A specialty chemicals plant

Flexible, Lean Execution Saves Configuration and Testing Time for Chemicals Plant

Schneider Electric's delivery team in Brisbane, Australia, successfully managed a specialty chemicals Greenfield project. Given the project's complexity and completion deadline, error-free configuration and testing were required in both components.

Considering a 12-month target to complete all project phases from design to commissioning, Engineering Workbench was integrated into the project to speed up configuration and testing. The client bid was extremely competitive and the provision of bulk generating tools from the Workbench would enable repetitive creation of control and safety logic. The client knew that they would have significant design changes throughout the project, and the ability of Workbench to track these changes and regenerate code added value to project execution.
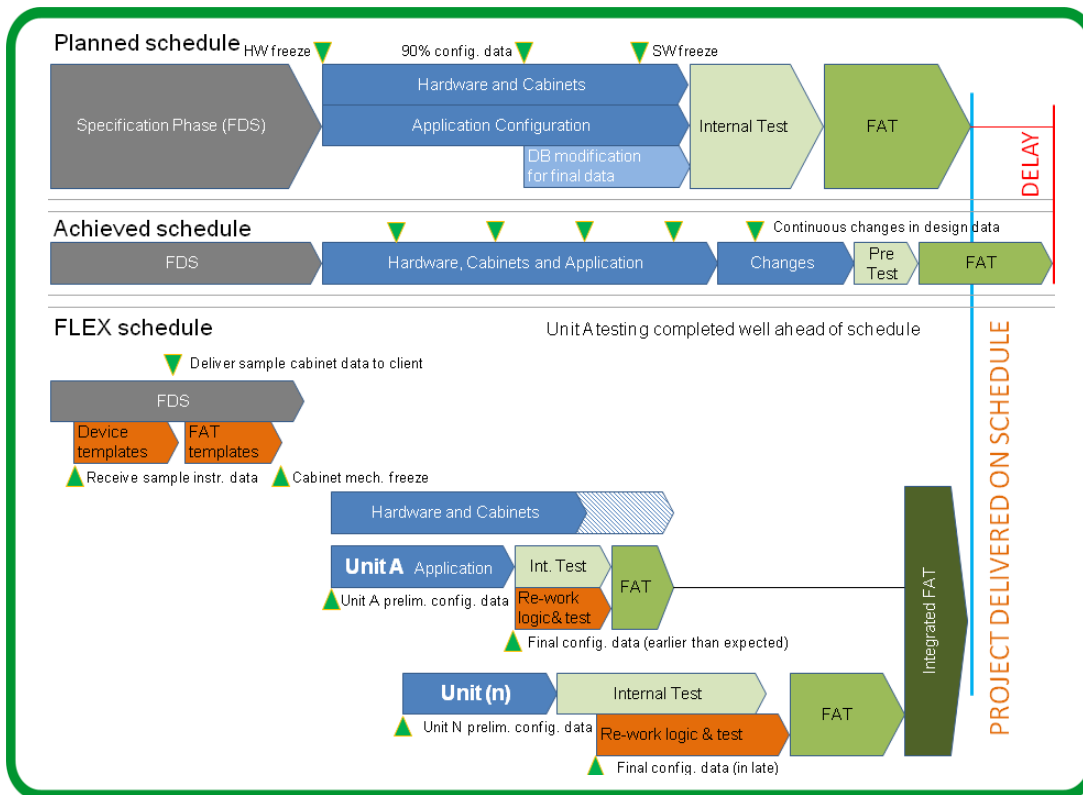
Project management, design, and development were executed by Schneider Electric's business unit in Brisbane, with support from the Global Engineering Management (GEM) team. Engineers from the Engineering Excellence Centre (EEC) in India and China were also involved in project execution.

Project description
The project had both safety and controls components. The control component had 1,200 I/O and the safety component had 1,000 I/O. This comprised 11 Foxboro FCP270 Controllers, 1 Tricon system with 11 Chassis. The system interfaced to 15 different packaged units using Ethernet IP, Profibus, Modbus and TSAA. The system used Foxview and IEE, making the Engineering Workbench an effective tool for creation of bulk graphic elements.

Schneider Electric provides Australia specialty chemicals customer with error-free configuration and reduced number of test cycles within a 12-month target deadline.

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Planned schedule

Specification Phase (FDS) · HW freeze · Hardware and Cabinets · 90% config. data · Application Configuration · SW freeze · DB modification for final data · Internal Test · FAT · DELAY

Achieved schedule

FDS · Hardware, Cabinets and Application · Changes · Continuous changes in design data · Pre Test · FAT

FLEX schedule — Unit A testing completed well ahead of schedule

FDS · Deliver sample cabinet data to client · Device templates · FAT templates · Receive sample instr. data · Cabinet mech. freeze

Hardware and Cabinets

Unit A · Application · Int. Test · FAT · Unit A prelim. config. data · Re-work logic & test · Final config. data (earlier than expected)

Unit (n) · Internal Test · FAT · Unit N prelim. config. data · Re-work logic & test · Final config. data (in late)

Integrated FAT · PROJECT DELIVERED ON SCHEDULE

The FLEX lifecycle

Flexible, Lean Execution contribution

Configuring the safety component was executed in one phase. A logic sheet was required per input/output (I/O) unit.

By defining device /safety templates, writing rules, and automatically generating safety configuration, Engineering Workbench was able to accomplish this requirement in two days. Doing so manually would have taken two months and increased the likelihood of errors. In addition, regardless of issues faced with Schneider Electric's Foxboro Evo software templates, Engineering Workbench enabled the automatic generation of control graphics and logic, achieving the same advantages as the safety component.

As a result, automatic generation of both control and safety graphics was particularly favorable to the commissioning and hardware Factory Acceptance Test (FAT).

Another fundamental benefit of Engineering Workbench – versus traditional manual configuration – is the automatic generation of consistent and error-free safety and control loops in large quantities. Multiple cycles of

testing involved in traditional configuration are also reduced. The greatest benefit is derived from the accuracy of the logic being generated. As a result of the Workbench automation accuracy, the client wanted to test only 10% of the input data rather than the entire data set, which in turn reduced the testing effort required, documentation approval and sign off, all of which are time-consuming. Schneider Electric estimates having saved approximately 1,000 hours on the safety system.

Engineering Workbench for safety was very useful, and the efficiency savings exceeded expectations. The quality of the output was also well received.

Schneider Electric Engineering Workbench was able to accomplish a requirement that would have otherwise taken two months to complete with increased likelihood of errors.

Schneider Electric