

Getting Started: 10 Tips for Modernizing Your HMI/SCADA

Designing and structuring for better operational performance

1. Get up to date with SCADA and OS versions and patches

Many organizations are still on old – sometimes very old – versions of their SCADA software. However, regular updates and alignment to the latest features improve system availability. A lapse in updates increases security concerns. Additionally, you probably have higher, hidden costs by continuing to use an obsolete system.

This is a foundational step. Before you take any other steps to modernize including analytics or web-based interfaces, make sure your SCADA and OS are up to date with versions and patches. This will enable you to start with the right platform to enhance your capabilities.

2. Standardize your SCADA implementation

Improve efficiency by defining standards for the overall SCADA system including application, configuration, security, architecture, and remote access – even the devices that people use.

Standardization will help you reduce errors, lower costs, and boost operations efficiency.

For example, consistent representation and procedures reduce errors across multiple stakeholders. Teams benefit from a shorter learning curve, faster roll-outs, and easier maintenance. Standardization also helps ensure compliance. Lastly, with tag name conventions, you can leverage OPC UA: browse OPC UA sources and automatically create your SCADA process database.

3. Develop a disaster recovery plan

A Disaster Recovery Plan can start simple, such as a versioning plan related to backup and restore. Next, lay out a long-term roadmap and think about moving to a redundant and failover system with configurations for minimal disruption.

You can build redundancy at all levels: SCADA server failover, LAN redundancy, client redundancy. Target having no data lost, looking at your databases, real-time data, and alarm synchronization. Make the system seamless for remote users.

A Disaster Recovery Plan is more than peace of mind; it is an essential part of improving availability and reliability.

4. Implement best-in-class data management

Put together a plan to collect, store and distribute your data securely. You can't operate a plant effectively unless you have all the correct data in a timely fashion.

Consider a plant-wide historian for more reliable and consistent information – collecting from different data sources, providing the ability to extend and scale as your systems grow, and integrating your data management layer with your CMMS. Modern technologies make information available to stakeholders who aren't directly connected with the SCADA but need data to make decisions, such as demand and planning.

5. Build effective alarm procedures

Many resources for effective alarm management are available, such as through ISA. A good alarm strategy means less noise, faster reactions, increased productivity and efficiency, and safer operations. You can move from an alarm to notification and guiding the right action.



6. Digitize work processes

Every facility has standard operating procedures in some form, mostly printed manuals. Now, you can move from manuals to integrating work processes into your SCADA system.

Using SCADA data, you can trigger a work process, guide operators through steps, and increase operational consistency. Electronic Standard Operating Procedures also capture best practices and accelerate new operator training.

Digitize your procedures to ensure:

- Consistency
- Repeatability
- Adherence to standards
- Accountability on tasks

You can drive the right actions and help prevent mistakes from happening. Additionally, you can record and track work processes for compliance.

7. Drive organization-wide connectivity

Organization-wide SCADA connectivity – across the entire enterprise – provides a holistic view of performance, fills data gaps, and increases collaboration. Centralized Information Management drives consistency across plants and sites. You can leverage highly secure-by-design thin clients on inexpensive hardware to make information readily available to all levels of the organization.

8. Leverage persona-based visualization

Give each person the information and capabilities that they need, rather than the same SCADA screen for every person.

Modern HMI/SCADA allows you to equip your workforce with tailored information, remote monitoring and control capabilities, and devices – whether a smartphone, iPad, or legacy device that supports HTML5.

You'll get the right operational information to the people who need it, saving tremendous staff time while speeding response and compliance.

9. Enable model-based HMI navigation

With modern HMI/SCADA, you can leverage industry standards to map your data model to an equipment model – structuring your data and providing standard context across locations and data sources.

Users can quickly navigate in context, derived from the model. Model-based HMI navigation enables a common User Experience regardless of the screen, device, equipment, role, or process.

10. Implement High Performance HMI

High Performance HMI, based on the ISA 101 standards, increases operator efficiency through better screens.

With a simple and consistent design, High Performance screens boost situational awareness, alarm detection, and productivity, while decreasing the risk of errors. Operators and technicians recognize and understand information with greater ease and speed.

