

Proving What's Possible: An MES Proof of Concept for a Global Confectionery Manufacturer



The Challenge:

A global confectionery manufacturer operating 25+ plants across North America needed a Manufacturing Execution System (MES) built for the complexity of their production environment — one that could scale across every facility and adapt faster than any off-the-shelf solution could.

The Solution:

Our Controls & Digital Services (CDS) team delivered a fully customized MES Proof of Concept on Inductive Automation's Ignition platform, built collaboratively through weekly working sessions, a transparent Azure DevOps environment, and a rapid feedback loop that replaced months of waiting with days of iteration.



Operating 25+ confectionery processing facilities across North America, this manufacturer had a clear goal: unify production data across every plant, standardize performance measurement, and give leadership a real-time view of operations from the floor to the executive level. What they had instead was a patchwork of disconnected systems, plants calculating metrics differently from one another, and an MES vendor relationship that made even routine customizations feel like long-term commitments.

The company reached out to CONVERGIX after previous vendor engagements had stalled on the same friction point: feedback went in, and changes came back weeks or months later. For a manufacturer with complex, highly customized production lines that no off-the-shelf MES could map to, that pace was not viable. Our Controls & Digital Services team was brought in not just to build software, but to lead.

Complexity That Off-the-Shelf Systems Can't Handle

This manufacturer's plants present a configuration that standard MES solutions consistently fail to accommodate. Equipment is shared across production lines — a single machine might run one product on one line for three hours, then shift to a different line and product. Most systems treat this as separate machines or can't attribute performance metrics accurately. Every facility also calculates metrics differently, leaving no meaningful way to compare performance. Underpinning everything was a data challenge: getting reliable data from plant-floor PLCs to a centralized system while keeping it synchronized with a third-party operator system already in use.

The Challenges We Solved

This engagement required us to navigate both technical and organizational complexity. Two primary technical challenges shaped the engagement:

Challenge 1:

Building a custom MQTT bridge to reliably collect, process, and route machine data from a complex, multi-line plant floor into the MES.

Challenge 2:

Maintaining real-time data synchronization between the new MES and a third-party operator system used in daily operations.

Radical Transparency and a Rapid Feedback Loop

We structured this engagement around a single governing principle: no black boxes. Previous vendors had operated on a hand-off model — requirements in, solution out, changes negotiated at a future date. Our team took the opposite approach. Weekly working sessions of three to four hours gave CDS and the client's engineering team a standing forum to build together. Feedback was not logged and scheduled; it was implemented within days, sometimes within the same session, with the client's engineers treated as collaborators, not observers waiting for a presentation.

A Single Source of Truth for the Whole Team

Central to this was the decision to run the entire project through Azure DevOps and give the client live access. Every task, sprint, and technical milestone was visible in real time. Rather than wondering where their project stood, the client could see exactly what the CDS team was working on at any moment, where they were in each development cycle, and how specific challenges were being resolved as they happened.

That visibility removed the typical vendor-client friction entirely, and surfaced issues early enough to address them quickly rather than discovering them at a final review.

"We don't hide what we've built. Their engineers are just as sharp as ours. Being open with them didn't cost us anything; it made the solution that much better and the relationship even stronger."

— Solution Architect, CONVERGIX



Custom-Built for How This Manufacturer Actually Operates

The MES Proof of Concept was built on the Ignition platform, with the Sepasoft MES module providing the core engine. Rather than accepting the limitations of off-the-shelf tools, CDS built a customized MQTT bridge module in-house and delivered a system designed around three principles:

- **Custom data integration:** A custom subscriber pulls data from the client's Unified Namespace broker, processes it into the correct format, and routes it into the MES — part of CDS's own reusable toolkit.
- **Open, published metrics:** OEE, MTBF, downtime events, and order completion data are captured with quality flags and published back to the central broker, so any future system can subscribe without a new integration.
- **Scalable, maintainable stack:** When a performance bottleneck appeared, the team brought in Sepasoft IQ to offload analytics to a dedicated gateway. Built on industry-standard Microsoft SQL, Ignition, and Sepasoft, the system evolves without friction as operations rolls out and expands.

What the POC Delivered and What Comes Next

The Proof of Concept was completed and signed off, proving the architecture can handle the manufacturer's complexity and establishing a data foundation that scales to every facility. The full MES pilot is now moving through the client's approval process. When the system is fully deployed, the business impact will be measurable at the enterprise level:

- Standardized performance metrics across every facility, calculated consistently regardless of plant age, region, or line configuration.
- Financial visibility connecting downtime and production data to business cost, giving management the numbers to make capital decisions with confidence.
- Scalable deployment built on an open data foundation, designed to bring additional facilities online quickly with minimal specialized expertise and no bespoke integrations.

The Road to Full Deployment

The pilot that follows will expand performance tracking to include financial metrics — downtime and shift cost analysis — and will introduce a centralized deployment tool that lets less specialized staff configure new facilities without deep Ignition expertise. The goal is a system where bringing a new plant online takes a fraction of the current time.

