



SMARTER WATER

7 Practical Upgrades for
Modern Plant Operations





A NOTE FROM OUR CTO

I've been working in water and wastewater facilities for over 20 years — long enough to know that some of the control systems I helped install early in my career are still running today (and, believe it or not, a few of them are older than my kids). That's a testament to the durability of this industry — and also a challenge. Because as resilient as these systems are, we're now asking them to do a lot more than they were ever designed to do.

Over the last few years, I've seen the pressure on operators and facilities steadily increase. Tighter compliance requirements. Staffing shortages. Equipment wear and tear. And, more recently, a flood of new technologies that promise everything but often feel disconnected from the realities of day-to-day operations.

That's why we created this guide.

It's meant to offer practical, realistic ways to improve visibility, reduce alarm fatigue, streamline maintenance, and support operators — without unnecessary complexity or disruption. Whether you're working with a small municipal site or managing multiple facilities, our goal is to share strategies that can help you get more from the systems you already have, with changes that are thoughtful, not overwhelming.

We hope you find it helpful.

CHRIS MONCHINSKI
CTO, InflexionPoint



01

Stop Flying Blind:

Boosting Operational Awareness

The Challenge

Operators work with cluttered/inconsistent screens that bury critical information. That slows response time, increases mistakes, and makes training harder.

Why It Matters

Poor visibility leads to alarm fatigue, compliance risk, and a heavier workload. As experienced staff retire, clarity and consistency are more important than ever.

Actionable Insights:

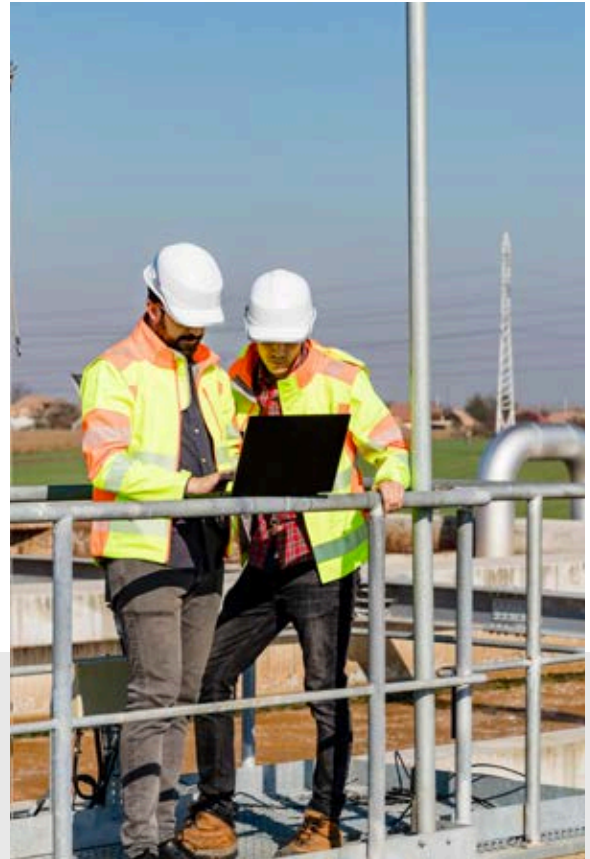
Improve visibility and reduce operator stress with better screens and smarter layouts.

Quick Wins

- Remove outdated displays
- Add breadcrumbs or top-level nav
- Use consistent alarm colors and icons
- Start a screen style guide
- Audit screens for clarity

Long-Term Moves

- Redesign with ISA-101 principles
- Document your screen logic
- Explore mobile-friendly dashboards
- Group displays by workflow, not equipment





02

On the Same Page:

Standardization and Unified Namespace

The Challenge

Data across your plant live in silos. Each system labels things differently, making integration difficult and plant-wide visibility nearly impossible.

Why It Matters

Without a common structure, your data can't be trusted, shared easily, or used for decision-making. As digital systems expand, the gaps grow wider.

Actionable Insights:

Bring structure to your systems by standardizing how equipment, data, and teams communicate.

Quick Wins

- Create a tag naming guide
- Group assets by area, system, and type
- Review and align tag templates

Long-Term Moves

- Resolve naming inconsistencies across PLCs and HMIs
- Build and document a unified namespace
- Implement Sparkplug B or similar architecture





03

Silence the Noise:

Smart Alarming and Root Cause Identification

The Challenge

Too many alarms, not enough context. Operators deal with constant alerts that make it hard to know what's truly urgent.

Why It Matters

Alarm fatigue leads to missed events, delayed responses, and increased risk of non-compliance. Regulatory bodies take note when real alarms go unanswered.



Actionable Insights:

Cut through alarm clutter to help operators focus on the events that actually matter.

Quick Wins

- Suppress nuisance alarms during known conditions
- Use color and sound strategically
- Label alarms with clear operator instructions

Long-Term Moves

- Prioritize and group alarms logically
- Create cause-and-effect diagrams
- Align with ISA-18.2 and include alarm trends in reports



04

Keep It Clean:

Optimizing Calibrations and CIP

The Challenge

Manual cleaning and calibration schedules often rely on guesswork. That leads to overuse of resources or, worse, missed sanitation cycles.

Why It Matters

Inefficient processes waste water, chemicals, and energy. Inaccurate calibration can affect compliance and product quality.



Actionable Insights:

Use accurate sensor data and smart scheduling to improve compliance and cut waste.

Quick Wins

- Validate sensor accuracy with reference checks
- Set alerts for out-of-spec calibration values
- Review CIP cycle completion data

Long-Term Moves

- Automate CIP based on sensor inputs
- Digitize calibration SOPs
- Use analytics to optimize rinse cycles and report compliance



05

Secure but Shareable:

Bridging OT and IT Systems

The Challenge

Operational data often gets trapped in control networks or air gapped systems. Sharing it with IT introduces security risks.

Why It Matters

Disconnected systems limits insights. But without strong protections, opening access creates vulnerability in critical infrastructure.

Actionable Insights:

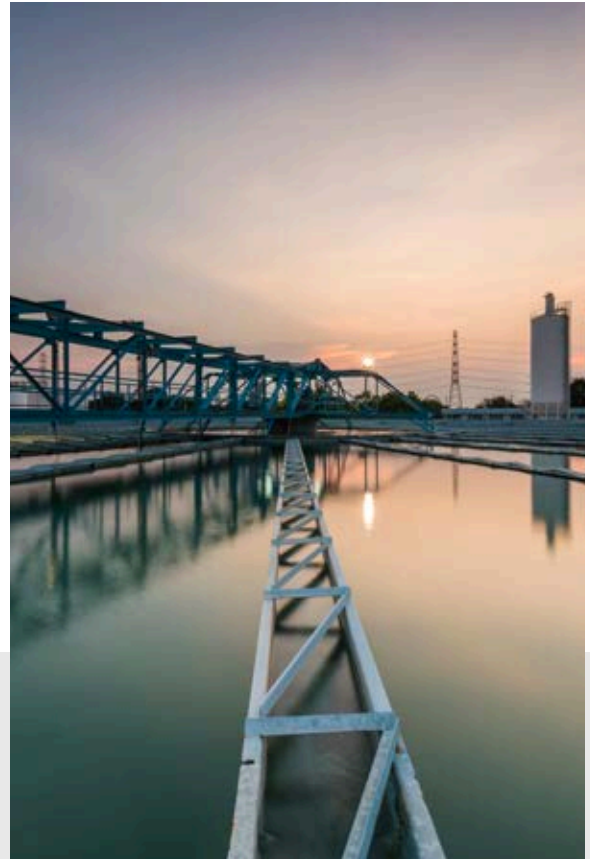
Safely connect OT and IT systems so you can unlock insights—without opening vulnerabilities.

Quick Wins

- Identify what data should be shared
- Use read-only data connections
- Apply role-based access controls.

Long-Term Moves

- Align OT and IT networks with firewalls and DMZ
- Align with ISA/IEC 62443
- Deploy secure gateways and data brokers





06

Work Smarter:

Boosting Asset Utilization

The Challenge

Critical equipment often runs too much, too little, or inefficiently. Without clear data, it's hard to optimize runtime and reduce wear.

Why It Matters

Inefficient asset use leads to unplanned downtime, energy waste, and shorter equipment life.



Actionable Insights:

Track performance, reduce downtime, and get more life out of the equipment you already have.

Quick Wins

- Track runtime for key equipment
- Set alerts for under- or overuse
- Launch preventative maintenance checklist

Long-Term Moves

- Establish performance baselines
- Build digital maintenance logs
- Add OEE to dashboards and planning workflows



07

Training That Sticks:

Interfaces that Teach Themselves

The Challenge

When experienced operators leave, so does their knowledge. New staff need time to get up to speed – and your systems might not help.

Why It Matters

Training gaps slow operations and increase mistakes. And as digital systems expand, intuitive design matters more than ever.



Actionable Insights:

Support new staff and reduce errors with intuitive design and built-in knowledge sharing.

Quick Wins

- Review screens for confusion
- Add callouts for visual aids
- Record short how-to videos

Long-Term Moves

- Standardize interface design across the site
- Build a digital training library
- Use operator feedback to improve usability



From Insights To Action

You don't need to overhaul your entire facility to make meaningful improvements. Start small. Pick one area where a change could reduce operator burden, improve visibility, or increase confidence in your data.

These upgrades work best when they're intentional, collaborative, and aligned with long-term goals. Whether you're managing a single site or leading multiple facilities, the steps outlined in this guide are designed to be realistic, scalable, and impactful.

Create internal champions. Align teams. Document what works. And most importantly—keep listening to the people who run your systems every day.

You know your plant better than anyone. We're here to help you get more out of it.

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Why Work With Us:

- **We understand your systems.**
From SCADA to sensors to compliance demands, we know what water operators face every day.
 - **We focus on what's practical**
Every recommendation in this guide is something you can act on – no unrealistic overhauls, no added complexity.
 - **We work with your team**
Whether you're a municipal plant or a multi-site utility, we collaborate with your staff to make improvements stick.
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How To Get Started:

- **Request a Site Readiness Assessment**
See where your plant stands and what to tackle first.
- **Get Help Implementing a Quick Win**
Pick one improvement from the guide – we'll make it real.
- **Plan for Long-Term Success**
Map out next steps for scalable, lasting upgrades.

**YOUR GOALS, OUR GUIDANCE.
SHARED SUCCESS.**



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