Managing maintenance

Computerised maintenance management systems (CMMS) are helping enlightened plant managers to breathe new life into their operations, as Brian Wall reports

In recent years, maintenance strategies have undergone something of an evolution, with smart plant managers considering equipment as assets, and using innovative approaches to maximise efficiency and minimise cost. Essentially, it's about improving maintenance planning and scheduling, spare parts alignment, and supply and logistics.

Which brings us to CMMS (computerised maintenance management systems) – increasingly seeing usage not just by maintenance managers on plants, but also by fleet, facilities and service managers in a wide range of industrial situations. Why? Because CMMSs can facilitate planned maintenance (PM), predictive maintenance (PdM) and corrective maintenance (CM) for anything.

Most importantly, they ensure that tasks are prioritised, scheduled and completed efficiently, and with minimal disruption. They can also make running costs and work order histories instantly available. And a properly configured CMMS can also ensure that health and safety standards and procedures are followed at all times, so reducing accident risks.

"CMMSs play a pivotal role in any asset management strategy, helping to create an integrated system that enables maintenance managers to better control all aspects of a department," states Phil Burge, communication manager at SKF. "Once the initial process of work identification has been carried out, work requests can be submitted to the CMMS and efficiently combined with other maintenance activities."

That helps plants realise significant improvements in their maintenance operations. For example, Burge points to Allied Mills, which turned its perception of maintenance on its head, he says, thanks to 'asset efficiency optimisation' work undertaken by SKF.

Total reversal

"The implementation of SKF's maintenance programme has meant that the ratio of unplanned versus planned maintenance at the plant has been completely reversed," states Burge. "Planned work now accounts for 90% of the total, while significant reductions have also been made in Allied Mills' stores value and stockholding costs."

In fact, Allied Mills' CMMS has been transformed into a manufacturing tool, which has enhanced the company's overall efficiency. "In essence, the new maintenance strategy, underpinned by the CMMS, has helped the organisation to work smarter, rather than harder, leading to increased productivity and, ultimately, profitability," explains Burge.

According to Ceri Birth, marketing manager at CMMS specialist Simplisys, there are a number of paybacks. She cites: reducing maintenance costs through improved asset management; spotting

Above: Allied Mills' ratio of unplanned versus planned maintenance has been completely reversed, thanks to a CMMS initiative involving SKF. Planned work now accounts for 90% of the total, while significant reductions have also been made in the plant's stores value and stockholding

Rapid payback with CMMS

The complexity and mounting number of assets within many plants is making maintenance management an increasingly time-consuming and difficult exercise. A CMMS will help to overcome such problems, but most believe there is a trade-off between cost and functionality.

It doesn't have to be that way, according to Steve Driver, director at IBM business partner SRO Solutions, citing IBM's Maximo, which is used by such giants as BP and Ford, but is also modular and designed to benefit much smaller organisations. "Many will think the IBM badge puts the solution out of their reach, but we have proven this is simply not the case," he says.

By way of example, Driver points to 160-employee Vital Energi, which builds and operates combined heat and power and district heating schemes. Its earlier spreadsheet-based maintenance processes made it difficult to handle engineers' workloads. "After implementing Maximo, they experienced a significant improvement in engineers' performance, due to the way they managed planned maintenance," explains Driver. "They also saw the incidence of [inefficient] break/fix jobs fall to just 5% of their total maintenance workload."

Driver also references DP World, which operates the container terminal at Southampton. "When they installed Maximo, they enjoyed a 10% increase in proactive maintenance, coupled with a 10% reduction in actual breakdowns, saving them significant time and money," asserts Driver. "The workflow-based management process that Maximo brings enables much tighter control of maintenance scheduling and costs."

equipment trends early, with online reports and dashboards; and moving from scheduled or preventive maintenance to needs-based predictive maintenance, with conditioning monitoring.

For Birth, it's also about dealing with the day-to-day difficulties of multiple work schedules, as well as the nuts and bolts of reducing failure rates, while improving reliability. And she observes that users report spending less time locating and managing spares, and more time improving plant uptime.

That said, there are still plants that choose to use manual systems. "Paper-based systems can help identify [maintenance] jobs. However, that is where it ends: there is no retained history. Once the job is completed, it is erased, over time, from memory. This lack of historical knowledge has knock-on financial implications, as there is no knowledge of the cost of maintenance on any asset. Staff productivity is also often reduced, with more time needed to search through files for information on previous faults. Then plant downtime increases, due to missing scheduled or planned maintenance dates."

So what does Simplisys offer to alleviate that situation? Birth points to its eMaint X3 CMMS system, which includes a set of tools designed to help plant engineers and managers "increase their financial return on assets, improve labour productivity, and reduce equipment downtime and inventory values". The system also offers the ability to manage work requests more efficiently, through its customisable work order tracking system.

Cambridge connection

One beneficiary of implementing this solution is the maintenance department of Trinity Hall, the fifth oldest surviving college of the University of Cambridge. Russell Waller, head of buildings and services, has more than 1,600 assets, of which 900 are locations within the campus, with a further 700, such as building management systems, boiler plant, electrical distribution boards and ventilation kit.

"Trinity Hall was previously using a basic helpdesk for logging maintenance requests," says Waller. "That had no ability to schedule planned maintenance tasks against assets or to record actions and financial history against each asset. Furthermore, it was not possible to configure the helpdesk software in line with the development of our own management systems," he states.

This situation was exacerbated when the authors of the incumbent system went into administration. After a review of available CMMS solutions, Waller chose eMaint X3 as the replacement. "eMaint's ease of customisation and ease of use; the fact that it contained the functionality; and its ability to support development made it the logical choice," he says.

There's a message here, and it is absolutely in line with maintenance engineers' experience. It isn't necessarily the most sophisticated systems that offer the best results: most important is simply choosing a system that meets the plant needs. PE