

Configure Your CMMS For Success



I'm sure you have seen and read a number of articles on why CMMS implementations fail. Most articles cite factors largely beyond the functionality of the software itself, such as lack of management support, failure to change business processes and inadequate training. The generally acknowledged failure rate for CMMS implementations easily exceeds 50% (some authors claim it's as high as 80%), and the number of companies that claim they use all of the functionality and capabilities of their CMMS was recently reported at a staggering 6%.

So...rather than belabor those topics, I'd rather address the ways in which the configuration of the system itself can contribute to its success and, ultimately, improve your facility's level of asset care and reliability. Your CMMS is a highly sophisticated tool, with many variables, and a wide impact. Treat it with respect if you hope to achieve the goals originally designated for the system.

I'll provide some questions throughout this article, which will help you evaluate if your system is optimally configured and utilized. Good luck!

As with most journeys and endeavors, your chance of success is greatly enhanced if you start with the end in mind. Why did you buy (or upgrade) your current system?

A basic need is to keep track of the equipment which you must maintain. A key component of all CMMS systems is the asset hierarchy. It forms the backbone of the system, gives it structure, provides "hooks" on which to "hang" work orders, parts, labor and contractor costs, and root causes of failure. It also allows comparisons across multiple assets with common components.

Question # 1

Are all of the assets you have to maintain recorded in your system? Have you included facilities, structures, fire alarm systems, cranes, and rolling stock?

Question # 2

- (a) Are these assets organized into systems?
- (b) Are there appropriate parent-child relationships (the hierarchy)?

Certainly you wanted to accomplish the basics of capturing and managing the work to be done, issuing PM's on a regular basis, tracking work by type (e.g., safety work orders), and understanding where the maintenance money was spent. These are easy to accomplish with today's sophisticated systems, and users report high levels of satisfaction in achieving those goals. However, your business or industry (or its regulators) may have special record-keeping requirements, such as chain-of-custody, replacing like-for-like parts, or certification of calibration results. To be successful, then, the system must be configured to meet all of these needs. Today's systems all have a variety of codes to identify work type, priority, work status, delays encountered, reason-for-failures, and equipment criticality.

Question # 3

- (a) Ask yourself (and double-check your system). Are there sufficient codes to allow the necessary slicing-and-dicing of your data to meet these reporting needs?
- (b) Do you have a work type code "From PM", to identify work generated from a PM, TPM, or Predictive inspection?

Another key objective of a maintenance system is to manage your spare parts inventory. This process begins with a master catalog which contains the necessary parameters to describe the part (remember, there are two audiences for good part descriptions. The first is the craftsman who wants to know that he is getting the correct part for the equipment he's working on, and the second is the purchasing agent or buyer, who must describe the part to an OEM, vendor or distributor). The catalog also includes such information as economical purchasing quantities, min-maxes and lead times to maintain reasonable stock levels, and unit costs.

Typically, the master catalog contains all parts for a specific piece of equipment, regardless of whether they are stocked at your plant, on consignment, or maintained by a vendor or distributor. Transaction data tells you when and how many parts you use (and, for example, if they are installed in pairs or other multiples). Usage is also tracked to the specific assets upon which the parts are used, by issuing them against a unique work order.

Question #4

- (a) Does your master catalog contain all parts required to maintain all production and support equipment and facilities?
- (b) Are the purchasing parameters reviewed and updated on a regular basis (min-max levels and lead times)?
- (c) Are all active parts associated with specific assets via bills of material (BOM's)?

Certainly a major thrust of a CMMS is to manage the preventive and predictive maintenance activities throughout the plant, both for on-the-run PM's and those done only on planned shutdowns. More and more, some of these activities are being delegated to the equipment operators, especially with growing Lean and TPM initiatives.

Most CMMS systems allow PM's to be triggered by a variety of events, like the passage of time (inspect every four weeks), hours of operation (inspect every 200 hours), distance (every 1,000 miles), or production cycles or output (every 3,000 cycles or 10,000 pounds of production). Each facility must adjust the manufacturer's recommendations to their own experience. Typically we find that the PMs on a particular piece of equipment tend to be very repetitive when looked at from the entire PM cycle (i.e., weekly, monthly, quarterly, semi-annually and annually). The same activity or group of activities are repeated on every frequency (change the oil, check the guard, replace

the belts). Unfortunately, it is likely that several cycles will fall due at the same time...either one craftsman receives 2 or 3 sets of essentially the same PM, or several craftsmen each receives a different frequency, with essentially the same activities. To avoid the confusion, and eliminate the opportunity for redundancy, the various frequencies should be consolidated or "nested", so that only one PM is issued for any time period.

Question # 5

Are your PM and Predictive inspections "nested" so that only one work order is issued for any one time period?

Planning work before it begins is at the core of improving productivity of all resources, including maintenance ones. The maintenance planner is typically a CMMS power-user and major contributor to improving workforce productivity. The system must make it easy for the planner to locate critical information to support the job at hand. Frequently, critical documentation is stored on another server or a central LAN system and directly linked by the CMMS to a piece of equipment, or a specific type of equipment or component. Thus, a work order written against a specific piece of equipment will automatically be accompanied by supporting documents, such as OEM specifications, safety-related permits, drawings or P&ID's, pictures, and SOP's.

Historically, a significant portion (usually estimated at 80% or higher) of maintenance work has been done before. The planner's ability to access a library of completed work orders (by equipment or task) or pre-planned job templates is key to insuring job consistency, harnessing the learnings from past experience, and optimizing the craftsman's chances of successfully completing the job.

Another key component of job packages is the equipment's bill of material, both for the parts which are anticipated to be used or have been used in the past, and just-in-case the situation arises, where a different component is needed to complete the job. The bill of materials insures that the correct part is used for that equipment, and the correct part number makes it easy to obtain the part from the storeroom. A copy of the BOM should be included in every job package. This not only helps in identification of additional parts, but provides a feedback mechanism should the craftsman want to recommend changes or add or delete some parts. This will help keep the BOM's up-to-date and accurate.

Finally, the planner is also responsible for the creation of a weekly schedule. This is a combination of high plant priority work (such as safety work orders), preventive maintenance, repairs, modifications, and other jobs requested by operations or engineering. It is important that the planner can readily identify jobs which are ready to schedule and those with the highest priority. Equally important, is an

understanding of the level of maintenance resources which will be available for the upcoming work.

Question # 6

- (a) Are critical documents stored in electronic form, well indexed, for easy access by the planner (and others) to use in job package preparation?
- (b) Are these documents stored outside of the CMMS system (this makes migration to a new or upgraded CMMS much easier, since the documents do not need to be extracted from the "old" system & moved to the "new" system);
- (c) Is there a document control protocol in place to insure the current version of a document is being utilized?

Question # 7

Is there a library of pre-planned jobs with the full documentation of the tasks to be performed, internal and external resources, parts required, estimated time to complete, and links to critical information and documentation?

Question # 8

(a) Can the planner create an electronic pick-ticket to alert the storeroom of parts required for a scheduled job? (b) Does the job package clearly state where the pre-kitted parts will be located?

Question # 9

Does the location naming and numbering scheme make it easy to identify other work orders or jobs in the backlog which should

be scheduled in conjunction with a new work order? For example, there may several welding jobs already identified which are along the path to the new work order's location.

Question # 10

- (a) Can the priorities, due dates, and ready-to-schedule status of work orders be easily determined?
- (b) Are anticipated resource levels maintained in the CMMS system?

MRO parts management is critical to maintaining the reliability and availability of all equipment and assets, insuring customer orders are completed when due, and providing high quality at the optimum cost. The storeroom is clearly the high-volume transaction generator of the CMMS to manage that inventory: ordering, receiving, put away, stock rotation, warranty administration, and issuing all create substantial transaction volume. Typically, the use of bar code printers and reader/scanners helps in managing that volume and improving transaction accuracy. The physical management of the spare parts' inventory is a combination of optimal use of cubic space, periodic cycle-counting to measure inventory accuracy, physical security measures to control open access to the physical space, and recognition of obsolete and slow-moving or non-moving parts.

Question # 11

Is your current system configured to classify inventory by a combination of part value and transaction volume - the ABC classification scheme?

Question # 12

Does your system generate periodic cycle-count lists by a random selection of a mixture of A/B/C classified parts?

Question # 13

- (a) Does your system support bar code readers and scanners?
- (b) Is that capability activated?

So... this baker's dozen of configuration questions should give you a good start on determining if your current CMMS/EAM or other maintenance management system is configured to support best practices. If not, or not always, then your task is clear. Update the configuration to move you closer to being able to take advantage of the full capabilities already available to you and your organization.

I'd be very interested in hearing what your investigation reveals and what plans you have to ramp-up the potential your system has to improve asset availability and reliability, track costs, and move to a more proactive environment.

Bob Wilson

Bob is the Senior Director of Assessments for Performance Consulting Associates, in Duluth, Georgia. PCA originated the Performance Plus Methodology to tailor and implement asset care best practices. Bob may be reached at wilson@pcaconsulting.com.