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Asset Management White Paper Series

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Computerized Maintenance Management
and
Enterprise Asset Management
Best Practices
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Introduction
A Computerized Maintenance Management System (CMMS) or Enterprise Asset Management (EAM) System is designed to manage maintenance transactions the same way an Accounting Information Management System manages financial transactions. In the case of maintenance, the transactions are work orders instead of invoices.   Inventory is the maintenance work backlog and spare parts instead of the raw material used in manufacturing.

Accurate information is critical to making decisions that ensure the reliable operation of equipment. Developing strategies and tactics for ensuring equipment function can be made easier with accurate maintenance transaction history details. Summary reports allow maintenance managers to spot "bad actors"; the "critical few" trouble spots that are causing the greatest problems. Typically 80% of your critical problems come from just 20% of your systems. Planning and scheduling jobs can also be more effective with a fully functional CMMS/EAM. Although creating a proactive maintenance culture is possible without a functional CMMS/EAM, it is very rare.

CMMS/EAM Return on Investment (ROI)

57% of recent survey responses reported that the CMMS/EAM implantation failed to generate the anticipated return on investment (ROI).   Only 20% characterized their CMMS/EAM implementation as successful.

CMMS Best Practices Survey Data and Report

Did you generate the anticipated Return on Investment (ROI) from your CMMS?
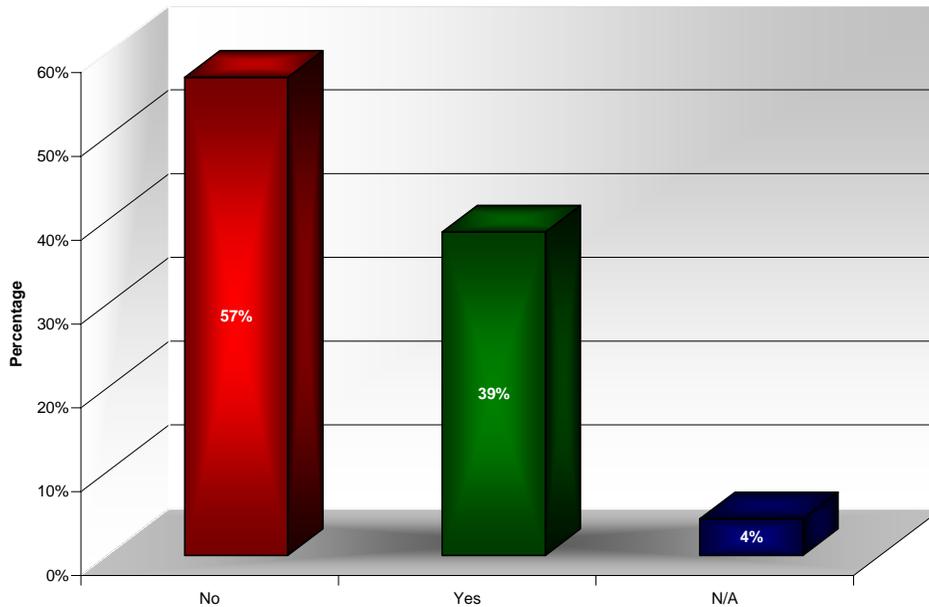
Many companies have been sorely disappointed with the results of their CMMS/EAM implementations. In some instances, the complex system capabilities and functions that can assist maintenance management are rarely used. The advantages of leveraging maintenance transaction information are often reduced by poor CMMS/EAM work practices.

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In an effort to uncover some of the causes that reduce the return on investment and affect the promised productivity increases from CMMS/EAM, Reliabilityweb.com, CMMScity.com and Maintenancebenchmarking.com launched the largest _independent_ CMMS/EAM Benchmarking survey ever conducted, with responses from over 600 participants from around the world.
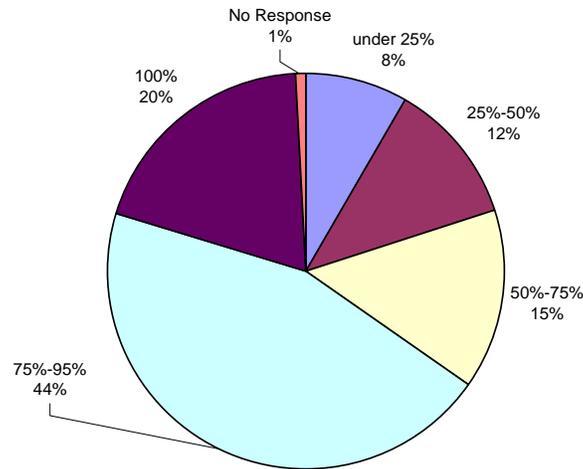
Reliabilityweb.com (www.reliabilityweb.com) is the solution oriented asset reliability web site for the plant maintenance community with a member network of over 45,000 maintenance and reliability professionals.

Tracking Maintenance Transactions

The survey found that only 20% of respondents track 100% of maintenance and repair work in their CMMS/EAM. Tracking maintenance and repair work creates accurate labor and materials cost information. It also captures valuable preventive maintenance, corrective maintenance and failure information that will be used to develop optimized maintenance activity.

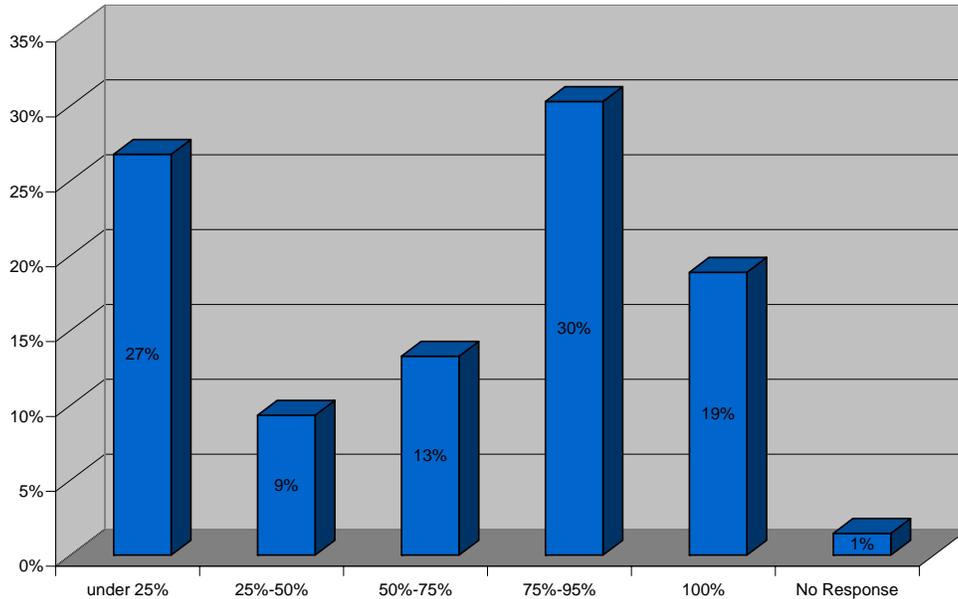**CMMS Best Practices Survey Data and Report**

What percentage of maintenance/repair work is tracked in the CMMS at your facility?

CMMS Best Practices Survey Data and Report

What percentage of maintenance spares inventory is tracked in the CMMS at your facility?

Additionally, half of the survey participants reported that only 50% of maintenance and repair spares were tracked in the CMMS/EAM. Inaccurate information about spares on hand can cause an expensive "over stock" situation or worse, not having a spare part available when it is required. Maintenance and repair inventory can cost an additional 25% of its value per year to carry. That is a real cost and in today's rapid delivery world, provides a significant opportunity for maintenance operations to improve quickly and add money to a company balance sheet.   It is important to have the right parts at the right time to ensure availability.

A CMMS/EAM cannot support enhanced maintenance productivity without complete and accurate information. Imagine the chaos created by a similar lack of detail in your company accounting information system.

You must track 100% of your maintenance activity and 100% of maintenance and repair spares in the CMMS/EAM to get the greatest return.

Required CMMS/EAM Functions

Some CMMS/EAM software providers offer advanced functions that are out of this world. These functions may seem impressive; however it is useful to ask yourself if that function has any relationship with your current maintenance activity.   Adding new activities while implementing a CMMS/EAM may be an invitation for failure.

Survey participants highlighted 6 key functions that are "must have" for any CMMS/EAM.

- **Easy Work Order Management**
- **Planning Function**
- **Scheduling Function**
- **Budget/Cost Function**
- **Spares Management**
- **Key Performance Indicators (KPI)**

These are common sense elements that are generally part of any existing maintenance program. When asked how effective each of these functions is handled with the current CMMS/EAM, less than 50% characterized the performance as excellent. There seems to be large disconnect between "must have" functions and their actual implementation.

4 Keys for CMMS/EAM Success

Four key areas emerged to ensure CMMS/EAM success, which like the "*must have*" elements seem obvious in terms of common sense but often get lost in the complex CMMS/EAM bidding and acquisition process.

- **Ease of use**
- **Management Support**
- **Low Learning Curve**
- **A Defined Maintenance Work Process**

Ease of use and a low learning curve speak to that fact a system will get more use if it does not require complex learning. It is the job of corporate management to support the CMMS/EAM and to communicate the expectation that everyone involved will keep data accurate and current.

If you suffer from poor maintenance work practices, a CMMS/EAM will simply automate the process so disaster happens faster and with less effort. If you automate a dysfunctional process, you simply create a more efficient dysfunction. Explore, improve and document maintenance work process before implementing a CMMS/EAM.

The CMMS/EAM Paradox

- **61% Changed Their Maintenance Work Process to Fit the CMMS/EAM**
- **64% Customized the CMMS/EAM to Fit the Work Process**

Changing work processes while trying to implement a CMMS/EAM will complicate the project and create frustration among users, who may lay the blame on the CMMS/EAM, reducing buy-in and productivity. Choose to get the CMMS/EAM up and running smoothly before you change too many work processes. The other alternative is to master the new work processes prior to implementing a CMMS/EAM.

CMMS Best Practices Survey Data and Report

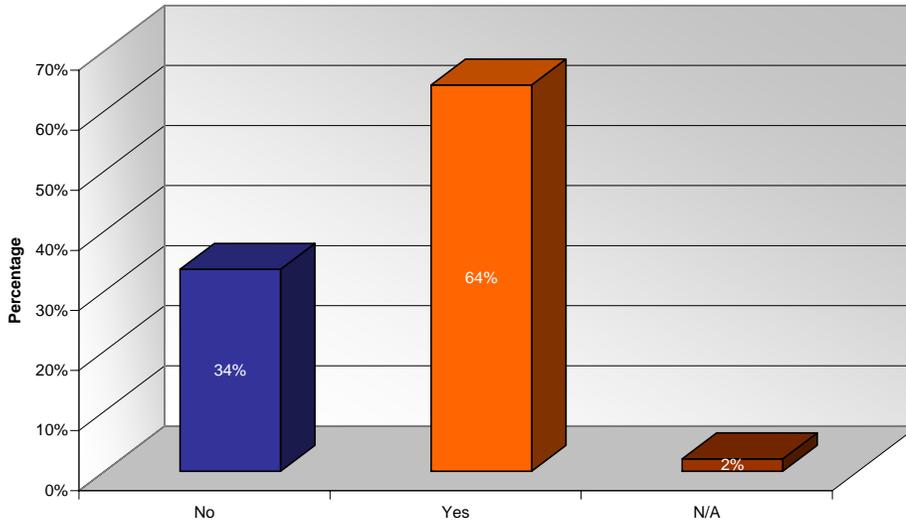Did you make any changes to your maintenance work flow to accommodate your CMMS?
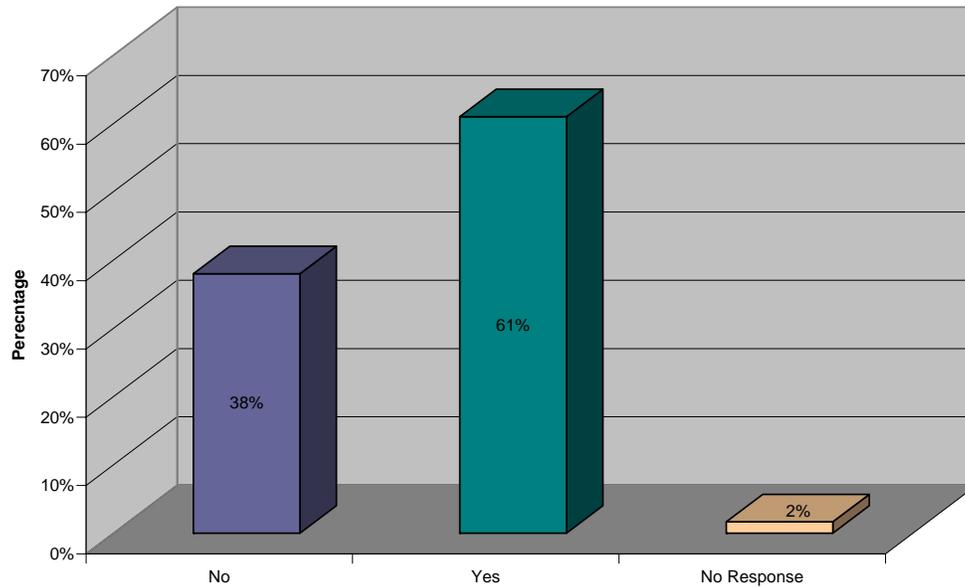
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Customizing a CMMS/EAM can also be an invitation for trouble. Support is more difficult and upgrades may not be available. It may be a good strategy to see what an off-the-shelf software system is capable of before you customize a CMMS/EAM.

CMMS Best Practices Survey Data and Report

Did you customize your CMMS?

Implementation Resources

Managing a maintenance department is a complex activity and requires specialized skills and resources. Implementing a CMMS/EAM is also a very specialized skill and is not part of the core skill sets usually found in a maintenance department. The survey found that less than half of the respondents utilized the CMMS/EAM vendor for implementation and only 20% used a third party.

Although most companies have Information Technology (IT) Departments that are capable of the installing complex CMMS/EAM Software, it is dangerous to leave important configuration decisions to internal company IT management. They are not familiar with the context that maintenance operates in and base decisions on their own criteria and best judgment.

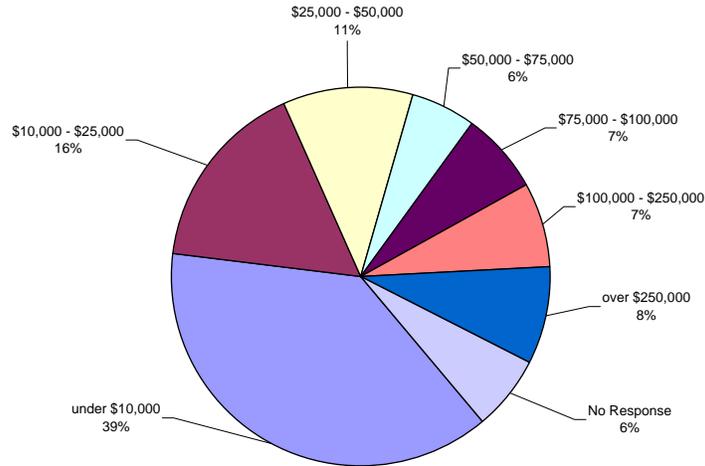Implementing CMMS/EAM is a highly specialized skill. To increase the ROI and productivity of a CMMS/EAM, consider using the vendor or a third party. Find an implementer who will partner with you for long term success.

CMMS/EAM Training

Less than 40% of survey respondents offer formalized CMMS/EAM training for new maintenance employees. 41% budget less than $10,000 per year for ongoing CMMS/EAM training.

CMMS Best Practices Survey Data and Report

Please indicate how much is currently spent annually supporting your
company CMMS with software upgrades, software maintenance and training.

$25,000 - $50,000 — 11%
$50,000 - $75,000 — 6%
$75,000 - $100,000 — 7%
$10,000 - $25,000 — 16%
$100,000 - $250,000 — 7%
over $250,000 — 8%
under $10,000 — 39%
No Response — 6%

This is a huge area for improvement and gain. Training makes any system easier to use, and if people are comfortable using the system, they are more likely to participate in its success. Training will teach users how to make the CMMS/EAM work for them rather than them seeing the CMMS/EAM as extra work. Develop a strategy for CMMS/EAM training on a continuing basis for improved productivity.

CMMS Best Practices Survey Data and Report

Does your company have a formalized CMMS training
program for new employees that will use the system?
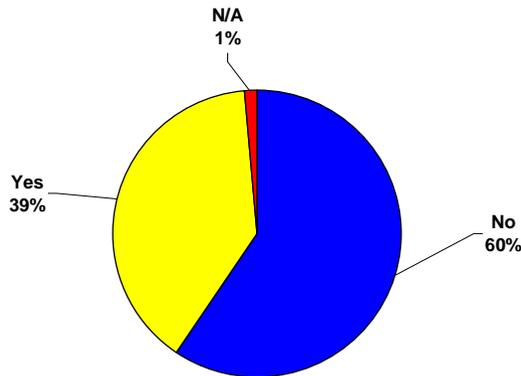
N/A 1%
Yes 39%
No 60%

5 Obstacles for CMMS/EAM Success

1) Lack of a CMMS/EAM Goals and Planned Outcomes You would never take a trip to a destination you have never visited without consulting with some good directional resource like a map. You would not build a new building without blueprints. Yet, each day, some company sets off on a CMMS/EAM implementation without agreed upon goals or an idea what the outcome will look like.

Steps to avoid this obstacle include:
1. Create a business case and measurable goals using a cross functional team. Areas to focus on include increased output, reduced scrap, optimized spares inventory, increased maintenance productivity and enhanced support for manufacturing and production.
2. Create a phased implementation plan. Design the project in phases that can each be completed in 30, 60 and 90 days. Start with the areas that can quickly generate a high ROI to overcome the human apathy and the corporate vision that does not see past each operating quarter.
3. Report results at every opportunity and then repeat those reports at every opportunity.

2) Lack of Integration – Plug and play is only a concept and trying to seam various software applications together will not always work they way we would like them to. That does support the argument for an integrated suite of business applications like SAP, IFS or Oracle however; you may give up the optimization of dedicated applications in the process.

To avoid this obstacle or at least minimize its effects:

1) Use a software vendor's or 3rd party consultant to solve complex integration problems, not your own IT people. They are experts at the level the problem requires for resolution and you may find the solution showing up in future versions of the software. Of course – this is a general recommendation. If you have high confidence and experience with in house IT – it would be wise to use them
2) Make sure that you have budgeted a significant percentage of the project cost to create effective integration

3) Lack of a Comprehensive Maintenance Strategy – Maintenance Management is a business process and CMMS/EAM software is the technology often used to automate and support that process.

If there are flaws in your maintenance management strategy, CMMS/EAM will not fix them. More likely the CMMS/EAM will expose those flaws even quicker.

To avoid this obstacle:
1) Use strategies like Reliability Centered Maintenance (RCM) or PM Optimization to ensure that your maintenance management is based on a disciplined decision process
2) Get out into the field and see how things are working

The CMMS/EAM implementation team must spend time with various maintenance and production/operations staff. The CMMS/EAM must help each employee involved do his/her job better or more effectively. Staying in close communication and allowing an emotion free environment that rewards the discovery and reporting of problems. Additionally involving the stakeholders in discovering the solution will yield the highest results.

Strategies like Reliability Centered Maintenance or PM Optimization will also enhance Maintenance Management.

4) Garbage Data – In an effort to maintain work order history or a bill of materials, "garbage" or information that is not consistent or accurate gets imported into a CMMS/EAM. Further problems can be created by non-uniform failure codes and other data as the CMMS/EAM project moves forward.

When the people who use the CMMS/EAM start to lose confidence in the data, they will create workarounds and ways to access the information they need to do a job outside of the CMMS/EAM.

To avoid this obstacle:

1) Use a data scrubbing service to ensure accurate data, work order history and Bill of Materials (BOMs) are brought into the CMMS/EAM
2) Create accurate data input codes and enforce their use with top management support
3) Use pre-populated pull down menus to avoid typos

Create Employee Buy In – For the CMMS/EAM to be effective and productive, people must use it. Many CMMS/EAM programs can be intimidating to use without proper training. In addition, its use may take more time than the previous system.

To get employees to buy in, you must start with absolute and active management support, and then add communication exercises to show them what is in it for them. Tell them what will the future look like once the CMMS/EAM is up and running. Explain the individual user benefits and the overall company benefits.

5) Lack of Accountability – The CMMS/EAM team must be given the resources and supported to accomplish a successful CMMS/EAM implementation however, they must also be held 100% accountable for the outcome.

Buying a technology solution is never the answer to improve a business process.

To avoid this obstacle:

1) Provide bonuses, salary and other financial rewards for the team into the successful implementation
2) Select one process owner to take the ultimate responsibility
3) Ensure absolute and visible top management support

Summary

Many maintenance practitioners log dissatisfaction about specific brands of CMMS/EAM software; however this survey points out huge opportunities to improve the productivity of any existing CMMS/EAM. Use specialized CMMS/EAM support and training consultants to lower the learning curve and make the CMMS/EAM easier to use and solicit management support. Commit to a 100% level of use, then start leverage the information to review and improve maintenance work processes.

If you are shopping for a CMMS/EAM, we hope this information will help you cut through the fog of hype and massive information surrounding most CMMS/EAM implementation projects.

If you are a current CMMS/EAM user, we hope you can use this information to improve your computerized maintenance management system productivity.

If you are interested in learning more about the CMMS/EAM Best Practices Survey, please feel free to email me at the address below.

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CMMS/EAM Resources

Learning event: CMMS-2005 The Computerized Maintenance Management Summit, July 26-29, 2005 Indianapolis Indiana USA.

Please visit http://www.maintenanceconference.com *for more details and registration information*

CMMSCity.com http://www.cmmscity.com

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