The Comprehensive **CMMS Implementation Guide**

A complete resource for all the information you need to research, source, set-up and excel at CMMS.

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Part I:
What is a CMMS?

A Computerized Maintenance Management System (CMMS) is a software tool to help manage and track maintenance activities such as scheduled maintenance, work orders, parts inventory, purchasing and projects. The CMMS gives full visibility and control on maintenance operations so everyone can see what's already been done and what still needs to be done.

Dashboard KPI's help measure current performance against those defined goals. The CMMS also helps maintenance managers get more organized by reducing their dependence on paper, whiteboards and memory by automating many mundane daily activities. A CMMS also helps users identify recurring tasks that need to be done or prioritized, ensuring nothing is overlooked. One of the biggest benefits of a CMMS is increased labor productivity as the system can help plan and track work so technicians can complete their tasks without interruption. With proper planning and tracking, the maintenance team is a lot more organized.

More importantly, a CMMS can help an organization become more health and safety compliant in a number of ways. Safety procedures can be included on all job plans ensuring technicians are aware of the risks ensuring the organization is compliant and ready for those audits. Using a CMMS, you can schedule preventive maintenance work orders and get alerted automatically when PM's are due. You can also see all the work done to an asset in the past so you can optimize maintenance schedules or troubleshoot existing breakdown issues. CMMS software also tracks how much time and money is being spent on which assets helping organizations make those repair versus replace decisions effortlessly. Rather than trolling through receipts and dockets at the end of a year, the manager can simply run a costing report in the CMMS to see where the budget was spent and what needs to be improved. Business intelligence reports built into the CMMS can be used to analyze and refine your maintenance strategy.

Objectives of CMMS Implementation

- Improve machine availability and reliability by reducing downtime and emergency repairs.
- Improve operational efficiency and optimize the life-cycle cost of assets.
- Implement a mission critical business information system without any service disruptions or loss of revenue.
- Manage cash flow and future costs.
- Be an adaptable organization that provides dependable service at optimum efficiency.
- Accurately calculate true assets management costs using centralized performance management systems.
- Efficient integration of software into work processes; increasing labour productivity and reducing maintenance related overtime by eliminating redundancies and duplicate entries.
- Identify reporting processes, flow and techniques.
- Understand and analyze maintenance and repair process / trends.

Why is having a CMMS important?

There are countless books written on why a CMMS is so important but the following is a short summary. A CMMS:

- Will assist the facilities maintenance manager with work reception, planning, control, performance, evaluation, and reporting.
- Helps extend the life expectancy of assets.
- Optimizes the use of scarce resources such as manpower, equipment, material, and funds.
- Automates administrative tasks & digitally store all relevant information for effortless future recall.
- Helps efficiently tracks proper maintenance, repairs, inspections, installs or upgrades of assets.
- Eliminates extensive paper trails by automating processes through easy-to-navigate functionalities thus minimizing keystrokes and maximizing productivity.
- Provides a one-source database for all asset related information.
- Accurately predict the costs of materials and labor for future projects.

Part II: The Implementation Process

Many CMMS implementations fail as companies struggle to fully understand the implementation process. CMMS implementation failure rates from 60% to 80% have been reported in various maintenance resources.

Reasons for failure include cost overruns, time overruns, poor end user utilization, little or no change from management, lack of support from management, insufficient end user training, failure to achieve the promised benefits, or failure to become an every day part of the organization. This CMMS implementation guide is a logical process created to help maximize the rate of success of implementing a CMMS software package into your organization. The process has been designed to be as comprehensive as possible so nothing is missed and your organization can realize the full potential of a CMMS system.

Phase 1 - Discovery

1. Prepare the Business Case

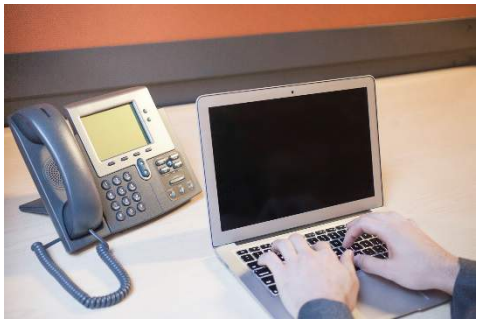
The first step in any CMMS implementation is to prepare your business case. Does your organization need a CMMS, or maybe something similar like EAM or CAFM software? What objectives do you want to achieve with a CMMS implementation? A CMMS can benefit an organization in a number of areas.

Define the goals in terms of cost savings, efficiency gains, scrap reductions, inventory optimization, return on investment (ROI), health and safety improvements, standardizing work practices, compliance tracking or environmental objectives. This will determine whether the CMMS is worth implementing, and if so, the corresponding budget.

2. Get Buy In & Commitment from Management

Traditionally, maintenance has been viewed as a cost center in an organization; it costs money to hire maintenance technicians and purchase the spare parts. So, it can be a challenge to convince management

to spend more money on maintenance. Remember, its not about fixing machines when they break, its about maintaining the function of assets so they perform when needed. Maintenance should be viewed as a value center in an organization. If you've done your homework in step 1, you should have a good business case to present to management and to show them the benefits and cost savings associated with implementing a CMMS. You must be able to demonstrate a return on investment in order to get the project off the ground. Ensure they are aware of the time and budget required for the project so you get their commitment from the outset.

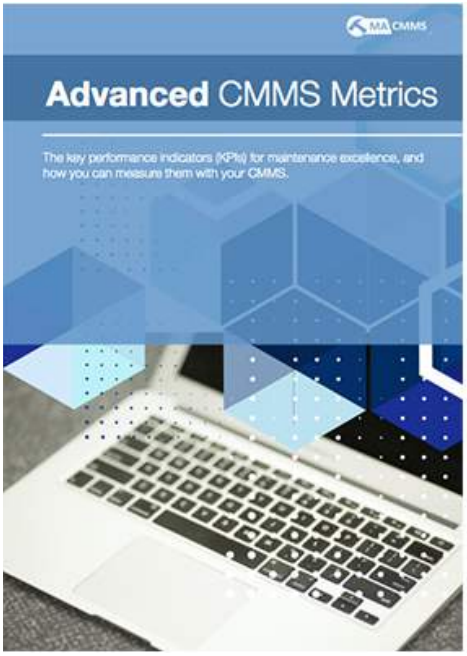


3. Prepare for Change Management

Introducing a new software application into an organization can be met with fierce resistance. If an end user has had an experience with an overly bloated CMMS in the past, or a failed implementation, they will be reluctant to adopt the new CMMS application. The project team must be mindful that they view the CMMS as a tool to improve productivity and reduce costs, whereas the maintenance team may misconstrue the initiative as a means to lay some people off. It is important to involve the entire team throughout the implementation process so they recognize that the CMMS as a positive change for the organization. All relevant stakeholders in the organization need to be included from the outset so they can help recognize the issues. Everyone must agree that change is needed or the project is doomed to fail. Include all the stakeholders when identifying the business benefits and impacts, as this will give them an opportunity to plan ahead. Hold coaching sessions, project update meetings, brainstorm sessions and knowledge transfers to keep them informed of progress and give them an opportunity to contribute to the project's success. It will help the organization identity any project factors early in the process. It will also help the end users understand that it is better to prevent the fires, than be constantly running around putting out fires.

4. Define Business Requirements

Before you start the buying process, define the business requirements for your facility. The objective is to ensure you select the right CMMS package for your organization's needs. What do you need the CMMS to do to achieve those goals outlined in Step 1? How many users will use the system? What is their technical proficiency? How big is your facility? Do you have multiple sites around the world? What functionality do you need? What modules such as purchasing will you need? Do you want your technicians to use mobile? Are you looking to integrate with other systems? Does the CMMS need to match existing processes, or will current processes be optimized with the new CMMS to improve operations?



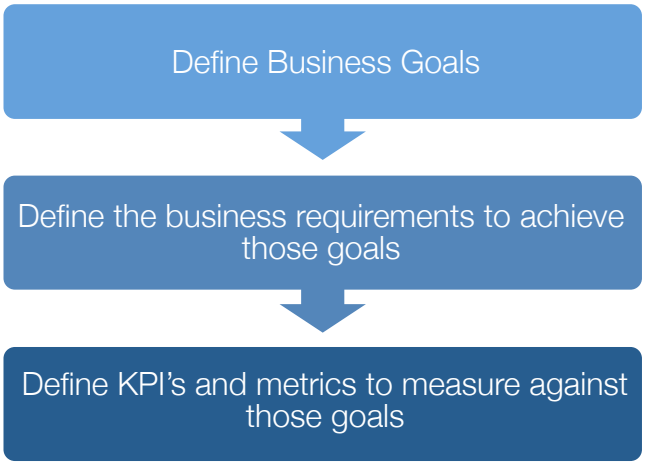
Want more information on KPIs?

Check out the Advanced CMMS Metrics e-book that covers how to calculate the five most common maintenance KPIs.

https://www.maintenanceassistant.com/resources/white-papers/

5. Define your KPIs, metrics, and reports to achieve goals

Before you select your CMMS, you need to determine which KPI's and metrics you need from the CMMS to measure against the goals outlined above. In Step 1, you defined the business goals; in Step 4, you defined the business requirements to achieve those goals; in Step 5, you define the KPI's to measure against those goals.



For example, say your organizational goal is to improve equipment reliability. Lets say the business requirement would be to ensure that the CMMS could do both time based and condition based maintenance. The KPI or metric to measure against is Mean Time Between Fail (MTBI).

Each plant will have its own specific set of KPI's that can be used to make informed decisions that impact employee safety, employee productivity, plant efficiency and budget planning and forecasting. You must select a CMMS that has the ability to output the metrics you need. You may want to track costs incurred against an individual asset or track costs incurred against a cost center. Some organizations are more interested in measuring the availability of your assets as it directly impacts the ability to meet orders. There are 5 main maintenance KPI's that will satisfy 90% of organizations. They are Mean Time to Repair, Mean Time Between Failure, Overall Equipment Effectiveness, PM Compliance and Planned Maintenance Percentage. The author has written about these five key metrics in detail in the Advanced Maintenance Metrics e-Book.

6. Create your Project Schedule

Decide your project timeline and milestones. The following diagram outlines how the implementation is broken down and how the tasks will be performed for a typical 4-week implementation. As mentioned above, the major tasks will be tracked using the implementation-tracking document.

7. CMMS Discovery

There can be a considerable number of factors to consider when researching CMMS applications. Creating a matrix of requirements and scoring each item by importance will make the process faster and more accurate. This score is essentially a measure of how well a computerized maintenance management software system fits your business requirements. The matrix and scoring system will let you quickly and easily compare CMMS solutions side-by-side, and help you make the right decision first time.

Feature set

Features and functionality is obviously the major consideration. Modern CMMS applications come with a host of features from work orders to report builders. Score the CMMS on its ability to meet your feature requirements as outlined in step 5 above.

Add-on Features

Many of the vendors may be able to provide a solution out of the box but some may require some additional development to meet your needs. An “off the shelf” solution is generally more cost effective and easier to upgrade and support.

Complexity

As the old saying goes, you don’t use a sledgehammer to crack a nut. CMMS software can range in complexity from simple work order applications to intricate EAM systems with ERP integration. If it is too complex for your needs, nobody will use it. Score the software on its accessibility and ease of use.

Training

How quickly and easily will it be to get your team trained on the CMMS? You must also consider new hires going forward. Investigate all the training options. Many vendors offer onsite and remote training but some offer in app tutorials too.

Vendor profile

Vendor background, expertise, years of experience, vision and capabilities going forward should all be considered when scoring the vendor. Investigate whether the vendor is knowledgeable about your specific industry or regulatory requirements. Do they have customers in similar industries? Do they have a vision for the future of their CMMS? This will help determine if the vendor will be around in the next few years.

Support

The CMMS software may look impressive but you should have access to tech support when you need them. Check out the types of tech support the vendor offers such as phone, ticket, FAQ, videos or virtual automated. What is the tech support response time? How much effort will it require to maintain the system going forward? In addition, be sure tech support is available in your language and accessible during your business hours. Score appropriately.

Integration

Can the CMMS successfully integrate with existing business process workflows, or implement new workflows? Can the CMMS be integrated with other systems and software applications, if needed? You may not need this functionality now but is this something needed in the future?

Technology

Another major consideration is the decision to go with on-premise or cloud hosted CMMS software. Traditional on-premise CMMS software can be a handful to manage. You need to provide the IT infrastructure to run the application, configure the network to enable users to access the CMMS and then install any upgrades or security patches when they become available. And if the hardware fails, you could be waiting days to get back online. Many organizations don't have the bandwidth or expertise to manage complex processes like this. Today, cloud CMMS applications are garnering more interest as they offer numerous advantages such as a lower total cost of ownership, unlimited scalability, and regular product upgrades. With cloud CMMS software, there is no need for complex server set up and configuration; you simply sign up, log in and start using it immediately. There is no big upfront payment. Instead, you pay a manageable monthly subscription to access the software, which is hosted on the vendor's servers.

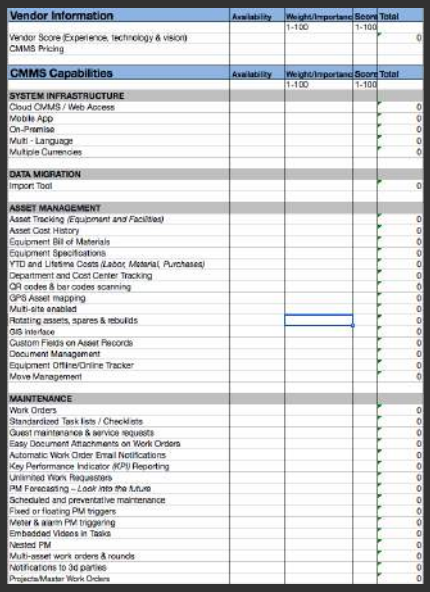
Total Cost of Ownership

Price is important but when evaluating asset management software, but the total cost of ownership should also be factored in the decision process. The total cost of ownership includes the initial purchase price as well as operating costs from purchase to disposal. Research the financial impact over the lifetime of the product before making the purchase. Things to consider:

- Initial purchase price of the software
- Server hardware, server software and floor space
- Network setup and configuration
- Implementation consultants fees
- Application Training
- Upgrades, patches and future licensing
- Downtime, outage and failure expenses
- Security
- Backup and recovery process
- Future upgrade or scalability expenses
- License renewals
- Data Migration when the CMMS is end of life

Hopefully you'll find this list of CMMS considerations helpful. It may seem like a long list to go through for a small to medium sized business that just wants a better handle on their maintenance, but putting in the research is worth the time it takes to get the best CMMS for your needs.

Want some extra help selecting the right CMMS?



Vendor Information	Availability	Weight/Importanc	Score	Total
		1-100	1-100	
Vendor Score (Experience, technology & vision)				0
CMMS Pricing				
CMMS Capabilities	**Availability**	**Weight/Importanc**	**Score**	**Total**
		1-100	1-100	
SYSTEM INFRASTRUCTURE				
Cloud CMMS / Web Access				0
Mobile App				0
On-Premise				0
Multi - Language				0
Multiple Currencies				0
DATA MIGRATION				
Import Tool				0
ASSET MANAGEMENT				
Asset Tracking (Equipment and Facilities)				0
Asset Cost History				0
Equipment Bill of Materials				0
Equipment Specifications				0
YTD and Lifetime Costs (Labor, Material, Purchases)				0
Department and Cost Center Tracking				0
QR codes & bar codes scanning				0
GPS Asset mapping				0
Multi-site enabled				0
Rotating assets, spares & rebuilds				0
GIS Interface				0
Custom Fields on Asset Records				0
Document Management				0
Equipment Offline/Online Tracker				0
Move Management				0
MAINTENANCE				
Work Orders				0
Standardized Task lists / Checklists				0
Guest maintenance & service requests				0
Easy Document Attachments on Work Orders				0
Automatic Work Order Email Notifications				0
Key Performance Indicator (KPI) Reporting				0
Unlimited Work Requestors				0
PM Forecasting – Look into the future				0
Scheduled and preventative maintenance				0
Fixed or floating PM triggers				0
Meter & alarm PM triggering				0
Embedded Videos in Tasks				0
Nested PM				0
Multi-asset work orders & rounds				0
Notifications to 3d parties				0
Projects/Master Work Orders				0

Visit our Maintenance Assistant website to download a free copy of this CMMS Feature Scoring Matrix.

http://www.maintenanceassistant.com/cmms-feature-scoring-matrix/

8. CMMS Selection

When you have scored all your vendors using your selection matrix, simply select the vendor with the highest score and move to the next stage of the implementation process. We've already done some of the work for you. Check out the link in the sidebar for a link to a free CMMS feature scoring matrix worksheet.

9. Select the Project Team & Determine Roles and Responsibilities

In this step, your organization needs to decide who will own the CMMS implementation project. The size of the team will vary depending on the scope of the project to be implemented. Some things to consider:

- Will your organization complete this project in house, or outsource
- How much CMMS knowledge or software implementation experience do you have in house?
- How much vendor involvement will you need?

Selecting a dedicated team of maintenance and IT professionals will safeguard the project's success. By involving the software vendor for training & consultancy services, you can borrow their expertise when needed. You'll need a project manager, one or more system implementation specialists, data gathers, project champions, trainers and end user testers.

A. CMMS Project Manager

The project manager sets the project expectations, ensuring and fully orient the project teams with all the activities necessary for a successful implementation. The project manager should also ensure best practices are always employed throughout the CMMS implementation.

B. CMMS Implementation Specialist

The system implementer reports to the project manager and is responsible for the day-to-day rollout of the CMMS project. These responsibilities include:

- Data Cleansing
- Data Gathering
- CMMS Set Up and Configuration
- Testing
- Monitoring
- Customizations and security configurationz
- Coaching and on the job training for users during the period before and after the go-live date

A. CMMS Trainer

The training director will be responsible for development and instruction of all CMMS training classes at your site. Ideally, the trainer should be a maintenance management professional with both strong IT skills and extensive industry experience. In many cases, the CMMS vendor can provide either onsite or remote training.

Phase 2 – Data Migration

1. Data Gathering

Missing data is the biggest reason for CMMS implementation failures. How equipment data will be gathered is a significant component of your implementation plan and a key factor in its success or failure. The project team needs to be diligent when gathering all the asset related information. This includes equipment types, preventive maintenance actions, trigger frequencies, standardized procedures, spare parts information and supplier details. Plan out what is needed ahead of time to meet the business requirements so nothing is missed.

2. Data Cleansing (from Existing Programs or Excel)

Garbage data from a prior system or legacy application is a common discovery during a CMMS implementation. Existing data can be imported directly into most CMMS applications using the import tool, however, some manipulation of the data may be needed before the import. Where prior data exists, assume the data is of poor quality and will require data scrubbing before it can be uploaded to the new CMMS system. Add the appropriate time to complete this to the project tracker.

Phase 3 – System Configuration

1. Data Entry – Tables, Codes, and System Control Info

Uploading and configuring the data in your new CMMS doesn't have to be a mammoth task. If you have data from a legacy system or from Excel spreadsheets, that history can be transferred to the new CMMS. If you were diligent when selecting your CMMS, it most likely has data entry tools and import functionality that can speed up this process. Importing parts lists, equipment lists and standardized tasks lists from Excel can knock days off the implementation schedule. The time taken to complete this step in the CMMS implementation project varies depending on the quantity of data and the size of the facility.

2. Core Configuration

Major steps include configuring the asset hierarchy, work order workflows, email notifications, scheduled maintenance procedures, inventory triggers and system settings. For example, when building PM maintenance for an asset, the trigger must be configured so it executes the work order at the correct interval. Each organization is unique so features and functionality can be toggled on and off as needed to fit your business requirements. Some customizations may be required to ensure the efficient integration of software into existing work processes.

Phase 4 – System Training & Go-Live

1. Train End Users

Proper training cannot be over emphasized when bringing a new CMMS system to an organization. It's an incredibly important investment as it helps demonstrate best practice when setting up, configuring and using the system; ensuring personnel are equally proficient on MA CMMS. It also helps users and administrators understand the features and full capabilities of MA software so they can utilize the system more effectively and efficiently.

2. Review Responsibilities of Users in Functional Department

As the saying goes, "Garbage in equals garbage out". So in this stage of the implementation, the role of each user in maintaining the CMMS, preserving the integrity of the data, and making configurations in the future, is reviewed. Each user must be made aware of their responsibilities going forward in order to ensure the long-term success of the CMMS at the facility. The CMMS specialist or project manager should outline how to manage the CMMS on a daily basis to extract the greatest value from it and to maintain a healthy system in the long term.

3. User Acceptance Testing

During user acceptance testing, the CMMS software implementer works with the end users to ensure the CMMS software system meets the business requirements and fulfills its intended purpose. User acceptance testing of functionality within the CMMS, such as security, menus and permissions, is required for each user group created. For example, when verifying user permissions setup, the user simply logs in and navigates through the application ensuring each group only has access to the data and functionality in the app that they need. This determines what data and functionality each user will see when accessing the application.

4. CMMS Goes Live

When all previous steps are complete, the CMMS can go live at the organization. All end users are expected to work from the new CMMS going forward.

5. System Monitoring & On the Job Training

After Go-Live, the software implementation specialist or CMMS champion should shadow the end users to verify the system is performing as expected. Are the correct notifications going to the right people? Are the scheduled maintenance items triggering? This also gives the implementation specialist time to spend with each end users providing on the job training (OJT) as they perform their work; ensuring all users are equally proficient on the CMMS. This offers an expert presence with constant availability to ensure quick resolution of issues during commissioning.

Phase 5 – Project Close

1. Post Implementation Verification

The implementation is deemed to be complete when all the project tasks have been signed off on. By their very nature CMMSs tend to evolve over time. The expectation is that some changes to the configuration will be made as users become more comfortable with the application. They can be performed by the CMMS administrators or made during follow up reviews by the project team.

2. Project Assessment Document

Conducting a post project review assesses the success of the CMMS project at your site. Assessments should include a comprehensive assessment report and executive summary of findings that are presented to the key stakeholders at the conclusion of the project. This information is used to improve future projects and organizational processes. In the review the manager should do the following:

- Measure how closely the project meets the business requirements
- Identify what worked well and what needs improvement still
- Formulate and share lessons learned and best practices from feedback
- Advise the CMMS champions on any potential issues or risks going forward

Phase 6 – Review, Improve & Refine

The implementation is now complete but the project may still be doomed for failure. Remember, a CMMS is simply a tool to help an organization realize its maintenance and reliability strategy. Simply switching on a CMMS and starting to use it will not lead to greater efficiencies and reduce costs. It is more than just a work order tracking system. Used correctly, your organization can maximize the value of your CMMS investment through better planning, improving efficiency, increasing safety awareness and reducing costs. As mentioned above, the CMMS will evolve over time. Continually monitor the current CMMS operational state versus your desired optimal state, and take time to find ways of improving the way your organization uses the CMMS over time. Solicit feedback from the system end users, run performance reports and monitor KPI's and implement improvements where possible.

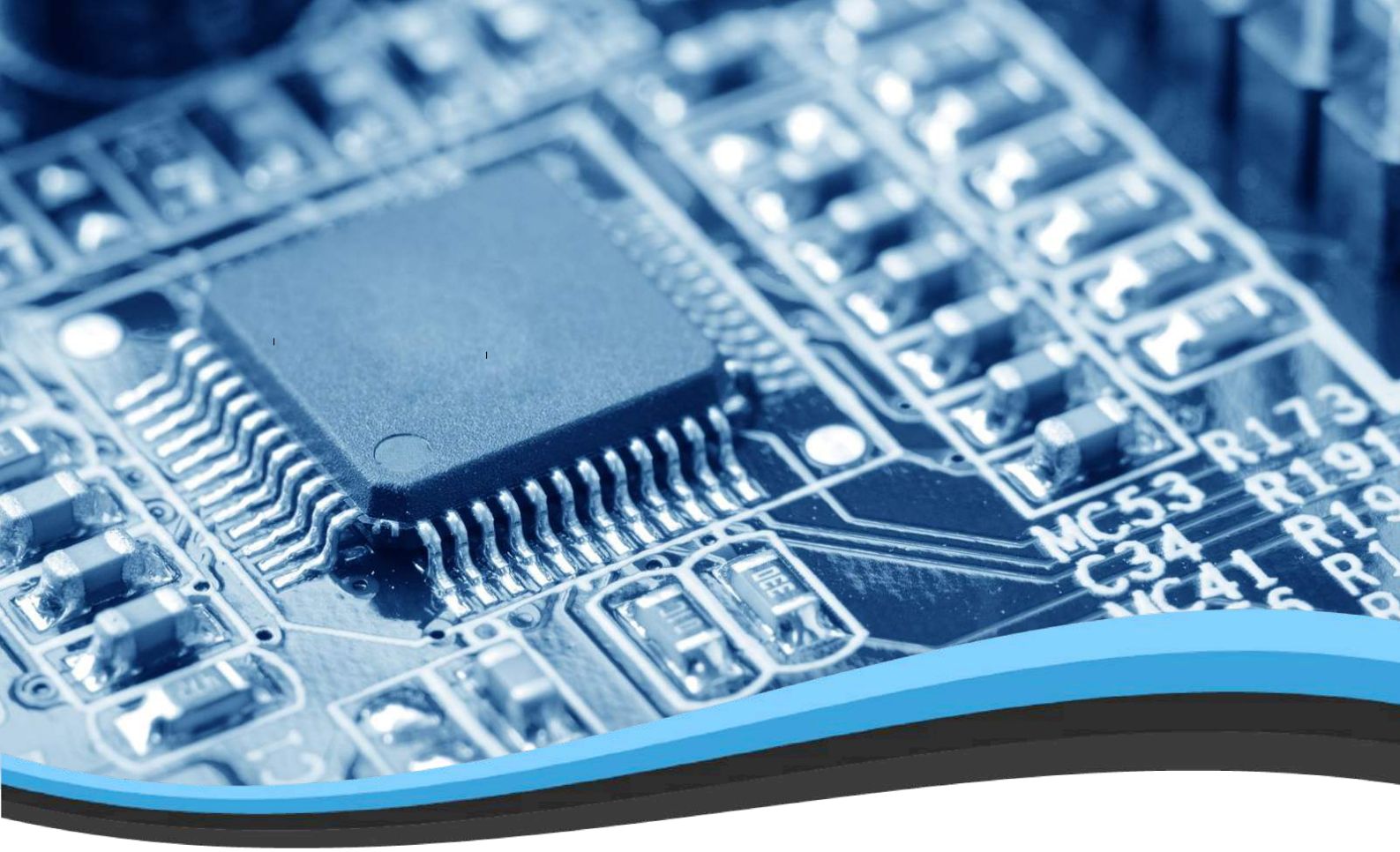
Part III:
Extras: Tips & Tricks

Tip #1 – Look for Mobile CMMS

Select a CMMS vendor with a mobile app. Mobile CMMS gives the user access to the CMMS in the field or on the shop floor while they do the work, eliminating the need to print out work orders or take notes only to enter them into the system later. Technicians can log data such as repair notes and meter readings in the system in real time, eliminating the redundancy and double jobbing associated with paper, and freeing up time for the technician to more productive tasks.

Tip #2 – Select Cloud CMMS

Cloud software continues to make headlines all over the world as the next evolution of the software industry. Faster Internet speeds, cheaper database storage and the dawn of the smartphone and tablet era have made cloud-based CMMS software the preferred option. Cloud based CMMS software provides distinct advantages and cost savings over traditional on premise CMMS software. As cloud based CMMS software is hosted on the vendor's servers, there are no IT related costs such as server hardware, network configuration, IT support, backups, upgrades, virus protection and security. And as it resides in the cloud, it can be accessed them from any Internet connection anywhere in the world on PC, tablet or mobile.



Tip #3 – Look for API Ability

Many modern CMMS applications can be configured to communicate directly with the equipment assets as they work in the pit so they are ideal to help manage your Condition Based Maintenance (CBM) programs. Sensors placed throughout the asset can monitor conditions such as vibration or temperature, and send a signal to the CMMS if operating conditions are breached. The CMMS then turns this data into a scheduled maintenance so the issue can be addressed at the optimal time before it turns into something more serious.

Tip #4 – Insist on Clean and Complete Data

Just remember the golden rule when it comes to any CMMS software: garbage in equals garbage out! Ideally, you need complete, accurate data in the CMMS to be able to pull useful information from it. It is a lot easier to run a costing report to see where the maintenance budget was spent rather than sifting through receipts and dockets with a calculator. When reviewing a work order, you should be easily able to tell what steps were taken, who did the work, what parts were used and how long it took. Other fields like maintenance type, failure codes and priority will also help categorize the work. Technicians should be fully trained on the CMMS and encouraged to fill in as much data as possible when completing a work order. If you haven't been filling in all the possible fields, you won't be able to extract useful data like this from the CMMS. Listing parts needed, work instructions and safety directions on your planned scheduled maintenance ahead of time will encourage your technicians to fill in all required data.

Part IV: Conclusion

A CMMS is an inexpensive, but incredibly useful tool and in time can help drive down the cost of maintenance but it's not a magic bullet that will effortlessly turn your maintenance department into a well-oiled machine simply by using it. Asset management is an ongoing process of continuous improvement and a CMMS is the tool to help manage it. In time, the CMMS becomes a database of maintenance related information that can be used to outline best practices, identify workflow improvements, pinpoint cost savings and eliminate waste.

This guide has been specifically written as a comprehensive implementation overview so nothing is overlooked. It will help you reduce the time needed to implement a CMMS, reduce outside consultancy fees, and reduce the chances of costly mistakes. Follow the plan diligently to greatly increase your chances of CMMS implementation CMMS.

Remember, if you are considering upgrading or implementing a CMMS for the first time, cloud-based software provides distinct advantages and cost savings over traditional on-premise software. The reliability, mobility and lower total cost of ownership that comes with cloud-based CMMS can give you the competitive advantage you need to take your asset management strategy to the next level. Consider it a critical cog in your maintenance and reliability program that can pay huge dividends in improving plant performance and efficiency whilst increasing productivity if employed correctly.

Thanks for reading.

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ABOUT THE AUTHOR

Jeff O'Brien is a product specialist, CMMS evangelist and industry blogger at Maintenance Assistant Inc. Maintenance Assistant develops and delivers maintenance software solutions that are used by thousands of asset-intensive businesses around the world to transform their maintenance operations, eliminate waste and costly downtime, and manage risk. You can contact Jeff via email or LinkedIn.