

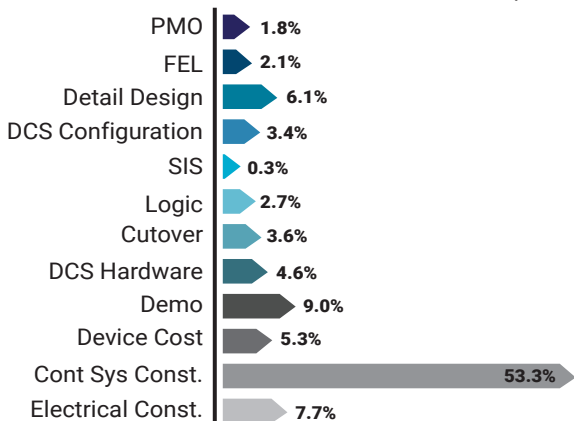
DCS migration cost: look in the right places to save

By Nigel James, *Burrow Global*

My grandmother had a saying: "stepping over pounds to pick up a penny" (she was English). We find that this saying is also common in managing DCS migration projects. Most specs and scopes are heavily focused on DCS hardware and programming.

It's important to understand that while DCS migration implementation is heavily technical, it is ultimately an investment that encompasses far more than FTA's and server equipment. For example, when examining a typical mid-size migration project we likely will find that DCS hardware cost per I/O will land in the \$400 to \$500 area as compared to a combined cost of \$6,000 to \$9,000 per I/O for a new field device, cabling and supporting structure back to the FTA. The chart below represents a recent migration project's total cost breakdown. It's quite an eye opener to recognize that 70% of this project's \$28 million budget may be consumed with demolition of existing equipment, installation of new electrical UPS equipment, and the field device to DCS interface.

Risk identification and mitigation development for construction activities is essential when developing Total Installed Cost for any project, and possibly more for migration projects. If we fail to plan for logistical implementation of a construction crew and arrive at project time to find that an area of importance is not accessible, we could be faced with substantial impact to cost and schedule. It's important to avoid optimism bias during risk assessment



exercises and always develop a plan for worst case scenarios. Take the time to establish a cost for those out-of-the-box situations that will never happen.

When developing project implantation cost it is helpful to focus on a few key practices;

- **Document and communicate the obvious.**

From experience we've learned that the more we know, the more we assume, and assumption leads to failure in almost every instance.

- **Quantity, Complexity, Length.** Focus on these principles and invest your engineering dollars here when determining cost impact. In Dan Roessler's book, he describes them this way:

- o *Quantity* – Number of I/O, number of boxes, number of widgets
- o *Complexity* – Graphics development and logic are the two main areas to focus
- o *Length* – Average installed cost per foot for instrument cable can reach the \$75 to \$100 range in some instances. Seems inconsequential until you recognize that a 2,500 I/O migration effort could require forty thousand feet of cable (or more).

- **Engage your construction and commissioning resources** during budget development. When developing your projects time line and schedule, it is essential to integrate an effective construction and commissioning plan. I can't count the number of times that I've been shocked to learn the cost for scaffolding alone; scaffolding is expensive. It's best to learn that very early in you budgeting process.

- **Benchmark key items.** Often times we find that our clients are curious as to how their migration cost stacks up to regional comparisons. Our benchmark measurements have proven invaluable during these discussions. Benchmarking is also valuable in discovering areas of project cost that are not consistent with previous experience.

Jason Savoie contributed to this article



Burrow Global is an EPC provider with the ability to provide engineering & design, programming, fabrication, FAT testing, construction, commissioning, and start-up assistance. We feel that we are uniquely aligned as a vendor neutral control systems integration team and are therefore able to interface with any control systems platform on the market. Our unique abilities and business philosophy have recently earned BGA the 2018 System Integrator of the Year award from CFE media and are currently shown as #13 on the System Integrator Giants listing.

Our experience level ranges from small PLC/DCS program modifications to turn-key \$20MM control systems migration projects. We have considerable experience in managing program portfolios as a Project Management Office (PMO) and are currently assisting with three long-term DCS upgrade programs ranging from \$200 to \$300M. Our capabilities to define project scope and objectives while establishing Total Installed Cost (TIC) budgeting is a core strength that continues to receive high ratings from our clients.

We are capable of self-performing Instrument, Electrical, and Automation construction, fabrication, and FAT testing utilizing our team of highly skilled craftsmen. With construction typically accounting for over 50% of the Total Installed Cost, having a single source provider for the combined aspects improves in communication and lowers the risk of cost overruns and schedule delays. Our commissioning and start-up teams are comprised of specialized instrument, analyzer, and DCS technicians and are capable of supporting control system migrations, turn-around activities, and general maintenance. We are actively engaged in construction, commissioning and start-up activities for refinery and petrochemical facilities throughout the gulf coast as well as Oklahoma, Tennessee, Utah, and Pennsylvania. Our teams are also providing services to mid-stream clients in West Texas and Oklahoma.



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