

Power SCADA Expert & Power Monitoring Expert

Verification & Validation Process Overview

March 2017

Life Is On

Schneider
Electric

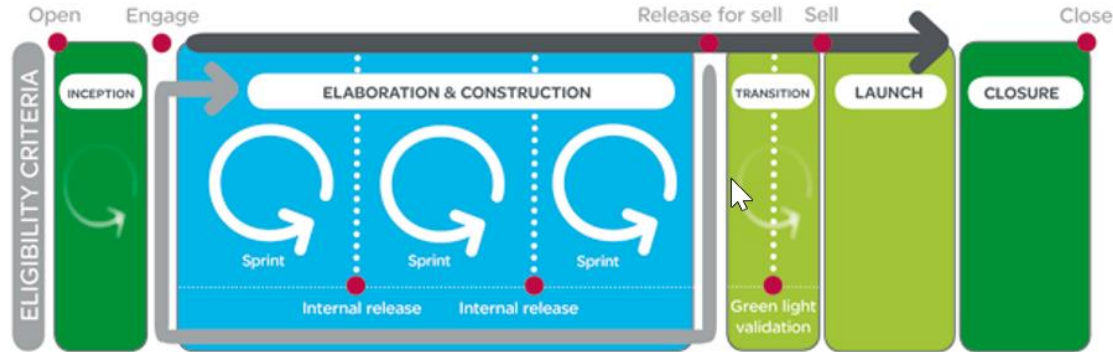
Schneider Electric Investment in Innovation

In 2016, Schneider Electric reinvested 5% of its €24.7 Billion top line revenue back into R&D.

Schneider Electric is serious about innovation and quality!

Software & System Quality Assurance Process

Schneider Electric has implemented a standard Agile framework for software development.



This Agile methodology incorporates verification activities into each sprint and internal release, and requires a formal system verification and validation during the Transition phase prior to each external release.

This key business process is included in the Schneider Electric quality management system, which is certified to ISO 9001:2015. This process receives regular internal and external audits to ensure compliance to the process and standard. PowerSCADA Expert and Power Monitoring Expert are developed using this Agile framework.

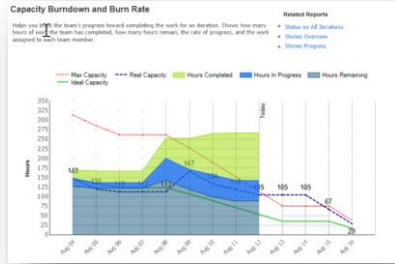
PowerSCADA Expert and Power Monitoring Expert are also developed in accordance with the Schneider Secure Development Lifecycle (see SDL document), to ensure a more secure offer.

System Test Plan

- ⊕ **1 DOCUMENT REVISION HISTORY**
- ⊕ **2 INTRODUCTION**
 - ⊕ **2.1 Subject and scope of the document**
 - ⊕ **2.2 The Stakeholders**
 - ⊕ **2.3 Reference Information**
 - ⊕ **2.4 Glossary**
- ⊕ **3 VERIFICATION & VALIDATION STRATEGY PERIMETER**
 - ⊕ **3.1 Definition**
 - ⊕ **3.2 New Components**
 - ⊕ **3.3 High Level Test Activity on New Components**
 - ⊕ **3.4 SCADA Platform Core**
- ⊕ **4 TEST ACTIVITIES ORGANIZATION**
 - ⊕ **4.1 Integration**
 - ⊕ **4.2 Verification: You build it right**
 - ⊖
 - ⊕ **4.3 Validation: You build the right thing**
 - ⊕ **4.3.1 PRODUCT VALIDATION**
 - ⊕ **4.3.2 SYSTEM TESTS**
 - ⊕ **4.3.3 FIELD TESTS**
 - ⊕ **4.3.4 INTEROPERABILITY**
 - ⊕ **4.4 Responsibilities For Integration, Verification and Validation Activities**
 - ⊕ **4.5 Identifying Verification and Validation Activities**
 - ⊕ **4.5.1 User Stories**
 - ⊕ **4.6 Test Means**
- ⊕ **5 DEFECT MANAGEMENT**
- ⊕ **6 DATA MANAGEMENT**
 - ⊕ **6.1 Tool Management**
 - ⊕ **6.2 Test Document Management**
 - ⊕ **6.3 Data Management**
- ⊕ **7 ASSUMPTIONS, CONSTRAINTS AND DEPENDENCIES**
 - ⊕ **7.1 Assumption**
 - ⊕ **7.2 Constraints**
 - ⊕ **7.3 Dependencies**
- ⊕ **8 RISKS AND MITIGATION**
- ⊕ **9 APPENDIX**



PowerSCADA Project Planning & Tracking



Risk Register Update

Item ID	Item Name	Category	Priority	Owner	Start Date	End Date	Status	Notes
1	PowerSCADA System Integration	Technical	High	John Doe	2023-05-01	2023-05-15	In Progress	Integration of SCADA system with existing infrastructure. Critical path item.
2	Hardware Procurement	Logistics	Medium	Jane Smith	2023-05-05	2023-05-20	Completed	All hardware components have been successfully procured and delivered.
3	Network Configuration	Technical	Medium	Mike Johnson	2023-05-10	2023-05-25	Planned	Configuration of network devices to support SCADA traffic.
4	Security Audit	Compliance	High	Sarah Lee	2023-05-15	2023-06-01	Planned	External security audit to ensure system compliance with industry standards.
5	Documentation Update	Administrative	Low	David Kim	2023-05-20	2023-06-05	Planned	Update project documentation to reflect current status and changes.

Customer Journey



Pain-Point Map

200+ Pain Points Captured Across 12 Stages

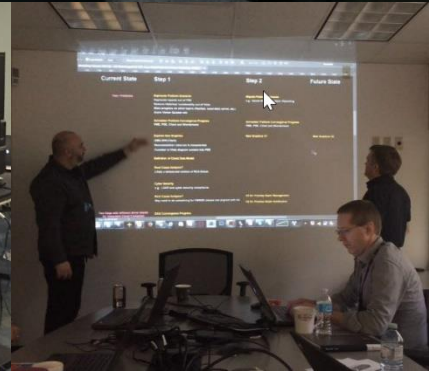


Worst Offenders

Top Pain Points Identified for each stage of install and commission

Top Sections Identified

Section	Count
Hardware	15
Software	12
Integration	10
Configuration	8
Documentation	5
Support	3
Training	2
Compliance	1
Security	1
Network	1
Other	1



Verification/Validation Test Systems

Over 700 devices

160 Different Device

- Acti9
- Compact NSX
- Sepam
- Masterpact
- CM100/200
- CM2000
- CM3000/4000
- PM600/PM700/PM800
- PM5000/PM8000
- PM1200
- EGW/EGX
- COMX
- ProTime
- Entercept
- BCPM
- E5600
- ION7650
- ION8650
- ION7350
- ION6200
- IEM3250
- MotorPact
- QED6
- PZ4
- PowerLink
- MiCOM
- VAMP
- Vigilohm
- Quantum
- Schweitzer
- GE



Large System Test Simulator

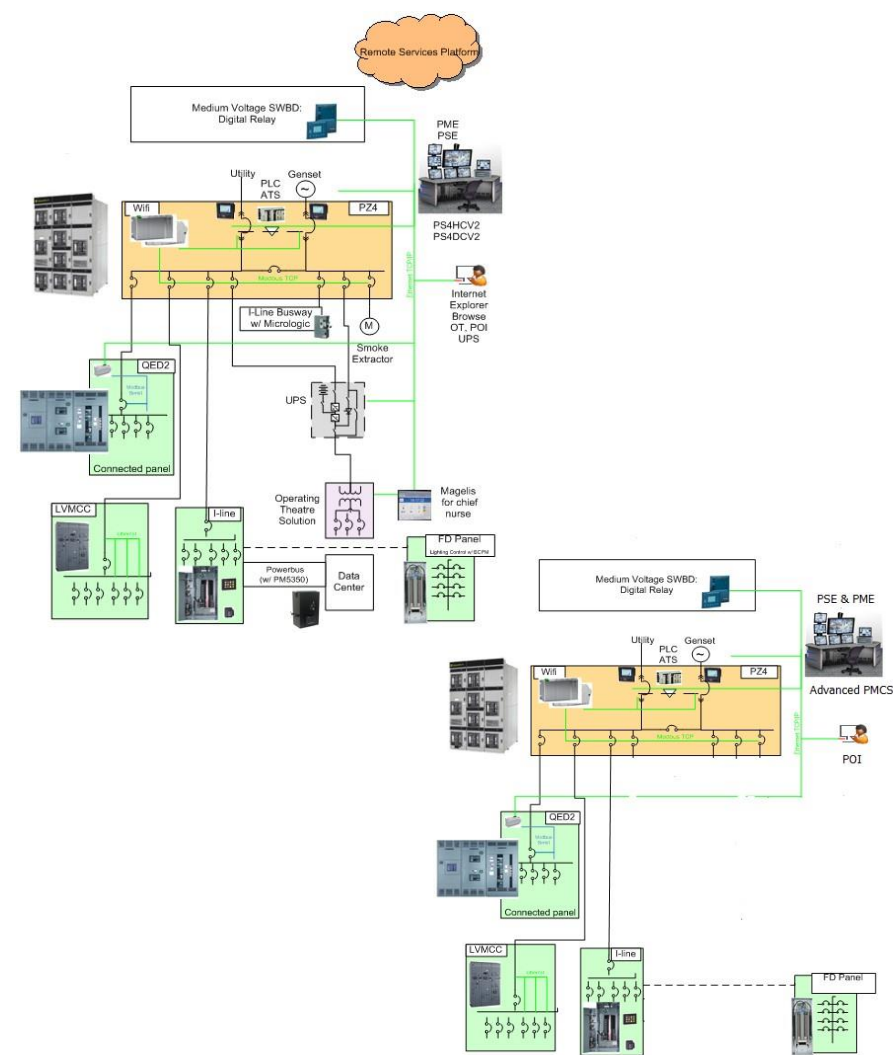
- System testing performed against existing customer projects
- Test with simulated systems of over **1 million tags**
- Used for stress and performance testing



Validation Systems Architectures

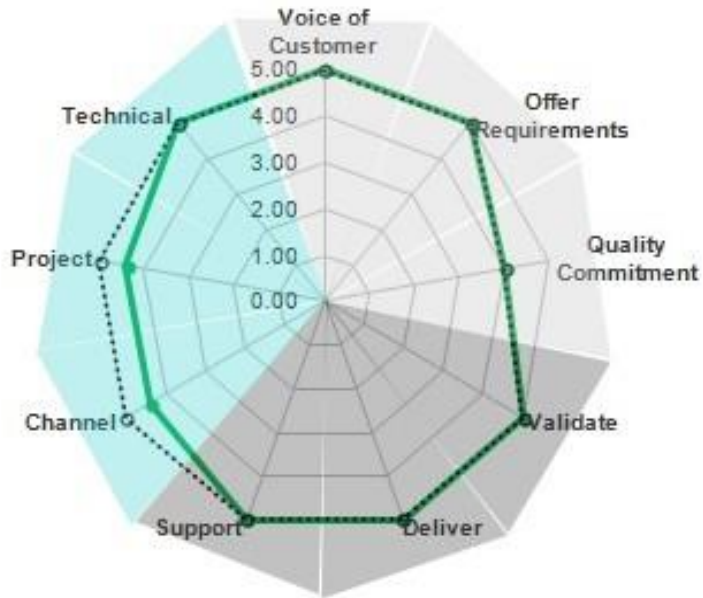
Advanced Power Monitoring and Control Validation systems including

- Data Center Architectures
- Healthcare Architectures
- Substation and Microgrid Architectures



Project Quality Assessment Example

- All internal training, sales, support and services at country and regional level will be trained by March 30
- CTQs requirement are 100% met
- All verification and validation tests are completed
- Launch preparation completed
- Final Safety and Security reviews are completed



Over 300+ customers visit our test labs annually.

Their feedback drives our product development

