

The question of maintenance engineering versus reliability engineering is placed under the spotlight

Increasing asset performance is a universal goal for today's process industries. In an ever-increasing cost-cutting environment, coupled with an increasing global energy demand, securing robust and effective asset maintenance systems and equipment reliability has never been so crucial. Pipes, Pumps & Valves Africa finds out more.

Before even thinking about what a good reliability improvement strategy looks like companies are best advised to define what reliability means to their business.

At John Crane Asset Management Solutions, it is the ability of equipment, machine, or system to consistently perform its intended or required function or mission, on demand and without degradation or failure, says managing director, John Morrison.

"To put it simply, to move away from reacting to failures to eliminating defects altogether by predicting it before it happens," he says.

It is the difference between maintenance engineering and reliability engineering. According to Morrison having

a clear understanding of what reliability means allows one to develop a bespoke strategy directly meeting the company needs.

It is about going further than just a planned maintenance approach where defects are repaired before they break. "If one is focused on efficient maintenance and repair then it means being on top of any failures and repairing it as soon as it breaks. A more proactive approach would say plan for the maintenance and repair it before it breaks," explained Morrison. "If one is focused on eliminating failures completely then it means one has to eliminate defects completely, in other words don't repair it at all but eliminate the root cause as one then has world class asset optimization."



Much value in getting it right

There is no denying the value of getting reliability right, says Morrison.

Key statistics from a recent white paper on asset management by the international research house Raconteur highlighted that at least 40 to 50% of all operational budgets are spent on maintenance management. "Getting the maintenance correct can have a huge impact on the overall cost," says Morrison. "On average, an unplanned maintenance activity takes eight times longer than a planned maintenance activity using a Computerised Maintenance Management System (CMMS) functionality and data set, resulting in significant time saving for the customer."

Some 80% of maintenance time is spent reacting to issues rather than proactively preventing them, while some 44% of unscheduled downtime in plants and factories is as a result, of aging equipment.

With approximately eight times reduction in the cost of maintenance that can be achieved by implementing a preventative maintenance strategy, the value and benefits far outweigh not investing in it.

Be careful of the iceberg

Jason Gondrun, Business Development Manager, says the iceberg analogy is most applicable to equipment reliability. "If a process facility is thinking of direct spend on rotating equipment only, it is an immediate flag. Something as simple as a water leak in warm climates can produce algae. This can be a serious slipping hazard, disguised as a minor housekeeping issue."

Looking further into the depth of the iceberg, he said there were similar examples that spoke to stock holding, labour and production loss.

According to Gondrun, it is ultimately about the total cost of ownership. Companies wanting to bring about change, he says, need to focus on three aspects.

Resources, focus and ability

To ensure one implements an effective performance programme the appropriate resources, focus and ability is required. More so, these elements need to work together to achieve the goal.

Victoria Williamson, John Crane Contracts Support Manager, says to deliver this mandate all departments within a business must work together. "One should prevent solidifying the silo effect between departments and causing tension. For example, if operators are tasked with reducing downtime and choose to run more equipment to failure, it requires the maintenance department to spend more to repair."

She says the differentiating factor is data. "It is about ensuring that

all departments within a business value data as a culture. More importantly, data has to be turned into information that is complete and accurate will drive actions."

This means ensuring all assets are known and considered, that all the requirements are considered leaving one with the ability to assign the correct maintenance strategy.

Poor data, she says, ultimately leads to poor decision-making.

"Data affects the accuracy of one's maintenance routines which affects reliability performance which affects the total cost of ownership," says Williamson.

Data, she says, also has to be dynamic rather than static ultimately allowing one to implement the correct preventative strategy.

Ultimately, says Morrison, it is about having the right resources in place. This includes the right site and competent workforce, not only to execute the maintenance allocated, but also to learn what the failure data was telling them and to ensure the continuous improvement was being implemented.

But where does one start? "To understand the improvement potential, one has to first analyse and assess the current performance. This will require doing a feasibility study or a gap analysis. This will indicate the current reliability performance, the total cost of ownership, and the current data gap. Comparing these three elements will give an understanding of the improvement potential," says Williamson. "It will also indicate what ability is required to implement a preventative strategy."

According to Morrison, a successful improvement strategy therefore requires having the time, people, and data platforms in place. "The data must be acknowledged, recorded and valued by everyone who also need to have the knowledge and skills as well as necessary experience to ultimately deliver the solution."

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