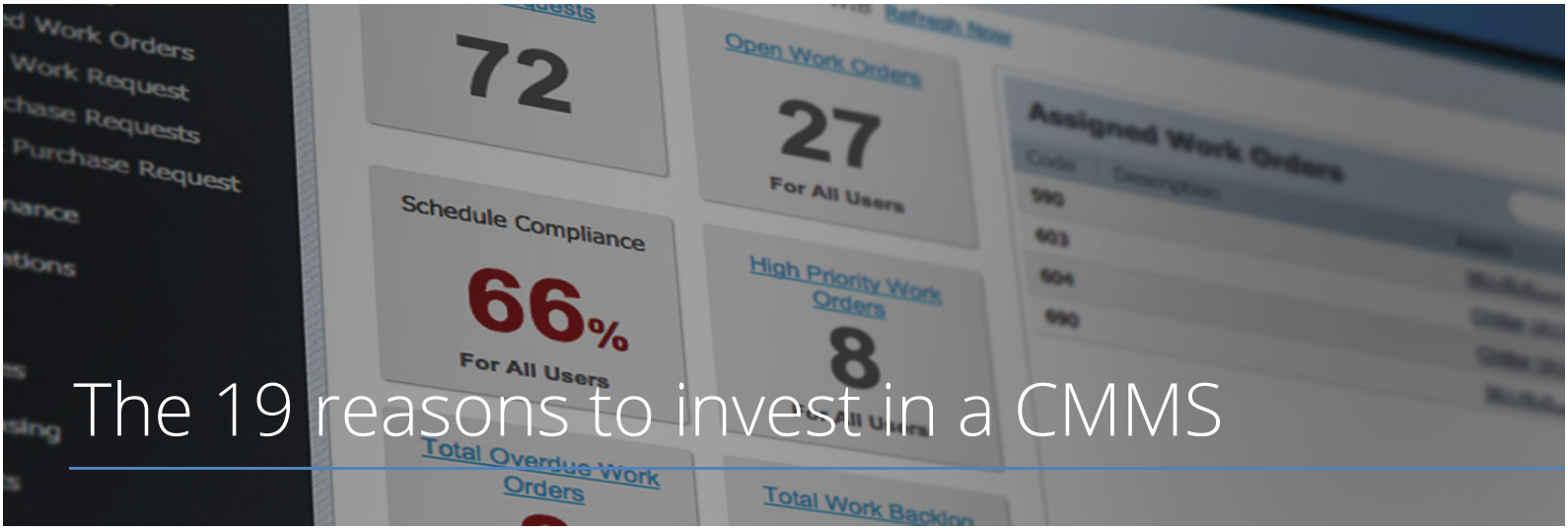

The 19 reasons to invest in a CMMS

Background

Asset management has become a hot topic in recent years, probably because it can have such a significant impact on the profitability of an asset intensive business. Why? Well, poor equipment reliability leads to damaged reputations, higher energy costs, equipment damage, inefficient use of resources, safety and regulatory issues, and unpredictable maintenance budgets. It's not just about fixing assets when they break; it's also about preserving assets so they're available to perform their intended job when needed. This means employing cost effective asset management strategies across the organization, strategies that maximize asset availability and reliability by minimizing the probability of equipment failures.

> *"A well-executed asset management strategy can extend the economic life of capital equipment, increase system availability and reduce maintenance related costs."*

Traditionally, maintenance has been viewed as a cost; it costs money to hire maintenance technicians and it costs money to purchase spare parts. It can be a challenge to convince management to spend more money on maintenance. However, today's fast paced environment requires a forward-looking asset management approach.

Asset management can affect all aspects of the business; customer service, goodwill, product quality, scrap and rework, energy efficiency and ultimately the bottom line. Effective asset management is about ensuring you have the right systems and processes in place to limit downtime and keep your production equipment running smoothly in a way that's also cost-effective. Computerized Maintenance Management Systems (CMMS) are a software tool to help you do just that.

What is a CMMS?

A Computerized Maintenance Management System (CMMS) is an essential operational tool for managing scheduled and unscheduled maintenance on capital assets. A good CMMS system lets you track information related to the planning of activities such as maintenance, cleaning or inspections on physical assets, ensuring that production systems operate as required, thus minimizing asset downtime. CMMS software also provides a scheduling facility for managing planned preventive work on maintainable assets.

The decision to invest in a CMMS is an important one for any organization.

> *When used effectively, a computerized maintenance management system (CMMS) can improve company profitability through efficient use of resources, reduced operating costs and reduced unplanned down time.*

This whitepaper outlines 19 reasons to invest in a CMMS, giving you the foundations on which to build a business case for implementing a CMMS at your organization.

1. Effectively Plan Preventive Maintenance

System reliability is the probability that the asset will be able to execute failure free operation for a managed period of time within normal operating conditions. When reliability gets out of control, it can lead to a domino effect that engulfs the organization. An unreliable system can lead to an increase in stock outs, costly emergency parts orders, missed PM's, collateral damage, manpower shortages and ultimately missed orders. System reliability can be improved by increasing the time lag between repairs, also known as the Mean Time Between Failure (MBTF). Long periods of improved reliability will lead to increased availability and a reduction in the costs associated with emergency breakdowns.

Improving reliability can be achieved by optimizing an asset's preventive maintenance program. The purpose of preventive maintenance is to plan scheduled inspections so that defects are spotted before they become a problem. As the old saying goes, "a stitch in time saves nine". It's well documented that regular, preventive maintenance can easily pay for itself by reducing unplanned breakdowns and repairs. In a recent study by Emerson Network Power1, the Mean Time Between Failures (MTBF) for UPS units that received two PM service events per year is 23 times higher than a machine with no PM service events per year. Performing regular preventive maintenance on equipment greatly reduces the chance of failure. When building and configuring your PMs, include steps to proactively perform maintenance and inspections so issues can be mitigated completely or addressed before they turn into something more serious.

The easiest way to track and manage your PMs is to use CMMS software. CMMS software reduces human error by ensuring planned preventive PM's are triggered when they're due, in compliance with regulatory or manufacturer's requirements. A good CMMS system can also activate PM's based on a number of fixed or floating triggers including time, meter and event. Once the PM system is configured, it will churn out PM work orders based on schedules you've set, along with all the information required to complete the PM work order quickly and easily. Automated notifications sent from the CMMS ensure no PM work orders are missed.

Performing regular preventive maintenance on equipment can also extend the life expectancy by ensuring assets are regularly serviced and repaired on time. Capital asset replacement can be reduced by 3-5% with a properly implemented CMMS.

2. Shift from a Culture of Reactive to Proactive Maintenance

Reactive maintenance costs three to nine times more than planned maintenance due to overtime-labor costs, collateral damage, emergency parts and service call outs. Reactive repairs take longer to resolve, as

[1] http://www.emersonnetworkpower.com/documents/en-us/brands/liebert/documents/white%20papers/sl-24617.pdf

technicians don't have the correct parts, manuals or schematics prepared. In addition, reactive maintenance doesn't keep systems running in optimal "as new" condition and over time, systems deteriorate faster so they don't maximize their initial capital cost investment.

Being proactive involves thinking and looking ahead. A CMMS can help an organization make this shift from reactive maintenance to planned proactive maintenance by triggering those important PM checks on the predefined schedule, and helping the organization stick to its planned maintenance program. By planning system maintenance and inspections, organizations can circumvent major breakdowns or in many cases, identify the small issues before they turn into something more serious. Typically, planned maintenance is known in advance and well documented, which gives technicians time to prepare the right tools and parts for the job. In doing so, the organization shifts from fire fighting to fire prevention.

3. Standardize Best practices & the Way of Working across the Organization

Standardizing the way an organization works leads to increases in reliability and performance. When you standardize organizational processes, quality and reliability increase, while variation and cost decrease. Standardization of work practices through checklists, for example, ensures everyone performs the same job in the same way every time. There's much less room for error this way and it's less likely that whoever is performing the task will miss or skip important steps.

So, how can CMMS help an organization with standardizing their processes? It ensures everyone is working from the same system, utilizing the same procedures, following the same best practices and staying safe in the process. Implementing a uniform, "best practice" way of working through standardized operating procedures ensures personnel at all locations are performing maintenance tasks in the most efficient manner. This reduces overhead and human error. In addition, a CMMS can help an organization improve how its data is collected, standardized, catalogued and retrieved through standardized work order forms.

4. Access Real Time Information

The CMMS keeps you up to date on your organization's maintenance activities, in real time. Managers can see which assets are offline, who is working on what, and what still needs to be done. Technicians can access vital equipment resources like files, manuals and schematics as they complete the work so there's no need to carry around bulky paper files or folders. CMMS applications have built in file storage capabilities that lets you store and attach procedures, error logs, manuals, permits, licenses, photos, images, diagrams, schematics etc. to the asset record. This facilitates real time retrieval of important asset related documentation from the CMMS when the users need it most, speeding up troubleshooting and work order-processing times.

5. Quickly Access Valuable Historical information

It's impossible to rely on human memory as we all forget things. In addition, employees come and go so critical information can be lost when someone leaves the organization. A CMMS is a crucial tool to circumvent this and store all maintenance related data for your organization in one place. Each asset has its own unique record that details the PM schedule, what repairs have been completed, parts used, labor hours spent etc. Over time, the CMMS database becomes an indispensable central repository for all maintenance related information. Technicians can quickly access asset records, old work orders, previous repair information or replacement part histories to assist with troubleshooting the issue at hand. The issue may have surfaced before so eliminating troubleshooting steps that didn't work in the past may speed up the repair process.

6. Effortlessly Track Maintenance Related Costs

CMMS software tracks all service history and related costs associated with the asset in the asset record. Parts, labor and other miscellaneous expenses are logged whenever maintenance work orders are completed; making the CMMS a central database for all maintenance related expenses. Rather than looking through endless receipts and dockets at the end of a year, with a CMMS the maintenance manager can simply run a costing report in the CMMS to see where the budget was spent. Costing information can also be used identify areas that are running over budget or help make educated decisions about whether a piece of equipment should be repaired or replaced. In addition, the CMMS can make budgeting for the future a breeze by using historical data to predict future spending. The data can be filtered to show the costs of reactive maintenance versus planned maintenance, giving visibility on the effectiveness of the current asset management strategy and whether or not it can be improved.

7. Quickly Access Detailed Maintenance Metrics & Reports

Continuous improvement is dependent on the ability to analyze what happened in the past so changes can be made going forward. Tracking your maintenance KPI's throughout this improvement process helps determine whether any changes you made actually added value or reduced cost. CMMS data is static but it contains valuable information that can be used to make informed decisions. By analyzing asset failures, downtime, resource utilization and spending patterns in the CMMS, the reliability engineer can implement changes that will add value or reduce risk; improving your bottom line. The data also gives better visibility on where to focus your efforts and do things better, thus improving the overall performance of the organization. The data can help identify chronic equipment problems and unacceptable levels of downtime so solutions such as regular inspections, preventive maintenance or the permanent stocking of spare parts can be put in place to proactively reduce downtime going forward. KPI's and metrics can also be used to benchmark against industry standards.

Availability, reliability, PM Compliance and other key performance metrics like MTBF and MTTR can be calculated automatically by the CMMS and accessed via reports or dashboards. This removes the human element in capturing all downtime, ensuring the data is as accurate as possible. In addition, reliability metrics from different sites can be analyzed to identify best practices — ready for implementation across the world. Business intelligence dashboards, graphics and reports can be used to analyze repair processes and trends, evaluate the effectiveness of current operations and help make better organizational and personnel decisions.

8. Effectively Manage Condition Based Maintenance on Critical Systems

Condition Based Maintenance (CBM) is a maintenance strategy that uses information about the health or condition of an asset to determine when maintenance should be performed. Non-evasive measurements, visual inspections, performance data and tests are performed to detect deteriorating performance or faults before they occur. By performing these condition checks, organizations can extend asset life expectancy; increase productivity, and lower maintenance costs. Studies have proven that a well-implemented maintenance strategy that utilizes CBM can reduce maintenance costs by 30-40%.

A CMMS is the perfect tool to help implement Condition Based Maintenance. Combining the manufacturers' recommended maintenance with historical repair and performance data from the CMMS lets you make better decisions about which inspection activities need to be performed and at what interval. In addition, the CMMS can be used to manage CBM going forward. When the CBM actions are decided, the reliability engineer can configure the CMMS to trigger when those inspections are due and proactively create work orders when something trends out of spec.

Taking that one step further, built in diagnostics sensors that self-monitor during production can feed data from the asset to the CMMS via the API (Application Protocol Interface). When a parameter is trending out of spec, or when an immanent failure is detected, the system can push this event to a CMMS for immediate attention of the maintenance team before the issue turns into something more serious. For example, the system may trigger a temperature out of spec error when a cooling device fails. The CMMS can be configured to trigger a work order based on this event so the technician can investigate without delay.

9. Automate the Work Request Process

Even in today's world of computers and automation, many organizations still don't have an efficient process for dealing with work requests. Many maintenance managers still receive work requests via phone, post it notes, or just by word of mouth. They're expected to remember what the issue is, where it is, which system it's a part of, and who requested it. Relying on memory alone virtually guarantees something will be forgotten.

CMMS software can automate this process to ensure nothing is forgotten. In many cases, where no process exists, it can create a formal process. It lets employees log work requests directly to the maintenance queue through the CMMS guest portal. Guest users can report on all kinds of information about the work request, like its priority or any relevant health or safety concerns. As they input the details they can also be contacted if there are any questions that need clarification. When the maintenance team completes the work, the guest user automatically receives a notification from the system letting them know the job is done. Nobody wastes time trying to track down maintenance personnel to get an update - the CMMS automates all this through work order updates – so the maintenance manager and their team can focus on the job at hand without interruption.

10. Improve Work Order Administration

CMMS software gives the maintenance manager greater visibility on work reception, planning, performance, evaluation, reporting, and control across the maintenance team. It helps identify which people are doing what, what work is due, and what work still needs to be completed - ensuring nothing is overlooked. Having a clear view of the work order backlog helps the maintenance manager prioritize projects and use resources more efficiently. CMMS software also eliminates the double jobbing associated with paper, spreadsheets and disparate systems by digitizing the paper trail, streamlining the maintenance workflow, automating processes, and maximizing employee productivity, eliminating unnecessary administrative tasks and the related clerical costs.

11. Accomplish More with the Same Resources

CMMS software can help improve employee productivity and accuracy in a number of ways to ensure tasks and activities are completed correctly and on time. For example, technicians can log work orders in the field as they go, reducing the need to record everything on paper and file it away. By using a digital system, technicians can quickly access past work orders, service warranties, schematics, service providers or any other documents uploaded to the CMMS. By reducing the time spent on paperwork, you increase the time available for higher value activities. The CMMS also helps the technician plan and track their assigned work so they can complete the work in the most efficient way without interruption.

12. Promote Greater Job Satisfaction among Maintenance Personnel

Remember, maintenance is not just about fixing machines when they break, it's about maintaining the function of assets so they perform when needed. Organizations with a CMMS in place tend to be more organized this way, which makes the employees much less stressed. Maintenance teams that perform less reactive maintenance can focus their time on higher-level activities instead, like improvement projects, refining systems and processes, and analyzing maintenance strategies. This gives them the ability to learn

new skills and take on bigger and more complex challenges which in turn leads to greater job satisfaction, a more fulfilling career, and reduced staff turnover.

13. Foster Teamwork and Collaboration

Teamwork is often thought of as the most efficient way to get things done in an organization. A team of people working together can achieve much more than any individual working alone. When individuals work together as teams, they can bounce ideas off each other and arrive at the best solution quicker. Organizational success often depends on how well its teams work together. Teamwork can lead to better decisions, products, or services2.

CMMS software can help promote behaviors that lead to effective teamwork by offering a central location for users to collaborate, share ideas and trade knowledge. For example, a junior technician struggling to find a solution for a tricky repair could use the CMMS to see how team members solved similar issues in the past. Or they could invite a senior technician to review their work order notes and make recommendations for the future. Organizations that work shift patterns can still stay connected and transfer knowledge through the CMMS or by distributing shift update reports. In addition, the CMMS helps ensure greater transparency and alignment by giving the team greater visibility of the activities of the entire team.

14. Gain Greater Control over Parts Inventory

A CMMS is an effective tool to help track your spare parts and control inventory related costs. Your organization can automatically track parts inventory, manage suppliers and vendors effortlessly and help keep inventory levels and costs optimized. When parts are consumed during work orders, the CMMS depletes stock levels in real time. No need to go back to the desk and update those stock cards. If stock falls below minimum levels, the system will notify the required users or suppliers to start the re-ordering process. Stock outs can be a thing of the past! With inventory tracking features, it becomes possible to order spare parts before they're needed. When you order in advance, your team doesn't have to pay expedited shipping charges and has more time to negotiate on pricing.

Many large organizations manage their assets in a CMMS while managing their spare parts in a separate ERP system. David Berger of Plant Services points out the missed opportunities of not using your CMMS to track spare parts3. By using a single CMMS system for asset management and inventory control, you cut those additional costs associated with acquiring a separate ERP system, integrating it with the CMMS and training staff on two disparate systems.

[2] http://en.wikipedia.org/wiki/Teamwork
[3] http://www.plantservices.com/articles/2009/001/

15. Reduce OH&S Incidents

An essential part of keeping employees safe is demonstrating an ongoing commitment to preventing employee injury through proactive health and safety action. CMMS software can help an organization take a proactive step towards keeping employees safe by reducing the chance of injuries happening due to negligence. The CMMS triggers those important safety inspection checks on a predefined schedule, ensuring all safety systems are working like they should.

As mentioned above, planned maintenance is known in advance and well documented, which gives technicians time to prepare the right tools and parts for the job. By planning system maintenance and inspections, organizations can circumvent those major breakdowns that put individuals at risk. Publishing the maintenance department safety reports will keep employees mindful of their own personal safety and motivated to maintain a safe work environment for everyone else.

A CMMS should be a valuable tool in every manufacturing organization to ensure a safe work environment for its employees. It helps your organization schedule and track your maintenance and safety related inspections including those tasks required by law.

16. Improve Compliance Risk Management

In addition to helping to proactively prevent safety related incidents, a CMMS can also help organizations show that maintenance activities were performed according to regulatory requirements and that all possible steps were taken to keep staff safe. Having CMMS software could help mitigate the impact of fines imposed if your organization can demonstrate you've taken the proactive steps to prevent injuries. Most CMMS applications include audit trail functionality, which means the system holds a digital record of every operation performed during a given period of time. Maintaining a complete audit trail is not only important to conform to industry compliance and regulation but it could be your first line of defense against incidents and lawsuits. CMMS software also makes pulling the data for the compliance audit process a breeze. If the organization gets audited, CMMS reports can be used to demonstrate a record of proactive inspections and safe repairs, providing dear evidence of OH&S compliance.

17. Limit Manufacturing Scrap and Rework

Scrap and rework occurs when production systems breakdown. If the product is left sitting for an extended period while technicians scramble to fix the issue, it may need to be pulled from the production line. The defective product is either scrapped or reworked through the system, requiring further energy and effort. For example, defective metal, plastic or glass products can melted down and reformed using more energy and water. Food products may be scrapped due to concerns over food safety. In the semiconductor industry,

silicon wafers get dipped in acid baths to remove the defective layer. The rework process uses harsh chemicals that can be harmful to the environment. In any case, the scrap or rework process requires further energy and effort, producing further emissions or a waste trail.

If you don't properly maintain your equipment, you will experience more breakdowns and hence, more scrap and rework. The easiest way to mitigate emergency breakdowns is performing proactive maintenance on your systems, and tracking everything in your CMMS.

18. Reduce Energy Consumption & Become a Greener Organization

You'll notice that you make fewer journeys to the gas station after your car gets serviced. This is because the car is running more efficiently and needs less energy to run. The same is true for other mechanical systems. If you keep them running efficiently, they will use less energy. Today, the manufacturing industry is responsible for 35% of global energy use. Greater demand for energy in the future could lead to energy shortages that impact everyone, so it's in everyone's best interests to reduce energy usage. Adhering to maintenance schedules and keeping systems in "like-new" condition ensures equipment is operating as efficiently as possible, limiting the impact equipment and facility assets have on climate change.

In addition, CMMS software helps the maintenance team digitize their paper trail; eliminating the need for paper work orders. Work order information can be logged digitally by typing or voice recognition on modern smartphone devices, making the process quick and painless.

19. Increase Company Valuation

CMMS software can help increase a company's valuation in a number of ways. Firstly, well-maintained assets are more valuable than badly maintained assets. Work order records in the CMMS can demonstrate that the asset has been serviced correctly and properly maintained over its lifecycle. Secondly, having a CMMS in place to oversee the organization's asset management strategy will increase the value of the company in the eyes of a buyer. Investors will value an organization more favorably when they have formal systems and processes in place. Finally, as mentioned above, maintenance affects all aspects of business including customer service, brand, product quality, and energy efficiency, which ultimately impacts company valuation. Having an effective asset management strategy in place, all tracked with a CMMS, will help maximize company valuation.

Facts & Figures

Here are some of the figures to back up the points above. According to David Berger4, a correctly implemented CMMS will lead to:

- 15% to 20% increase in maintenance staff productivity
- 15% to 25% reduction of breakdowns
- 20% to 40% reduction in overtime
- 15% to 35% reduction on parts replacement costs
- Up to 35% reduction of your replacements parts inventory
- 15% to 30% reduction in service calls
- 2.5% to 5% reduction on equipment energy costs
- 1.5% to 3% discount on your supplies
- Up to 50% increase of your equipment's residual value or useful life span.

[4] Source:- http://www.plantservices.com/articles/2010/02AssetManager/

What is the Total Cost of Ownership of CMMS Software?

When purchasing a new car, the savvy purchaser amongst us also factor in future operating costs including repair costs, fuel consumption and resale value of the car. We may be able to afford the car now, but will we be able to continue to operate the car throughout its useful life until we dispose of it. This is called the total cost of ownership (TCO). The total cost of ownership includes the initial purchase price and operating costs from purchase to disposal. Operating costs are incurred over the life of the product and could include insurance, service, repair, upgrades and energy consumption.

When evaluating CMMS or EAM asset management software, the total cost of ownership should be a major factor in the decision process. Research the financial impact over the lifetime of the product before making the purchase. This includes:

- Initial purchase price of the software
- Server hardware, server software and floor space
- Power, cooling & UPS backups for related server equipment,
- Network setup and configuration
- 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

With such a long list of items to consider, understanding the total cost of ownership is essential when making the purchasing decision. If you are considering upgrading you CMMS, or implementing a CMMS for the first time, cloud based CMMS software provides distinct advantages and cost savings over traditional on premise CMMS software. With little or no IT infrastructure required, cloud based CMMS is a convenient alternative to conventional on premise installed software. The reliability, mobility and lower total cost of ownership that comes with cloud based CMMS will give you the competitive advantage you need to take your asset management strategy to the next level.

Conclusion

The purpose of implementing a maintenance strategy is to minimize costs associated with downtime, stocking parts, and management reporting time. A CMMS can help an organization oversee its asset management strategy and improve its bottom line through an improvement in system availability, extended system lifetime, increased labor productivity, and a reduction in maintenance related costs.

Properly maintaining your equipment can prevent emergency downtime, improve performance, reduce energy consumption, limit the need for spare parts and keep equipment in use for longer. Computerized Maintenance Management Systems (CMMS) is a proven instrument to ensure assets are properly maintained so it should be a key component of your asset management strategy.

Implementing a CMMS is an opportunity to streamline business processes, shed unnecessary functions, and optimize information technology to create sustainable reforms. Many CMMS systems can be customized to suit maintenance processes, no matter the size of the organization. Most modern CMMS applications can be effectively deployed by any business in any market sector for efficient asset management.

The net result of a successful CMMS implementation is simplified internal maintenance processes, greater reliability, higher quality production, improved consumer confidence and ultimately, sustained competitive advantage.

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.

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