

## **CMMS and Effective Maintenance**

Written by Ralph W. Peters, Tompkins Associates, Inc.  
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**Installation of a new CMMS does not lead to effective maintenance unless the system supports an effective strategic maintenance plan. Here are the issues that need to be addressed.**

Today's client-server information technology offers the maintenance operation an improved tool to better manage and control maintenance resources. Simply stated, client-server computing for computerized maintenance management systems (CMMS) or other business applications is distributed processing where some network nodes (clients) request information and other network nodes (servers) maintain the data. For a business, the objective of a CMMS is to turn the sea of maintenance data into information you can readily see and use to manage and lead maintenance.

The need for a maintenance management system, whether manual or computerized, is determined by the need to perform effective maintenance--to care for equipment, tooling, and facility assets. Maintenance process needs determine what information will be put into the system and what operating documents and reports will be generated by it.

Most CMMSs include basic modules for work orders, planning/scheduling, preventive maintenance, equipment history, and maintenance materials management/purchasing. These basic modules can provide the foundation for an effective maintenance management system.

### **Benefits of a CMMS**

Implementation of a CMMS is most successful in organizations that have committed to a long-term maintenance strategic master plan based on the results of a benchmark assessment of current maintenance practices and procedures. A CMMS provides the system tools and the information framework to integrate best practices into the maintenance process, and to lead and manage maintenance as a key part of the total operation.

The effective use of a CMMS is an integral tool for achieving a maintenance strategic master plan, but it is only part of the process for improving maintenance management. Crafts people and maintenance leaders must work as a team with operators and operations leaders if significant improvements are to be made in the total operations process. Total operations success is the goal. Profitable long-term business survival is the tangible result.

Successful implementation of a CMMS will provide measurable benefits and savings if effective

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internal benchmarking is also initiated. Improved performance in a number of maintenance process activities can be expected to support justification of a new CMMS or an upgrade to an old system. These include:

- Improved work control. The work order module is the heart of any CMMS, providing the basis for work management, cost tracking, equipment history, and performance reporting. An effective CMMS supports controlling work requests by craft, monitoring backlogs, determining priorities, and scheduling of overtime.
- Improved planning and scheduling. A CMMS provides the systems and procedures to establish a more effective day-to-day maintenance planning and scheduling function, which is a key contributor to improved craft labor utilization and customer service. We must plan for maintenance excellence because it does not occur naturally.
- Enhanced preventive and predictive maintenance (PM/PdM). Automatic scheduling of repetitive PM activities is possible through a CMMS. PM tasks and inspection frequencies can be documented on the PM module and printed as part of the PM work order. A CMMS enhances PM by providing a method to monitor failure trends and to highlight major causes of equipment breakdowns and unscheduled repairs.
- Improved parts availability. Well-organized stockrooms with accurate inventory records, a stock locator system, stock levels, and a storeroom catalog can significantly improve the overall maintenance operation.

Having the right part at the right time is the key to effective maintenance planning, increased maintenance customer service, and reduced downtime. Client-server CMMS can provide a full range of materials management capabilities and integrate with corporate accounting, purchasing, engineering, manufacturing, and quality control.

- Reduced storeroom inventory. A CMMS provides the means for more effective management and control of maintenance parts and material inventories. Information for decisions on inventory reduction is readily available to identify parts usage, excess inventory levels, and obsolete parts.
- Improved reliability analysis. A CMMS provides the means to track work order and equipment history data related to types of repairs, frequencies, and causes for failure. It allows maintenance to have key information on failure trends that leads to eliminating root causes of failures and improving overall equipment reliability.
- Increased budget accountability. A successful CMMS provides for greater accountability for craft labor and parts/materials through the work order and storeroom inventory modules. This increased level of control provides greater accountability of the overall maintenance budget by individual piece of equipment, by using department, or by work order.
- Increased capability to measure performance. A CMMS database provides a vast source of maintenance information to allow more effective measurement of maintenance performance and service. Successful CMMS applications will include establishing internal benchmarks to provide measurement of improvements in such areas as craft labor productivity, PM

compliance, downtime, store inventory control, backlog, service level, and reliability.

- Increased level of maintenance information. A major benefit of a CMMS comes from developing the historical database that becomes readily available as critical maintenance information. An effective CMMS helps turn data into information you can use to manage maintenance as a business.

### **Factors for success**

It is important to develop a basic strategy for evaluating, selecting, and implementing a CMMS. This strategy must start with the philosophy that there is a need for a CMMS and that there are significant benefits for a CMMS to support justification. Key factors for a successful CMMS should include the following strategies:

- Conduct maintenance benchmark assessment. A total benchmark assessment of the current maintenance operation will define and evaluate current practices and define the best practices that are needed.
  - Develop maintenance strategic master plan. Results from a maintenance benchmark assessment must be developed into an overall maintenance strategic master plan based on priorities for action, commitment of resources, and defined areas of responsibilities. The maintenance strategic master plan should include methods to track progress, measure performance, and monitor results in terms of tangible benefits from the investment.
  - Determine need for a CMMS. The total benchmark assessment and subsequent development of a maintenance strategic master plan will help an organization determine its true need for a CMMS.
  - Determine system needs. Most maintenance organizations require the basic CMMS modules that provide support to work orders, planning and scheduling, preventive maintenance, equipment history, and maintenance materials management. Other system needs also should be identified as part of the total evaluation of current maintenance practices.
  - Establish a CMMS team. To provide benefits, CMMS decision-making and implementation must cover a range of functional areas. Representatives from maintenance, operations, engineering, accounting, materials management, maintenance storeroom, and computer systems staff should be included. Their acceptance and buy-in is important during the selection process and is critical to the actual implementation process.
  - Evaluate and select a CMMS. Well-defined system needs for each unique maintenance operation provide the starting point for the final evaluation and selection process. The evaluation process should include CMMS vendor information, review of industry surveys and CMMS ratings, follow-up with current users and vendor references, and vendor demonstrations or visits to operating sites.
  - Develop CMMS selection criteria. Selection criteria should be established to assist in making the final selection from among the top candidates.
  - Implement a CMMS and other best practices. This is the step where pre-defined system requirements will be compared to actual system performance, capabilities, and results. It is during implementation that other maintenance best practices come together to form a complete process for improving maintenance and the total operation and to provide full utilization of

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CMMS capabilities.

- Basic factors for successful implementation include hardware and software are installed correctly; all supporting materials such as manuals and formats are supplied; systems support is in place; all personnel are given the training they need; departments operating and using the system are effective and in place; initial data loading is complete and correct; required interfaces with other systems have been completed; and management commitment and support is in place.

- Provide adequate resources. Data such as equipment asset data, parts/vendor data, and PM task and frequency data must be loaded into the basic CMMS modules. For many organizations using a manual system, this type of data is not complete or not available and can require a major project effort for data collection and data input. Resources to collect and input data as necessary for all features of a CMMS must be established as part of the initial planning process. A do-it-yourself approach can often cost more. Reducing start-up costs by reducing vendor or outside consultant help can result in long-term loss of system performance.

Avoid viewing a CMMS as a universal remedy for maintenance problems or inadequate maintenance performance. Most organizations fail to achieve the full benefits of a CMMS because they do not take the time to evaluate, refine, and improve current maintenance practices.

Simply adding a CMMS to maintenance practices and procedures in chaos provides computerized chaos and not better maintenance management and service to the customers of maintenance. Instead, to really benefit from a CMMS requires developing and implementing a system that is tailored to your specific needs. **MT**

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