

The Role of a Project Execution Plan in the SCADA Project Management Process

Project management processes are a foundational element of SCADA system implementation. Approaching SCADA system development and implementation with a work process leads to on-time, on-budget project completions, whether small field or large scale implementations.

The first step in any project management process should be defining the scope of work. An accurate scope of work sets the stage for realistic planning through the remainder of the project. Most importantly, it leads to appropriate identification of resources, assignment of work tasks and a detailed scope of supply for materials. These allow for proper budgeting, and the creation of a realistic timeline and schedule.

Projects can be executed simultaneously on three fronts: Communication, SCADA Integration and Field Instrumentation. Each has its own scope of work.

Communication – System design and build-out of a LAN/WAN for data communication with options for local operation communications support.

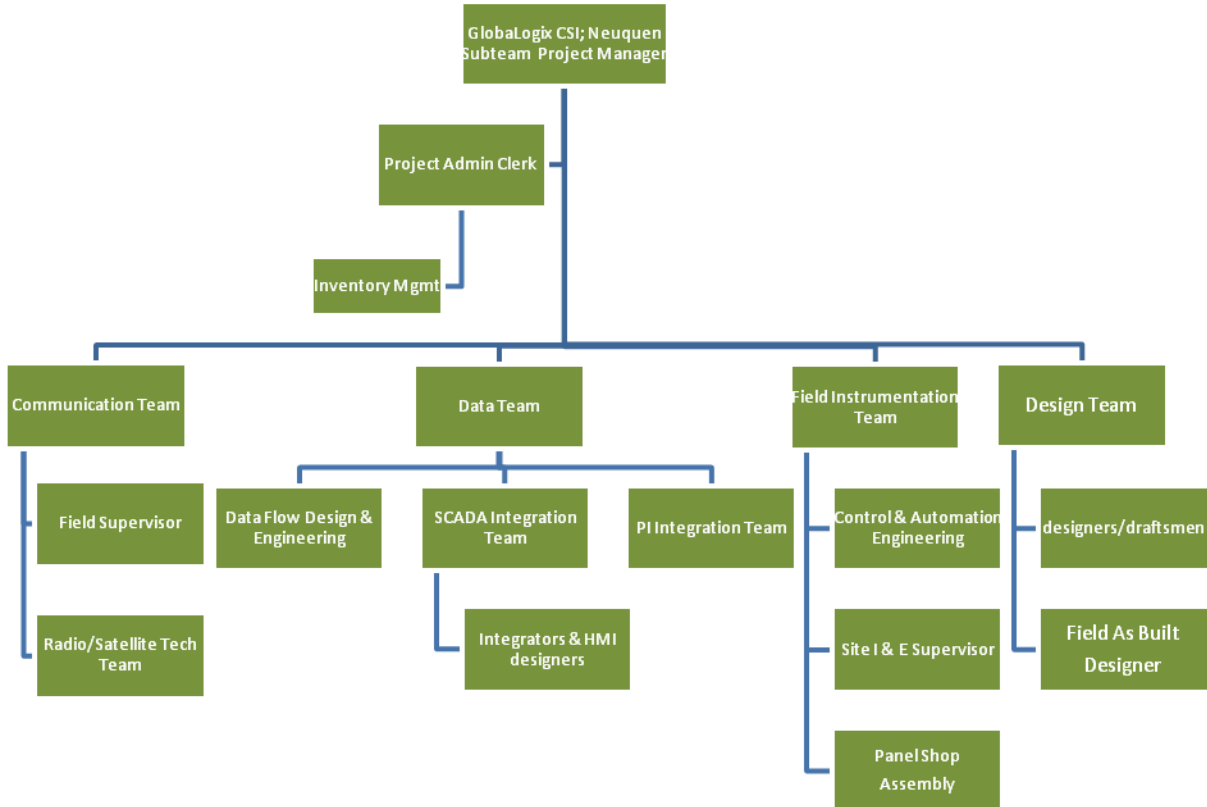
SCADA Integration – Selection and specification of the SCADA system based on client company standards and local operational requirements. Data management integration will define the data landscape and data flow from the wells to the distributed databases.

Field Instrumentation – The design and equipment selection and installation of current technology RTU/PLC equipment, and the interface with end devices. Control and instrumentation engineering will define the standards for transmitters and sensors for on-going operations based on client preferences.

GlobaLogix has been involved in a number of successful large scale SCADA projects for a diverse range of clients, including mid-sized independents, mid-stream gathering companies, regulated pipelines, majors and international producers. The following diagram illustrates our Project Execution Plan.

GlobaLogix' Scope of Work & Project Management Roles

GlobaLogix provides a full-time, consistent and dedicated Project Management Team to support your Project Team. The following diagram represents our team structure.



Communications

SCADA Team

Field Instrumentation

The size of this team structure would depend on the size of the field and the scope of the SCADA system.

Scope of Work – Project Task Category List

We assign the below task categories to each project:

1. Project Management
 - a. Project Administration
 - i. Maintenance of MS Project
 - ii. Job Tickets and Man Hour reporting
 - b. Inventory Management on field instruments and communication hardware
 - i. Purchase Order Creation from BOM
 - ii. Material Order Tracking/Expediting
 - iii. Material Receiving & Check in
 1. Vendor Invoice approval
 - c. Documentation Status Tracking
 - i. Approval Document Tracking
 - ii. Scheduling of Training Material
 - d. Purchasing Support
 - i. Material Specification & Definition
 - ii. Vendor Interface for Project
 - e. Project Expenses Tracking & Reporting
2. Communications Infrastructure –Land-line, Wireless (Ethernet & Serial) and Satellite
 - a. Project Management
 - b. Application and Specification of Equipment
 - c. System Engineering & Design
 - d. Satellite Specification
 - e. Path Studies
 - f. Tower Engineering & Design
 - g. Vendor Interface
 - h. Purchasing
 - i. FAT
 - i. FAT Design
 - ii. FAT Execution
 - j. Installation Supervision
 - k. Commissioning
 - l. Documentation
 - i. Drawings
 - ii. Bill of Materials
 - iii. Equipment Configuration
 - iv. Training

3. Data Systems

- a. Project Management
- b. SCADA Vendor Interface
 - i. SCADA package definition
 - ii. Driver definition
 - iii. Database
 - iv. Purchase order coordination
- c. Software Programming Management
- d. Design Network Server Infrastructure
 - i. Hardware specification
 - ii. Hardware purchasing coordination
 - iii. Tag Management
 - iv. Operation Interface
 - v. Driver Definitions
 - vi. Documentation (for approval)
- e. Server Configuration
 - i. Primary Location
 - ii. Disaster Recovery (DR) Location
- f. SCADA Configuration
 - i. Develop SCADA Tag information
 - ii. Develop HMIs
 - iii. Develop Web SCADA
- g. PI Configuration
 - i. Import Tag Implementation
 - ii. Develop ProcessBook HMIs
- h. Implementation
 - i. Primary Location
 - 1. Install Servers
 - 2. Install Thin Client
 - 3. Install PI ProcessBook Clients
 - ii. DR Location
 - 1. Install Racks/Servers
 - 2. Install Thin Clients
 - 3. Install PI Clients
- i. Testing/Cut Over – Migration
 - i. Primary Location
 - 1. Test Server Configuration
 - 2. Test Server Operation/Fail Over
 - 3. Test Communications with End Devices
 - 4. Test SCADA HMIs
 - 5. Test ProcessBook HMIs
 - 6. Test Web Interfaces
 - 7. Test Alarming/Call out
 - ii. DR Location
 - 1. Test Server Configuration
 - 2. Test Server Operation/Fail Over
 - 3. Test Communications with End Devices
 - 4. Test SCADA HMIs

- 5. Test ProcessBook HMIs
- 6. Test Web Interfaces
- 7. Test Alarming/Call out
- j. Training
 - i. SCADA system management
 - ii. Thin Client Software
 - iii. PI Server Management
 - iv. ProcessBook Client Software
 - v. Web HMI
 - vi. Overall Administration
- 4. Field Instrumentation – RTU/PLC
 - a. Project Management
 - i. Oversight and supervision of craft labor crews
 - 1. Civil contractors
 - 2. Electrical contractors
 - b. Design and Engineering
 - i. Electrical Schematics
 - 1. Engineering & Design
 - 2. I/O definition
 - ii. Panel Engineering & Design
 - 1. PLC panel design
 - iii. Panel fabrication and assembly
 - c. RTU/PLC programming
 - i. Application Configuration & Programming in Native Language
 - ii. Testing
 - d. Power
 - i. Engineering and Design for local power equipment
 - 1. Solar
 - 2. Battery
 - 3. AC
 - e. Purchasing
 - i. Hardware Definition & Specification
 - ii. Vendor Interface
 - iii. Purchase Order writing & coordination
 - f. Factory Acceptance Testing (FAT)
 - i. FAT at Panel shop
 - g. Site Installation
 - i. Cable or Wireless Installation
 - ii. EFM installation
 - iii. End Devices & Sensor installation
 - iv. RTU/PLC panel installation
 - v. Power installation
 - h. Commissioning
 - i. Training
 - j. Documentation
 - i. As Built

Engineering & Design Documentation

Globalogix will typically provide the following design package marked “for approval”:

- Typical examples of proposed P & IDs
- Typical examples of proposed Plot Plans (or redlined existing Plot Plans if available).
- I/O List – MS Excel Format
- Electrical Schematic – AutoCad Format
- Panel Drawing (RTU/PLC Panel) - AutoCad Format
- Control & Communication Structure Drawing - AutoCad Format
- Bill of Materials – Communications - MS Excel Format
- Bill of Materials – Field Instrumentation - MS Excel Format
- FAT Document Package
 - Procedure Description – MS Word
 - Sign off check list - MS Excel Format

Globalogix will provide the following design package marked “for construction” for each location:

- Redlined current “as Built” P & ID
- Redlined Plot Plan Drawing
- I/O List – MS Excel Format
- Electrical Schematic – AutoCad Format
- Panel Drawing (PLC/RTU Panel) - AutoCad Format
- Control & Communication Structure Drawing - AutoCad Format
- Bill of Materials – Communications - MS Excel Format
- Bill of Materials – Field Instrumentation - MS Excel Format
- FAT Document Package
 - Procedure Description – MS Word
 - Sign off check list - MS Excel Format

Globalogix will provide the following design “As Built” package for each location:

- Redline “as Built” P & ID
- Redline Plot Plan Drawing
- Final I/O List – MS Excel Format
- “As Built” Electrical Schematic – AutoCad Format
- “As Built” Panel Drawing (PLC/RTU Panel) - AutoCad Format
- “As Built” Control & Communication Structure Drawing - AutoCad Format
- “As Built” Bill of Materials – Communications - MS Excel Format
- “As Built” Bill of Materials – Field Instrumentation - MS Excel Format
- Training Manual & Process – MS Word
 - Maintenance Support Documentation on all Hardware

Training Material

The documentation we provide following the completion of a SCADA system implementation includes a “users’ handbook”. The handbook facilitates successful on-going administration of the system and instructs the system operators and the casual user (i.e.: managers) to how to navigate the system, address alarms and add new components.

Our training material package for the communication equipment includes:

- User Instructions
- Configuration programming instructions
- Path Studies for network

Our complete training material package for RTUs and PLCs includes:

- User Instructions
- Commented Code
- Normal Maintenance Guidance
- EFM Test Configuration & Calibration Instructions

Our training package for the SCADA system includes:

- User Instructions
- *System Navigation* Map (a quick glance guide to getting around the system)
- Development Documentation
- Maintenance Guidance

GlobaLogix is a Houston-based oilfield services company that helps oil and gas companies achieve greater efficiency, productivity and accuracy in their oilfield operations by providing access not just to data, but to the right information at the right time.

For more information, visit www.globlx.com.