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Unlocking the potential...

Want a simple record-keeping tool? Get a spreadsheet. Want a key to increased productivity and profitability? Unchain your CMMS. This author lets you in on what's involved.

A computerized maintenance management system (CMMS) truly can be a manager's best friend. By enabling technicians to gather and store vital information in its database and giving maintenance managers valuable data to analyze, these systems can help managers make smarter decisions. The key, however, involves:

• Ensuring that everyone understands the importance of having meaningful data in the system.

• Knowing how to use the CMMS data effectively.

• Designing and implementing various codes into the system that allow a manager to access the data and make intelligent decisions (i.e., appropriate codes for problem, cause and remedies).

Data entry and analysis
The following outlines some examples of data to be entered in the system, type of analysis and expected results.

Estimated and actual time…
Estimated time should be entered on as many work orders as possible. Granted, it is hard to put estimated time on some emergency and breakdown repair work orders. All PM (preventive maintenance) and other planned work orders, however, can be assigned estimated times. If managed right, these should account for the majority of the work orders. Once a job is completed, actual time spent by each technician on the job should be entered into the system. It should refl ect overtime, double time, etc.

A CMMS can report the variance in estimated vs. actual time. Managers should closely analyze any variance and identify the root cause—either the estimates are inaccurate or someone is not following the instructions and therefore actual time is off. Another possibility is that technicians could just be entering inaccurate actual times. Based on the finding, data should be corrected. After a period of time, you will have a valuable database of time estimates. How is this beneficial?

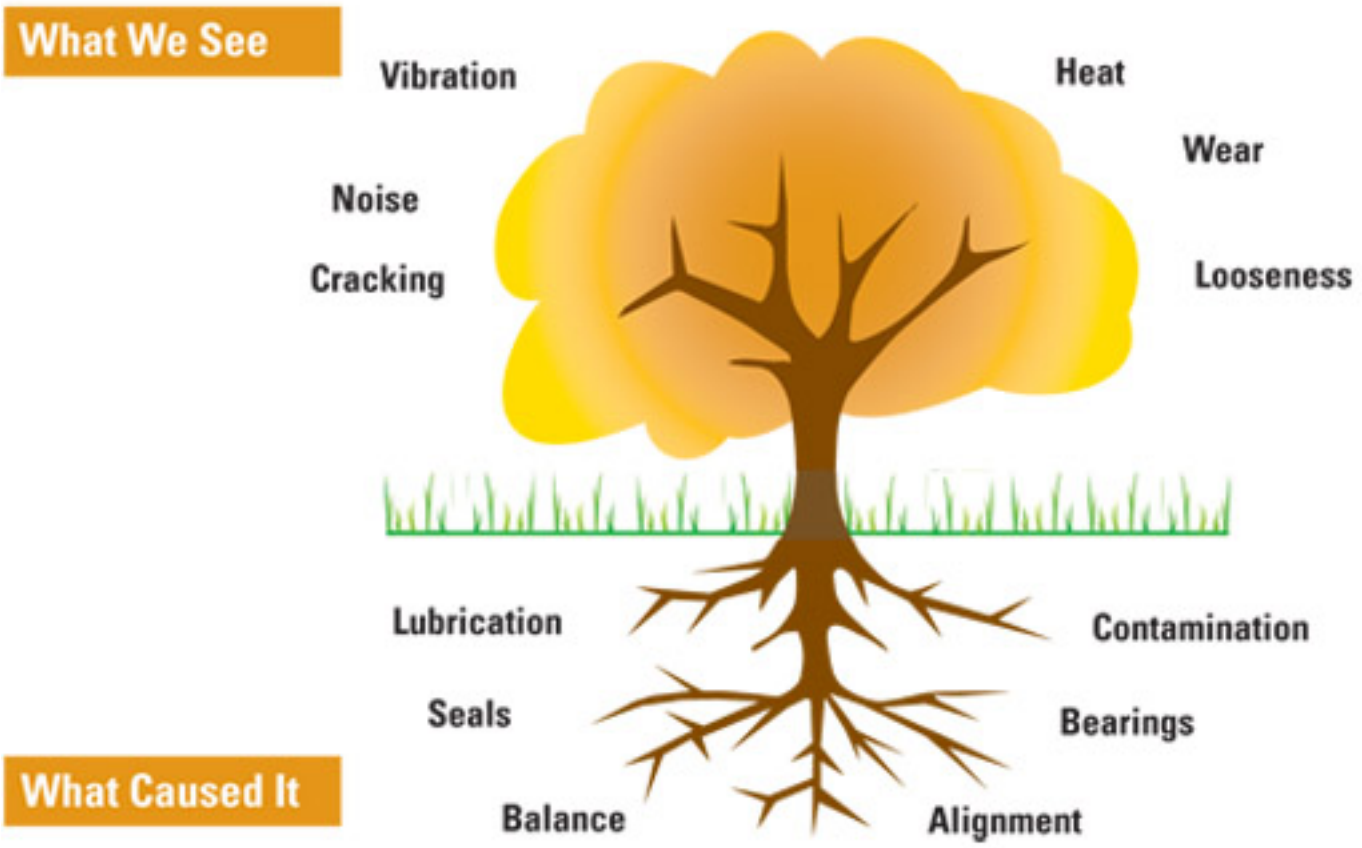
• It allows comparison of two people doing identical jobs (say a PM). If a significant time difference is reported, a manager can analyze the reason and take corrective action.

• It helps in planning a job if you know how long it will take to do the job.

• It enables better forecasting of manpower requirements.

• Based on overtime spent for a given time period, it is easier to justify additional manpower.

Root cause…



Where applicable, for all unplanned jobs (emergency, repair, breakdown, etc.), data should be collected as to what the problem was, what caused it and what was done to correct it. This involves designing a proper coding system—easy to use and understand, yet very powerful in terms of results—allowing data gathering and analysis.

Analysis of this data by managers will aid in finding the root cause(s) of the problem(s). Breakdowns and failures are never planned and can cause significant loss of productivity and resources. finding the root cause of a failure provides an organization with a solvable problem.

Once the root cause is identified, a fix can be developed and implemented, preventing a recurring failure situation.

Warranty…
Warranty information should be entered into the system for each asset (equipment and/or facility) as to warranty period and nature of the warranty. The same applies to spare parts. Each time a work order is issued for an asset that is under warranty, CMMS should fl ag a message stating this equipment is under warranty. This, in turn, gives managers a chance to make an intelligent decision—whether to go ahead with a repair and be reimbursed or to let the vendor carry out the repair. Such an approach can save hundreds of thousands of dollars over a period of time.

Backlog…
Managers should see to it that work orders are being closed in the CMMS within 24 hours of job completion. This will ensure that the data in the system is current. A report generated by CMMS that shows "overdue work orders" can be used to control the backlog. A controlled backlog is key to proactive maintenance.

Outside contractor…
Most maintenance operations use outside contractors to perform certain PM, repair and other tasks. While the percentage may vary from operation to operation,in some plants up to 60% of total work might be done by outside contractors. An effective CMMS should contain a database of these contractors. Each time a job is assigned to an outside contractor, history should be captured in the system—just like your other work orders except these are not done by your employees. Information related to the outside contractors' performance as to quality of work, delivery dates promised and kept, etc. also should be gathered. Managers can analyze this data to:

• Gauge contractor performance and take corrective action if necessary

• Justify additional in-house resources.

Work order (WO) priority…
Ideally each piece of equipment should be assigned a level of criticality. For example, assign a

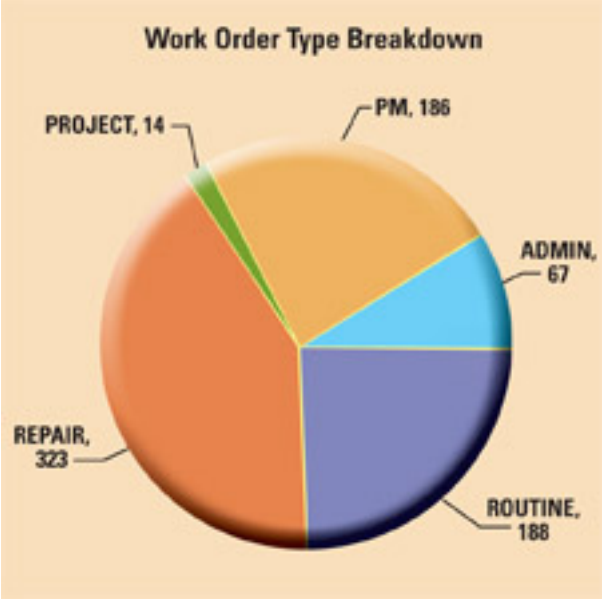
number from 1 to 5—with 5 being most critical. Each job then should be assigned a level of priority. For example, assign a number from 1 to 5—with 5 being the highest priority for that job. Your CMMS can determine priority of each work order based on equipment criticality and job priority. The Planner can then plan and schedule work orders based on work order priority.

Labor skill…
You can enter skill level of each technician in the system. Based on the skill level:

• A work order can be assigned to proper personnel.

• CMMS can report if there is a certain skill set in-house, enabling the manager to make an informed decision on whether to seek outside help.

Work order type...



Each work order should be assigned a work order type such as PM, repair, routine, inspection, etc. Doing so lets managers review jobs by work order type. For example, you may want to review how many "repair" jobs have been done in the last 12 months. Further analysis can be done to see how many of those were for a particular piece of equipment. Ultimately, this knowledge can lead to a replacement vs. repair decision.

Work order material, labor and tools…

A properly planned work order (PM or otherwise) contains information on what parts and tools are needed and what type of labor (plumbing, carpentry, etc.) is required to do the job. It helps managers eliminate unnecessary delays.

Otherwise, technicians may get to a job site and discover that tools and material to perform the task are missing, thus requiring an extra trip back to the storeroom. Further delays are possible if parts are not in stock.

Trending/meter readings…
Maintenance operations frequently gather readings on equipment such as boilers, chillers, etc. In a paper-based system, forms are filled out and filed away—never to be seen again. Use your CMMS to record and save readings of pressure and temperature, among other things. One of the purposes of this data is to identify abnormal readings and correct problems to prevent failures.

Equipment type/sub-type…
Equipment type and sub-type information is very useful. It entails a one-time design and data entry effort—while entering a new piece of equipment in the system—and is well worth the results. For example, an equipment type is "Pump" while sub-types for a pump could be hydraulic, pneumatic, electric, etc. There can be further sub-types to these. (This concept applies to spare parts as well.) Analysis of this data provides the following benefits:

• A manager knows what he/she has in equipment and parts inventory—for example, the number of pumps in the plant and then a breakdown by types of pumps (i.e. how many of these are hydraulic pumps, etc.).

• It allows scheduling of preventive maintenance by equipment type and sub-types.

• It enables allocation of spare parts by equipment type.

Equipment manufacturer information…
For each piece of equipment in the system, enter model and serial numbers. This information is

invaluable when you need to find all equipment in-house by certain manufacturer and model.

Attach documents…
You can attach PDF, CAD, Word, Excel, Audio, Video, Digital pictures and many other types of documents to maintenance (equipment, parts, work order) records. This is a tremendous help in troubleshooting—if you have attached an O/M manual to the equipment record, it will be available to the technician at the point of performance—and in providing work instructions by attaching sketches and drawings to a work order.

Parts lists…
Enter a list of parts required to maintain a piece of equipment. This is also referred to as "BOM" (Bill of material). Information should include part number and description, as well as part suppliers' details. This information is very useful when you have an equipment breakdown and are looking for a particular part to fix it. Having the parts information at your fingertips can save substantial time in locating the part and minimizing equipment downtime.

ABC parts analysis…
You can categorize your parts into A, B and C, where "A" parts are most expensive and critical and "C" parts are just the opposite. This helps managers focus their energy and resources on the right group of parts. For example:

• Start your cycle counting efforts with "A" parts.

• Get rid of obsolete parts starting with "A" parts, as that is going to give you the most return on your investment.

• Spend resources in trying to obtain better parts pricing starting with "A" parts.

Conclusion
An effective CMMS can be far more than a manager's best friend. Think of yours as a virtual goldmine, full of potential and waiting to pay off for you—but only if you properly analyze the data inside it. This article cites but a few examples of the types of information you can include in

your CMMS. Keep in mind that the sky is the limit as to how these systems, once they're unchained, can help smart maintenance managers make smarter decisions.

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