Alarm system project audit

Ensuring delivery of operationally effective alarm systems.

How likely is it that the performance of your new alarm system will meet:
- Project requirements?
- End user / owner needs?
- Regulatory expectations?

What measures have you taken to assure that your project delivers an effective alarm system?

Today's automation systems represent the nerve centre of any facility and any system upgrade or new project will contain appropriate review and contingency measures to reduce the impact of installation and commissioning on continued and future operations.

Very few project risk reviews, however, include adequate measures to evaluate and confirm operational alarm system performance. 'Manageable' alarm system performance is therefore more often than not a project aspiration, rather than an assured deliverable.

Recently issued updated guidance (Edition 3 of EEMUA 191) and the upcoming release of the IEC standard (IEC 62682) for alarm management will only increase the spotlight on the role of alarm systems as a key Layer of Protection (LOP) and the need for automation projects to deliver more operationally effective alarm systems.

21st century automation system technology frequently delivers centralised control and operations, improved equipment reliability and significant maintenance savings. However, all too frequently these benefits fail to be translated into increased uptime and improvement in OEE (Overall Equipment Effectiveness) due to ineffective alarm system performance. In fact, many owner / operators report higher average and peak alarm rates on the new system compared with previous system performance.

In line with the principles of the alarm management lifecycle (EEMUA 191 and ISA 18.2) the early stages of most automation projects now include the generation of an alarm philosophy documenting the planned strategy to manage alarms and deliver a 'compliant' system.

However, these good practice principles frequently fail to be applied as the project progresses and is challenged to

- Translate project objectives to specific design, review and documentation requirements
- Communicate detailed alarm requirements to all impacted parties (EPC / system integrator / ICSS supplier / package vendor, etc.)
- Integration of alarm lifecycle activities into overall project scope and schedule
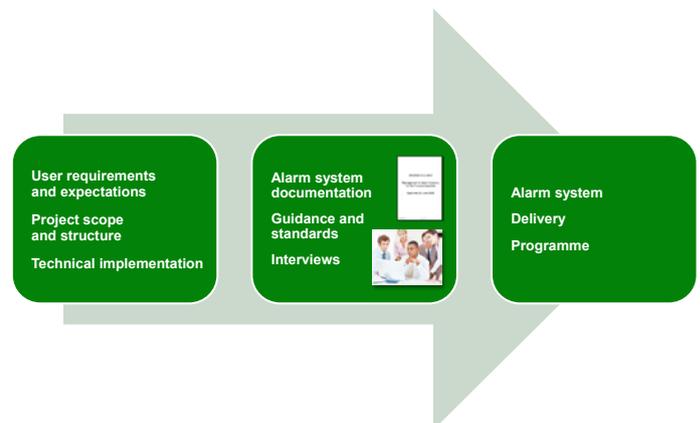
Client representatives may therefore be faced with a choice between costly rework and delays for last minute system configuration changes or the prospect of accepting an ineffective alarm system which will require significant remediation at a later date.

What we offer
ABB's project audit for alarm system effectiveness can be conducted at any stage of an automation project, and is based on the following roadmap:

Assuring Project Delivery

Audit	Risk Asses and Prioritise	Alarm System Project Plan

As outlined it contains the following components:

User requirements and expectations	Alarm system documentation	Alarm system
Project scope and structure	Guidance and standards	Delivery
Technical implementation	Interviews	Programme

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The audit is focused on confirming alarm system requirements and expectations and how these are being delivered within the current project. It is structured as a series of documentation reviews coupled with interviews of key project personnel.

It consists of three main components:

1. **Alarm system requirements and expectations**
   Key interview targets for this step are client representatives in order to confirm what KPI or performance standard targets the project needs to satisfy to deliver an effective alarm system

2. **Automation project scope and structure**
   Key interview targets for this step are the automation project manager and lead resources to confirm how the alarm management lifecycle is being integrated into the project schedule and identify what, if any constraints or issues may result.

3. **Technical implementation**
   This step cross checks the detail of proposed implementation against previously identified alarm system requirements, assumptions and expectations. Key review topics would include:

   – Alarm configuration 'default' values (e.g. application of ABB's REUSE Library)
   – Strategy for package unit alarms
   – "Rules" for system alarms
   – Application of alarm suppression (e.g. Auto Shelve, Alarm Hiding, etc.)

Project audit deliverables:
– Enhanced alarm philosophy / alarm system requirements specification
– Updated project schedule
– Terms of reference / strategy for alarm rationalisation reviews

Benefits

ABB's alarm system effectiveness project audit has been proven as a pragmatic, cost effective approach to identify and address potential operational alarm management issues.

It is particularly effective because:

– It is short (no more than five days typically with the project team)
– It focuses on the operational issues, not the technology.
– It 'translates' the objectives of the agreed alarm philosophy into concrete project deliverables and activities e.g. Alarm rationalisation plan

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In quickly providing the project team with an overview of the anticipated system performance and potential alarm management issues, the Project Audit facilitates timely action to increase assurance of on-time and within budget delivery of a 'compliant' alarm system and associated process safety, profitability and human factors benefits.

Alarm System Performance Graph
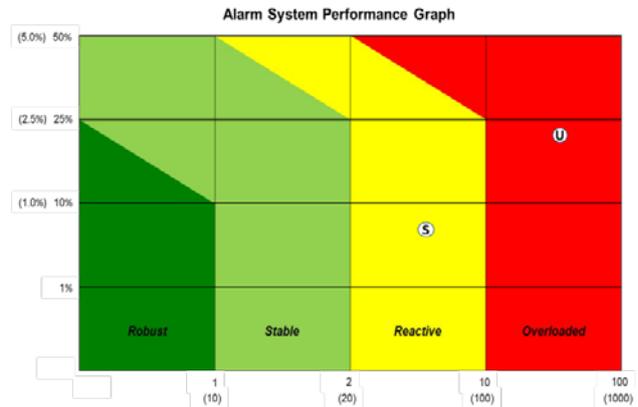
Why use ABB?

ABB Consulting has unrivalled experience gained from over 30 years with one of the World-class manufacturing organizations of our time. This includes delivering focused alarm management improvement programmes for manufacturing clients in both batch and continuous processes. We also have access to the wealth of experience available in ABB Worldwide, meaning we are capable of delivering a complete service, leaving you free for other priorities. Please contact us for information on the other components in ABB's portfolio of alarm management services.

Effective Alarm Management from ABB:
Turning alarm management into profit

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