Schneider Electric assists an oil refinery customer with a rehabilitation and adaptation project.

Flexible, Lean Execution keeps time-sensitive project under control

Schneider Electric was chosen as the vendor for all the emergency shutdown, fire and gas, and distributed control systems for an oil refinery rehabilitation and adaptation project. This project was awarded to a primary EPC under a fixed-price, lump sum contract. This meant that resources were kept to a minimum and came from Schneider Electric's Engineering Excellence Centers in Chennai and Algiers. The project also had a very tight schedule that had to be maintained. The project was run and staged in France, but built in Chennai, India.

Schneider Electric's Global Engineering Management team had provided a number of pre-award demonstrations to show the benefits of Engineering Workbench, a component of Schneider Electric's Flexible, Lean Execution (FLEX) program. The customer was very interested by these new tools that enable more efficient project execution. In particular, they were drawn to the idea of Engineering Workbench in relation to their SmartPlant ® Instrumentation (SPI) database. The customer's project engineers were looking for a set of completed instrument loop data that they could import back into SPI at the end of the project. This was proven to be a significant cost saving by reducing the number of resources on their team as early as possible.

This global development project was completed by Schneider Electric's project team (France, United Kingdom, India, Algiers) and development team (United Kingdom, Canada, Egypt, and USA).

Project Description

This was an integrated control and safety system project (Brownfield), which had new and existing elements to be integrated.

The primary systems were:

- Distributed Control System (DCS): Foxboro Evo with FoxView
- Emergency Shutdown (ESD): Triconex Tricon
- Fire and Gas System: Triconex Tricon
- Blending Application

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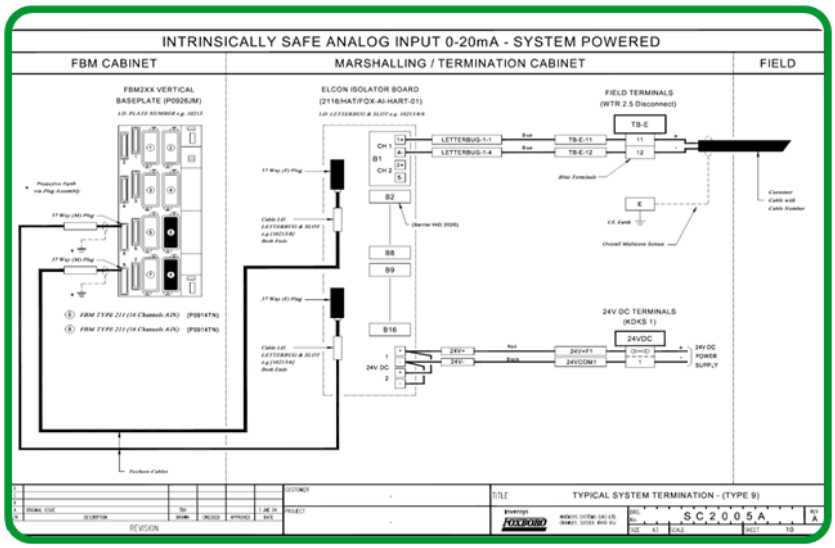
The site had one main control room with plant I/O and seven other equipment areas, all with plant I/O. The design phase lasted approximately six months, producing functional design specifications, and hardware and software template typical. The project duration was 18 months.

The hardware and software configuration overlapped the design phase. The project I/O was as follows:

System I/O	Total
DCS	
Hardwired	9,876
Software	9,723
ESD	
Hardwired	4,301
FGS	
Hardwired	917
Total I/O	**24,817**



Example of a wiring loop

Flexible, Lean Execution Contribution

The main objective of the project was to develop the SmartPlant Instrumentation (SPI) return loops, which was enabled through the use of the FLEX's Engineering Workbench. This was done in conjunction with Schneider Electric's Montreal and Cairo offices.

Engineering Workbench templates were used for the project, and the customer provided one database loop for each loop type. Approximately 20 templates were identified initially, but 67 templates were ultimately used (most of which needed to be modified). However, because the design data was very late, the templates had to be confirmed before any bulk build could be done. Late data also meant that naming conventions were not fully defined for all of the templates.

Schneider Electric's team was able to accept data from the customer in phases, unit-wise, and run automated validation checks on the data. This enabled the team to identify discrepancies and missing information very early in the project, allowing the customer to make the necessary changes, which reduced re-work and additional costs. The validation rules are customizable to address requirements that are project/client specific. Engineering Workbench gave the customer the flexibility to issue data in the format best-suited to the project.

Schneider Electric successfully provided the customer with SPI returned loops using Engineering Workbench. As a result, risks were effectively mitigated on items during development that were likely to jeopardize the delivery and improved customer confidence in Engineering Workbench. In addition, all templates and rules were stored, archived and categorized for easy reuse, rather than requiring any new projects start from scratch. This reusability has proven to improve efficiency.

The customer also benefited from the multiuser and controlled environment enabled by Engineering Workbench. Schneider Electric's distributed team working in France, India, Egypt, Algeria and Canada was able to work collaboratively to produce the required deliverables.

To learn more about how FLEX reduces the impact of change and time to production, visit: real-time-answers.com/project-execution/resource-center/.

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