

Do You Have The Right Foundation?

Written by Terry Wireman, C.P.M.M.
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Just because your company has a CMMS/EAM system doesn't mean you're using it properly. In fact, if you're misusing any of the system modules, the information you're generating may not be accurate.

Data. . . information. . . facts. . . Whatever the term, "knowledge" is required to for good decision-making. The goal of a computerized maintenance management system (CMMS) or enterprise asset management system (EAM) is to produce quality data that helps a company make accurate decisions.

Even as a company starts to implement CMMS/EAM, data collectio is beginning. Consider the various modules used in a comprehensive CMMS/EAM system:

- Equipment
- Inventory
- Purchasing
- Personnel
- Preventive maintenance
- Work-order (planning & scheduling)
- Reporting

Equipment module

To use this module properly, each piece of equipment—or facility location—that requires tracking of costs and repairs must be identified. For example, the financial information will need to be stored in the equipment history when making repair/replacement and other life cycle cost decisions.

Data provided by the other modules will be accumulated in the equipment module to provide accurate financial information.

Inventory module

Proper utilization of this module will require identifying the spare parts carried in each storeroom at the plant or facility. The necessary data includes, but is not limited to:

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- Part number
- Part description (short & extended)
- On-hand, reserved, on-order, etc.
- Locations
- Part-costing information
- Historical use

Information from the inventory module ensures the CMMS/EAM will contain accurate material-costing information for each piece of equipment or facility location.

Purchasing module

This module is associated with the inventory module. It gives maintenance personnel a window into the ordering information.

The purchasing module must include the following information:

- Part number
- Part description
- Part-costing information
- Delivery information, including date
- Related vendor information
- Ability to order non-stock materials

The importance of the purchasing module becomes clear when planning a job and the delivery date for the required part is not available. It also is crucial for estimating job cost without knowledge of the new part cost.

Personnel module

This module allows a company to track specific information about each employee. Some of the required data includes:

- Employee number
- Name and personal information

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- Pay rate
- Job skills
- Training history
- Safety history

Information from the personnel module ensures that a facility will post accurate labor costs to work orders and equipment history.

Preventive maintenance module

The preventive maintenance (PM) module allows the tracking of all PM-specific costs. The costing information comes from the personnel and inventory databases. Some important data stored in this module includes:

- PM type (lubrication, testing, etc)
- Frequency required
- Est. labor cost (via personnel module)
- Est. parts cost (via inventory module)
- Detailed task description

The collection of this data ensures accurate service information and costing each time a technician performs a PM task. A CMMS/EAM also can project labor at material resource requirements for calendar-based PM tasks.

Work-order module

With this module, a user can initiate different types of work orders and track the work through completion. This module also requires the tracking of the costing and repair information to the correct piece of equipment or facility location. Using the work-order module requires information from all other modules of the system. Some the information required includes:

- Identifying the equipment or facility location where the work is being performed
- Identifying the labor requirements (personnel)
- Identifying the parts requirements (inventory)
- The priority of the work
- The date the work must be finished
- Contractor information
- Detailed instructions

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To be effective, the work-order module requires information from all other modules. Without accurate information, this module cannot collect the required data. Furthermore, without accurate and complete data, it cannot post accurate information to the equipment history. Finally, without accurate data in the equipment history, maintenance/reliability personnel can't make timely and cost effective decisions.

Importance of data collection

Just how important is data collection and analysis to a company? You can break it down into these management principles:

- To manage, you must have controls.
- To have control, you must have measurement.
- To have measurement, you must have reporting.
- To have reporting, you must collect data. The success of a CMMS/EAM system depends on the timeline and accuracy of collected data and the use of that data by the managers. If information is inaccurate and used incorrectly, the CMMS/EAM is considered to be a failure.

The reporting relationship

How effective is the overall utilization of any currently implemented CMMS/EAM systems? A recent survey showed that most companies scored just above 50% of the total possible score in that category. The figure reflects the comparison between a database of 200 companies (labeled University) and 800 companies (labeled RW).

If Fig. 1 were reexamined, what modules in the diagram could be used and what ones could be eliminated? If only half of the information required by the CMMS/EAM system were utilized, what types of analysis could be performed? For example, if only work orders over a certain cost or duration were recorded in the CMMS/EAM, could accurate decisions be based on the equipment history information?

Even before a facility implements a CMMS/EAM, the information it collects still will have some value. But, until the system is fully utilized, the data will not be accurate.

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For example, if only certain departments are on a CMMS/ EAM system (a typical pilot implementation problem), the data from these departments may actually be quite accurate. However, in areas where a crossover or combination with another area or craft exists, the data may be incomplete or distorted.

As highlighted earlier, a CMMS/EAM system should provide a completely integrated data collection system. Yet, even many mature users are not obtaining complete—and, thus, accurate—data from their CMMS/EAM systems. The previously mentioned benchmarking study pointed to the fact that just over 50% of the functionality was being utilized. Again, how can accurate and timely decisions be made with such incomplete data?

When companies use corporate systems, the data might not be posted accurately in the equipment history. In fact, in most cases, the data is inaccurate or not posted at all. Consequently, the equipment history is incomplete or inaccurate.

To put this into perspective, consider the following example:

When you take your car in for repairs, the service manager gives you an estimate of the time and cost of the job (work-order planning). You accept the estimate, and the service shop begins the work. When the job is complete, you receive a shop order with a complete breakdown of each part used and its related cost. The bill (work order) also shows the number of hours the mechanic worked and his hourly rate. The total equals labor and parts.

You expect this bill each time you go to the garage for any work. If your bill showed only the final price with no breakdown, you would not accept it.

Now, apply this type of itemization to a CMMS/EAM system and consider whether this degree of reporting is detailed enough to provide accurate cost breakdowns for your plant's equipment.

Consider another example:

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When using CMMS/ EAM, if you do not supply the planner with closely integrated inventory information, that person cannot be sure the stores' information is accurate. This is especially true if the information is updated only once a day or once a week.

The situation repeats itself many times when other corporate systems are "interfaced" to a CMMS/EAM system.

Technicians can waste time looking for a part that is supposed to be in the stores, when, in fact, another technician used that part the previous day or shift. This delay may seem inconsequential. However, when downtime can cost \$1,000 or even \$100,000 per hour, these types of delays may mean the difference between profit and loss for the entire company.

When it comes time to consider replacing your car, do you look only at the labor charges you have made against it for its life? Do you look only at the parts used? No, you take the whole picture into account— labor, materials, present condition, etc. These same principles should carry over in the CMMS/EAM systems in companies. Unfortunately, though, companies have set CMMS/EAM information flow so the material or labor costs aren't shown on the work order or equipment history. Therefore, decisions are really being based on inaccurate or incomplete data and such decisions will be flawed.

The financial implications of these flawed decisions can spell disaster for an organization. They can force a company into a condition where it cannot compete against other companies that make full use of their CMMS/EAM systems, thereby obtaining the subsequent cost benefits.

If any part of the information detailed is not included during routine CMMS/EAM system usage, the system will eventually fail.

The ultimate CMMS/EAM solution

If a company is collecting data incorrectly, it is time to re-evaluate the CMMS/EAM system. A determination must be made as to whether data the company is collecting is accurate or if it is incomplete or missing. Moreover, a company should determine what parts of the system it is not utilizing correctly or not using at all.

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By evaluating the answers and working to provide accurate data collection, the CMMS/EAM system will benefit the company's bottom line. In today's competitive marketplace, it is unacceptable to make guesses when data is available.

The cost benefits gained by making correct decisions will help make a company more competitive. Wrong decisions actually can put a company out of business by placing it in a non-competitive position.

What CMMS/EAM reports to use?

Some systems are available with no reports, while others have hundreds of "canned" reports. The deciding factor is to use the reports required to manage the specific maintenance function.

port does not support or verify a performance indicator utilized to manage maintenance, it is not beneficial. Reports that produce hundreds of pages of data that is never utilized will overload the maintenance and reliability departments.

If a maintenance organization is managed by its estimated vs. actual budget and the CMMS/EAM system cannot produce a budget report, the system is not supporting the organization. With CMMS/EAM reports, too many are just as bad as too few.

Give Fig. 2 another look. If the CMMS/EAM system score could be considered low, how about the reporting indicator? The two surveys were both under the 50% level, with one (marked "University") in the 25% range. Realistically, how could one manage an organization where the reports are not properly utilized? Would this not, in truth, be managing by instinct or feelings? Since management requires measurement and measurement requires data, each company must use its CMMS/EAM system fully to obtain this data. Without such data, any decision that is made is just someone's opinion.

Discussions require factual data and when it is not available, arguments occur, which often is the case when emotions and opinions are involved. Consider whether employees at your company have discussions or arguments. The answer may mean the difference between being a world-class competitor and being a second-rate company.

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