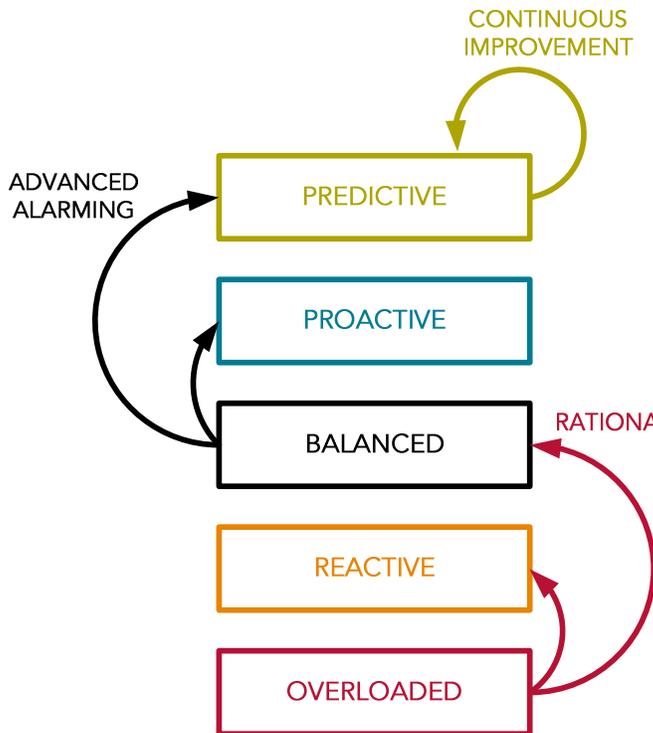


XPS Process Control Group has been championing optimum use of alarm-systems for several years, *for a better Control room environment*. Recently, we led an Alarm Rationalisation and Improvement project at one of the Glencore Canada plants. Our objective was to improve the alarm-system efficiency by prioritising alarm traffic to the Central Control Room (CCR) and removing irrelevant alarms. The reduction in alarms, through this rationalisation process, gave the CCR Operator the time to better operate the plant. When an alarm is annunciated from the rationalised alarm-system, the operator knows that an action is required and immediately understands its urgency and priority.



- **PREDICTIVE:** Stable at all times. Helps operator to prevent upsets.
- **PROACTIVE:** Alarm system is reliable during upsets. Operator has high confidence in the alarm system, allowing Proactive process operation.
- **BALANCED:** Well performing in normal condition. Alarms are prioritized but alarm rates are still high during upsets.
- **REACTIVE:** Operators experience very high alarm rates during upsets. Provides manageable alarm rates in normal condition, but operation still considered reactive.
- **OVERLOADED:** Difficult to use even in normal condition. Ignored during upsets.

Our project work aims to establish a competent alarm-system 'life-cycle' - as described by the EEMUA 191 guideline and the ANSI/ISA 18.2 standard (published in 2009), which states that alarm performance efficiency is critical for safe plant operation. The figure above shows the different levels of alarm-system performance and the improvement techniques.

An initial alarm-system survey usually identifies that the plant alarm-system has a high number of nuisance alarms and would be classified as 'overloaded' in terms of the EEMUA benchmark. An overloaded alarm-system is difficult to use even in normal operating conditions.

In an initial assessment, we identify a number of root causes for the high alarm-rates.

We propose a phased improvement plan which includes creating an alarm philosophy, deployment of documentation & rationalisation tools (facilitated by Honeywell applications) and a process of implementing the changes. Experienced representatives from the Operations, Maintenance and Engineering groups assist in making these key decisions.

As a result, we would expect to identify **25% of the configured alarms** which can be removed from a typical mineral processing plant control system. This, along with the reprioritised audible alarms, will often result in **halving the number of audible alarms to the CCR**. In some cases, we would establish a 'Master Alarm Database' containing the Alarm Philosophy and information on all configured alarms.