# Oxygen's maturity model for improved asset management processes

## A best practices approach to plant maintenance can help asset intensive enterprises better cope with changing market conditions and an ageing workforce.

**It's said maturity is one of the few advantages of growing old. Smart organisations recognise this fact and work hard to retain the services of experienced staff.**

But time waits for no-one and an increasingly ageing workforce is forcing asset-intensive companies to revisit the way they use their asset management systems in an attempt to help retain institutional knowledge. With the decline in the number of experienced personnel on the ground, organisations are looking at how they can refit their SAP solutions to fill the void, and in doing so, move them further along the maturity path.

Another factor contributing to this trend is the shortage of labour. Organisations running complex plant need to provide more explicit work instructions in order to maintain the reliability of their operations, either because they are facing a dearth of experienced tenured workers or because they are asking an already extended workforce to undertake jobs that they are unfamiliar with.

Maintaining a power station generator is much easier for the engineer who has been doing it for 20 years – he knows its typical failure points. But now, more often than not, that resource has retired and the job is falling to someone who is unfamiliar with the equipment. The extended downtime incurred when a resource unfamiliar with the problem takes over this work is disruptive and costly for any industrial organisation.

Where in the past asset management systems were used for purely transactional issues – recording costs, reporting on duties done – infrastructure-rich companies are now demanding they become more proactive. When faced with the situation above, they want their systems to come to the rescue by providing all the knowledge necessary to undertake the job – when it should be done, how to go about it, and what skills and parts are needed to successfully carry it out.

These demands are changing the way people think about asset management systems. While basic functionality such as work order management is still important, companies are striving to reach the next step and looking at how their systems can be made to capture corporate knowledge. Adding fuel to the fire is the increasing dependence on a contractor workforce. Capturing a key technician's knowledge in the asset management system, before that person walks out the door to his next contract, is a good risk mitigation strategy.

The reliance on a contracting workforce also creates extra functional demands. Increasingly, asset management solutions need to integrate with a range of other line of business systems. As well as managing maintenance routines, they must
now also provide contractor management functionality and be able to talk intelligently to systems that control the purchase of labour.


**Figure 1: Oxygen's Best Practices for asset management reference design**

### Best Practices with Oxygen

In an effort to keep abreast of these industry trends Oxygen has developed a Best Practices approach that enables customers to 'run the rule' over their asset management system capability.

Based on SAP process expertise and more than 55 years of cumulative SAP implementation experience, the Oxygen Best Practices solution is a comprehensive plant maintenance template that customers can use to benchmark against their existing system and customise to suit their own unique processes.

| Maturity | Benefit | KPI's | Functions |
|---|---|---|---|
| 1. Break fix methodology<br>2. Machines serviced based on elapsed time<br>3. Machines serviced based on actual usage<br>4. Machines serviced based on conditions such as vibration, wear etc.<br>5. Automated interfaces from machine health systems generating jobs | • Increased reliability<br>• Reduced cost through less collateral damage<br>• Reduced cost through planned rather than breakdown jobs | • Machine utilisation<br>• MTBF | • Maintenance plans<br>• Measuring points |

**Figure 2: Oxygen's maturity matrix for preventative maintenance – periodic jobs**

The Best Practices approach helps drive asset intensive organisations toward standardising key processes. Efficient, repeatable day-to-day procedures are crucial for the smooth operation of asset intensive enterprises, particularly those operating multiple sites and multiple engineering teams.

But the real benefits of a Best Practices approach is the cost efficiencies achieved from planned rather than unplanned maintenance routines. Typically, a planned job can be anywhere between three and seven times cheaper – and significantly faster – to achieve than an unplanned job.

How the organisation goes about scheduling and undertaking its preventative maintenance routines will depend upon the needs and sophistication of the organisation involved. Determining exactly where a manufacturer sits, for example, on a preventative maintenance scale that has break / fix at one end and condition-based maintenance routines at the other will be determined by a number of internal and external factors. The Oxygen Best Practices template allows an organisation to assess their current state and if necessary move towards a more suitable level of maturity – one that ensures jobs are done according to a maintenance strategy, rather than in a costly and reactive manner.

## Cost v reliability

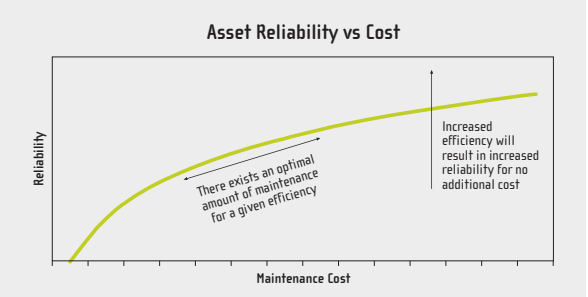


**Figure 3: Maintenance theory: the key criteria is cost versus reliability**

Addressing the maintenance issue is fundamental to the Best Practices approach. Maintenance is all about managing a sliding scale that balances reliability against the cost to attain it, and organisations must decide where they want to sit on that scale and then institute the correct planning and maintenance practices to achieve the right level of comfort. Each move along the maturity scale brings new benefits, but also added dependencies which businesses must factor in when assessing their maintenance spend. Not all organisations want, or need, to have the most mature practices available, particularly when the cost and resource ramifications negate any perceived advantage.

Understanding exactly where the cut-off points are for each organisation is a consultative process and fundamental to ensuring the Best Practices template is fit accurately to the business. Most maintenance drivers revolve around reducing costs or increasing reliability but the answer does not always involve adding new functionality. Better human processes can, for instance, improve parts availability or remedy recurring scheduling issues. The Oxygen approach examines these issues and benchmarks both human and IT processes against ideal scenarios, bringing to light time and efficiency improvements.

## Building the knowledge bank

From a maintenance perspective capturing corporate knowledge involves understanding what tasks need to be done, how to do them and the required resources. While most asset management systems can create job lists for the execution of periodic maintenance tasks, understanding the resources and planning issues that are involved in undertaking those jobs is key to improving time and cost efficiency of their execution.

The Oxygen Best Practices template includes functionality that allows organisations to record what parts, skills and procedures are involved in doing a particular piece of work. It provides the ability to record templated work orders, and attach documents, photographs and videos – packaging them all up into an information-rich work pack which can be readied in advance of the job being commenced.

The solution also includes scheduling functionality to further negate downtime. Giving a storeman advanced warning of a maintenance task, allows him to pick and pack all the parts necessary to do the work and have them ready for the maintenance person to collect on the day of the job. At complex sites, an electronic planning board can be deployed to ensure both human and mechanical resources are available on the required day. This type of pre-planning and the ability to accurately detail all the processes of how a maintenance task is undertaken can be crucial to extracting the best performance from an inexperienced workforce.

## Optimise to match the market

A sign of maturity is the ability to cope with change. In order to maintain competitive edge asset intensive enterprises must meet the demands of the market – moving with it as commodity cycles and buying patterns change. To negotiate these changes successfully many organisations are endeavouring to build flexibility into their asset management systems. Optimising a plant for maximum throughput when demand is high, and being able to retune its maintenance and reliability processes to accommodate a period of over capacity can potentially have significant cost benefits.

Such flexibility can be addressed using Oxygen's Best Practices approach which can provide organisations with a range of scenarios that can model the implications of a maintenance schedule tuned to minimise parts and labour costs or maximise manufacturing reliability.

The business case for the functional and business process improvements outlined above is worth investigating. Implementing new functionality to achieve what are sometimes only subtle changes to the system can bring about significant monetary benefits. Even small percentage point improvements in reliability can result in significant cost savings for large manufacturers. And from a quality management point of view, operating at near perfect settings more often, can improve the quality of the product and lift customer satisfaction. ■

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