OEM Production Lines Case Study

Data acquisition and analytics layer with QR code mobility for wire extrusion production lines.
Industry: Manufacturing (Copper Wire)

Quick Facts

Attribute	Value
Customer	United Copper Industries
Process	600 volt building wire extrusion
Scale	10,000 tags (Phase 1), 30,000 tags (full)
Development	11 weeks
Integrator	Wunderlich-Malec
Mobile	QR code scanning via iPad/iPhone

The Challenge

Challenge: Implement a centralized and unified way to operate, monitor, and analyze multiple OEM production lines to improve performance.

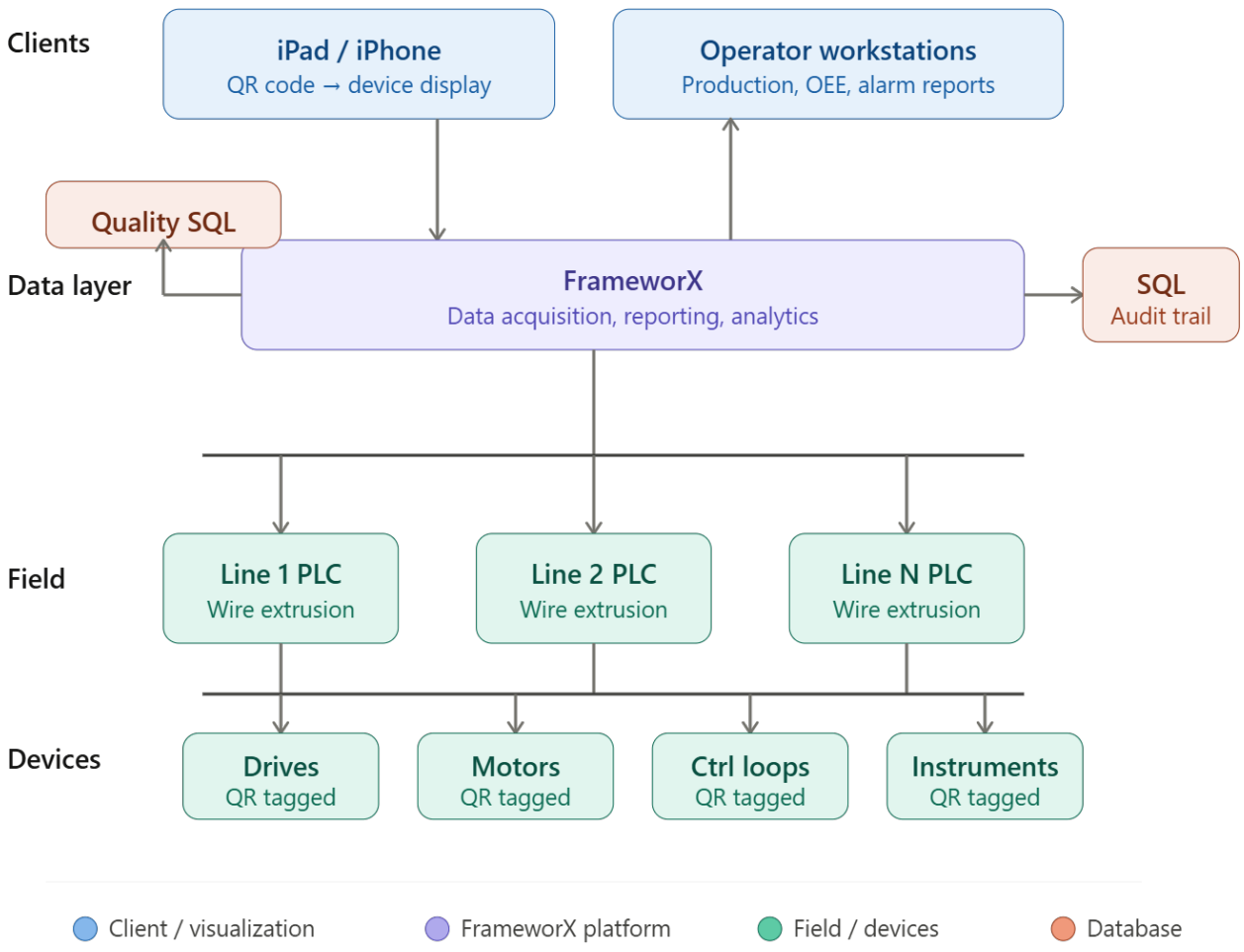
Specific pain points:

- Multiple OEM production lines extruding various gauges of 600 volt building wire
- No unified monitoring across production lines
- Legacy systems and operator interfaces lacked analytics capability
- Quality Department data in SQL databases disconnected from operations
- Need for mobile access throughout plant floor

Impact: Without centralized visibility, United Copper could not identify areas of production lines where improvements needed to be made.

The Solution

Architecture



Tier	Component	Capabilities
Field	Plant PLCs	Existing production line control
Data Layer	FrameworX	Data acquisition, reporting, analytics
Database	Custom SQL tables	Production data, setpoint audit trail
Integration	Quality Dept SQL	Existing data source connectivity
Mobile	iPad/iPhone	QR code scanning for device displays

Technical Features

Feature	Implementation
SQL Data Logging	Production data logged to custom SQL tables
Built-in Query Tools	Easy access to production data and reports
Setpoint Audit Trail	All changes archived with operator name, client node, previous/current values
QR Code Mobility	Each device (drive, motor, control loop) assigned QR code
Dynamic Displays	QR scan selects correct display and populates with device tags

QR Code Mobility Solution

- Each device assigned unique QR code
- Scannable via iPad or iPhone
- SQL query selects correct display for device type
- Populates display with correct device tags
- Provides real-time display anywhere in plant

Automated Reports

- Production reports
- Downtime analysis
- OEE (Overall Equipment Effectiveness)
- Alarm reports

Key Enablers

FrameworX capabilities that made this solution possible:

Capability	Application
PLC Connectivity	Easy connection to existing plant PLCs
SQL Database Integration	Quality Department data source connectivity
Mobile Client Tools	iPad/iPhone with QR code scanning
Built-in Reports	Production, downtime, OEE, alarm reporting
Custom SQL Tables	Flexible data logging and audit trails
Affordable Solution	Cost-effective analytics layer on legacy systems

---

The Results

- **Reduced Engineering Time** — FrameworX features kept project organized and limited clutter
- **Analytics Layer** — Created data acquisition and reporting on top of existing legacy systems
- **Complete Audit Trail** — All setpoint changes archived with operator, node, and value history
- **Mobile Access** — QR code scanning provides real-time displays anywhere in plant
- **Performance Insights** — Automated reports uncover areas where improvements need to be made
- **11-Week Delivery** — 10,000 tags implemented, scalable to 30,000 tags

---

Customer Testimonials:

> "Automated reports including production, downtime, OEE, Alarm and more will help uncover areas of the lines where improvements need to be made."
>
> *— Fred, Project Manager, United Copper Industries*

> "Wunderlich-Malec has been terrific to work with on this project. We appreciate their expertise and ability to stay on top of newer technologies to provide longevity, stability, and reliability to our systems."
>
> *— Fred, Project Manager, United Copper Industries*

Resources:

Download case study: CaseStudy_UnitedCopper.pdf

This case demonstrates production analytics with QR code mobility solution for wire manufacturing operations.

In this section...
