

## Managing the Transition to Digital Technology

Developing and executing a strategy for maintaining I&C systems at aging nuclear plants isn't a luxury; it's a necessity, especially in the context of life extension and uprate programs that allow plants to operate another twenty years or more. The reality is that up to \$30-million will have to be spent on control system maintenance. Hurst Technologies can assist in developing and executing a strategy that allows you to justify and minimize the expenditures.

All too often, the focus has been on a digital upgrade or a controls modernization. These are *hardware* solutions whereas plants need *business* solutions. The best overall plant strategy could be a combination of a like replacement of components, stand-alone digital systems, and/or integrated digital systems. Like-replacement is useful if the components are: 1) not obsolete, 2) supported by the vendor, 3) still available on the market, or 4) can be reverse-engineered. Stand-alone digital replacement, which maintains the same functionality and system boundaries, may be the best option depending on budget and other factors. Integrated systems provide additional functionality, propagate information more widely, reduce the need for unique spares, and offer performance improvement.

New issues arise with the transition to digital technology. Cyber security is a critical example. It represents new functional requirements that may not have existed when the plant was designed. Plants with digital technology need to ensure that new cyber-security software isn't simply layered on top of existing systems and that cyber security

solutions address the islands of automation that plants suffer with today. Cyber security solutions must be both robust and fully integrated into today's "plant operating environment" through wired or wireless connections.

**All too often, the focus has been on hardware solutions when what plants really need are business solutions.**

Human Factors Engineering (HFE) is also impacted by the transition to digital technology. Comprehensive HFE plans must support COL applications, as well as digital upgrades and modernizations. Addressing the appropriate HFE items during an upgrade project ensures that the myriad design and regulatory review stages go smoothly. Hurst

undertakes any or all of the following in HFE: planning, analysis, design, development, evaluation, and integration.

Configuration Management (CM) is a third issue with digital systems. Distributed control systems (DCS) are often extensively modified once they are installed and may lack an appropriate CM tool from the vendor for the DCS, the plant computer, or the myriad software and performance applications and communications gateways. Often, CM tools must be custom-built to meet specific needs.

Hurst Technologies undertakes I&C design and engineering projects large and small. In all cases, we are vendor independent and often act as the owners-engineer or owners-expert to advocate, manage, and oversee I&C projects.



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