment, quality and people, and it was built with complex discrete manufacturing in mind.

**One Canonical Data Model (CDM)**
A common manufacturing context links execution, equipment data, quality, analytics and AI, so intelligence stays grounded in how production actually runs.

**Native evolution, not technology silos**
Connectivity, data, analytics and AI extend the platform while remaining connected to execution, allowing manufacturers to adopt new technologies without creating another fragmented technology landscape.




**Recognized in the market**

Gartner FROST & SULLIVAN IDC verdantix ABIresearch

# Manage high-mix complexity with Critical Manufacturing

**Industrial Operations Platform for Industrial Manufacturing**

| | | | | | | |
|---|---|---|---|---|---|---|
| **AI Agents** | | | | | | |
| **Advanced Planning and Scheduling** | | | **Global Data Orchestrator** | | | |
| **Manufacturing Operations** | Materials & Containers | Resource Tracking | Routing & Dispatching | Data Collection | Master Data Management and Change Control | Tasks & Checklists |
| **Visibility & Intelligence** | Dashboards | BI Cards | Data Warehouse | fabLIVE: Factory Digital Twin | Alarm Management | Augmented Reality |
| **Quality Management** | Sampling Based Inspection / AQL | Statistical Process Control (SPC) | Exception Management | Document Management | Experiment Management | |
| **Operational Efficiency** | Maintenance Management | Order Management | Labor Management | Costing | Advanced Layout & Printing | Material Logistics |
| **Integration & Automation** | Enterprise Integration | Equipment Integration: Connect IoT | Recipe Management | Wafer Mapping | Factory Automation | |
| **Data Layer / CDM** | **Enterprise Data Platform** | | | **Data Platform** | | |

## Built on a strong MES foundation. Ready for what comes next.

Critical Manufacturing has evolved from MES into an Industrial Operations Platform by building new capabilities on the same manufacturing foundation, not by surrounding execution with disconnected technologies.

Connectivity, data, analytics, and AI become part of a common operational environment, grounded in the Canonical Data Model and connected back to execution.

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