Are You Disrupting the Control Room?

How to Manage Change and Introduce High Performance HMI Concepts in Practice

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SUBMISSION TYPE

30 minute presentation

KEYWORDS

Change Management, HMI, Human Factors Engineering

ABSTRACT

As public sector facility SCADA system mature, utilities and engineering professional are recognizing the increased value in emphasizing human factors engineering and more advanced methods to display information. ISA is now about to release *Standard 101, Human Machine Interfaces for Process Automation Systems*, which brings together threads from various sources (both industry and academic partners) to focus on HMI lifecycle, ergonomics, and high performance HMI concepts. In the next decade, as DCS and PLC/HMI systems are upgraded, operator interfaces at water and water resource recovery facilities will be increasingly reconfigured so key process indicators and abnormal situations are better emphasized.

In the meantime, however, starting at the control room level, and working all the way to facility management, introducing high performance HMI concepts can be controversial. Changing the use of colors, P&ID symbols, and color standards can create significant confusion. Demonstrating the business case for changing the plant's historic HMI standards is not trivial. For instance, the use of a muted color palette clashes with management's desire for flashy graphics to present during public tours, or the desire to have highly elaborate (even 3D) representations within the HMI to show taxpayers the results of multi-million dollar investments.

Three (3) case studies (with brief examples) on how to introduce both an incremental or wholescale shift in the HMI configuration approach to operations and management, are presented. Examples are drawn from three different facilities (small, medium, and large treatment facilities, US & Canada), specifically related to:

- Patterns: Use of analog vs digital displays (e.g. profile plots)
- Process Context: Enhanced use of trending (e.g. real-time)
- Equipment-at-a-Glance: Methods to represent vendor equipment health (e.g. radar plots)

While broad "from the ground up" application of high performance HMI concepts cannot always be realized, incremental steps are important. Discussion will focus on where operators, management and consultants were able to begin the shift to high performance HMI concepts.

ABOUT THE AUTHOR

Ryan Kowalski, P.E. *is ARCADIS (Water Division) national Technical Knowledge and Innovation discipline leader for ARCADIS's SCADA/Automation team, which includes a heavy emphasis on instrumentation and controls. He has provided consultation, quality control reviews or led discipline design teams for over 40 different projects, ranging from small telemetry systems to SCADA installations for large, urban water and wastewater treatment plants treating hundreds of MGD. Contact:* Ryan.Kowalski@arcadis-us.com.