

# Linking SCADA development with operational needs

Jim Ferrero, vice president of automation consultancy GlobaLogix, gives his advice on the best way to get the information you need from your field—by starting with the end in mind when creating SCADA automation systems in oilfield equipment, and bringing operators into the design phase.

Developing a good SCADA system requires a two-pronged approach: first defining what information is important, and then capturing the data that feeds it.

Information management is the key to developing the best possible SCADA system. It is all about the data: the quality, quantity and the timeliness of data, and how it will be used.

When companies skip the first component, and focus just on capturing all the data they can, they fail. This equates to answering a question about a specific well site location by delivering a map of the United States.

Data is valuable when it is understood in context, in relation to time and other points of data, and most importantly, when it leads to action. Companies don't use data to make decisions—they use actionable information.

### Begin at the end

Improving an information management system doesn't always require significant expenditures for new technology infrastructure.

It often is as simple as talking to the end users about improving the tools already in place.

SCADA systems are often much more modular than can be imagined. For example, existing systems can often be expanded or made more efficient. But even improving existing systems should take into account the input of the users.

When oil and gas companies facilitate communication between the team creating the information management system and the employees expected to use it, it does more than improve data capture processes—it creates ownership and authorship among end-users.

Allowing end users, whether the CFO, a production engineer or a field technician, to have a hand in designing the system they need to do their job creates advocates for the system.

Companies enjoy a dual benefit of a more efficient information management system (that produces usable information), and users who know how to use it to its fullest capabilities.

A typical example involved an oil and gas company in Wyoming with an existing SCADA system.

Though fully implemented, the system

was not employed by the client's operations group because it was deemed unusable by the control room personnel. They had not been consulted during the system's design, nor had they even received training by the system's designers.

When tasked with redesigning the system, GlobaLogix, as the consultancy check, spent a considerable amount of time with those operators learning how they worked and what was important before beginning the redesign. The revamped system is now a viable tool.

The control room operators have a sense of ownership in the system because they helped create the new screen designs.

In the oilfield, information management systems are frequently created by the IT team, which has the technical expertise for the job but frequently lacks operational experience. Operational managers are rarely asked how the systems will be used, or brought in on the front-end to shape data capture systems.

But they can provide valuable input into the system when asked to consider questions like: Which data points should be captured? How do points relate to each other? How are alarm management systems structured, and alarms handled? Are the trending screens trending things that users actually care about?

When operators aren't involved, users often end up with too much information, which doesn't lend itself to quick (or accurate) decision making.

### Screen navigation

A common issue that impacts the end user is the screen navigation approach. Simple navigation tools should be created that allow the control room operator to respond to quickly to emergencies.

Navigating to relevant screens with a single mouse click, rather than using pull down menus with hierarchical selections requiring several steps can save time and potentially lives.

In terms of efficiency, eliminating minimizing/maximizing actions to pull up screens cleans up the desktop.

A simple early task in the information management system design process should be the observation of what operators do each

morning. This gives the SCADA development team a clear picture of the common repetitive work processes the control room operator faces each day, pointing to the reports that need to be built into the system.

If an operator is taking time each morning to import data into Excel, then manipulate it to create the same reports, he is wasting hours each day rather than focusing on optimizing operations, dispatching personnel and contributing to overall profitability.

Other questions to consider when developing a successful information management system are:

How current is the information, and how current does it need to be? Is the most efficient and economic polling frequency employed?

What information does management always ask for (and how can we deliver it before they ask for it?)

What is the data path, and is it easily traceable through the system?

What happens to the data after it leaves the SCADA system? For example, should it be made to feed into an Enterprise Resource Planning (ERP) platform automatically?

What is the purpose of the SCADA system? Should it just provide a historical report, or will it drive dispatch operations, inform management or provide an accounting functionality? Can the use be expanded?

What are the limitations to growth in the current SCADA system? How can scalability be engineered in at the beginning to reduce the life cycle costs of the system?

What are the security concerns of the company? How can we satisfy those concerns without adding cost or levels of complexity?

Are there issues involving custody transfer or hydrocarbon allocation?

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