WHY CMMS IMPLEMENTATIONS FAIL

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Many companies have purchased a Computerized Maintenance Management System (CMMS) or Computerized Asset Management System (CAMS) with the intent that the system will be the silver bullet that solves all the maintenance problems. A functional CMMS is only a tool. Simply viewed, it is a vast repository for information that can be instantly accessed to assist in the decision-making process to continuously improve equipment reliability. A CMMS when properly implemented is a very useful tool for resource management, material management, equipment reliability, budgeting, maintenance cost reporting and management and planning and scheduling. Unfortunately, 90% to 95% of all CMMS implementations fail to deliver the desired results and are forsaken or underutilized. The causes for failure of the CMMS are many, but rarely are the failures due to the actual capabilities of the software. There are over three hundred different maintenance management software packages available on the market. They range in complexity from simple work order management and tracking to massive enterprise systems that facilitate management of the entire maintenance function. What is the difference between those plants that have a successful operating CMMS and those plants that do not?

Implementation has to be performed with a Team Concept

As with any process for improvement, upper management must champion the cause and make commitment of resources to ensure its successful implementation. Middle level managers, supervisors and craftsmen must buy into the concept and incorporate its functionality into the work process. Without full support from all participants within the organization, failure is imminent from the start. Every person involved must buy into the program of implementing the CMMS and want to realize the benefits that it can provide. As an example, one plant had hired a new accountant as plant comptroller. The accountant came from a plant where there was a successful operating CMMS. In order to reduce the cost of producing their product, he knew the maintenance cost was the largest controllable cost in the entire operation. It has been proven time and time again, that with maintenance planning, improved efficiency and proactive maintenance, the production management team can no longer blame missed production goals on the maintenance department. The maintenance manager also newly hired, desired to get control of his maintenance costs, eliminate the reactive maintenance posture and accurately plan the work and manage his maintenance personnel. The plant in question did not have a CMMS. The plant philosophy was that maintenance was a necessary evil and when the equipment broke it was fixed as soon as possible using whatever means were available. The maintenance manager and the comptroller decided that CMMS implementation would be the avenue to follow to solve the problem. Between maintenance management and plant management, a decision was made on a software package. The product was purchased and placed on the facility's computer network. Maintenance personnel and maintenance supervisors felt they were stuck with a system that was selected by upper management, that was burdensome to use, and didn't meet their needs. This situation described takes place on a frequent basis. It may vary from plant to plant as to which person in the plant's management structure made the decision, but none the less, the product wasn't sold to all participants and users. Everyone did not have a sense of ownership for the implementation nor did they feel a part of the team. Teamwork is essential for success. The scenario described is a formula for disaster. The comptroller's previous company had a good system in place. He knew the benefits of a properly working CMMS and desired to move the plant into a proactive maintenance environment instead operating in a reactive maintenance environment. First off, the need for a CMMS must be determined. The proper train of thought should be that a CMMS must be wrapped around a sound maintenance strategy. After the need has been decided, the idea must be sold. **A major reason implementation fail is that most maintenance organizations have little or no input into the selection process or the implementation process.** All parties that will use or benefit from the system must buy into the concept of implementation. It must have support from the plant manager on down to the craftsman on the floor performing the maintenance. After the support has been established, an implementation team must be formed. This team should have participation from all areas of the plant. These areas, at a minimum, should be production, maintenance

supervision, a craftsman from each maintenance craft, engineering, quality assurance, human resources, accounting, the storeroom and information systems management.

Sell the Concept of CMMS

Much thought and examination of the functionality to ensure compatibility to the maintenance strategy must be expended to determine the specific CMMS to be implemented. An evaluation must be made to determine which areas of your maintenance operation needs improvement and then determine if a CMMS will support your improvement. It does no good to say maintenance needs to be fixed and a CMMS will do it for you. That is like saying you are going to eat an elephant. Well, how are you going to do this? The elephant must be sectioned up into smaller portions. The same is true for improving a maintenance organization. Analyze the weak points as well as the strengths. Determine where your organization is for use as a benchmark upon which to develop a plan for improvement. Next, realistic cost estimates for the implementation must be developed. The cost must not only cover the software, but also training, labor time for implementation, computer hardware upgrades, labor required for data base population and, if required, the outside resources required. There are many consultants who can assist with implementation and cost estimates.

A consultant's proposal should quote a price and should delineate whether the work will be performed on a fixed price basis or time, material and expenses basis. It should include a date as to when the validity of the proposal expires. If the work is performed on a time, material and expense basis, there should be a ceiling cost. If you opt to use an outside firm for implementation and their proposal does not include the specifics, be prepared for the possibility of massive cost overruns.

The reason the baseline starting point and cost of implementations is important is because very few plant managers will give approval for such an undertaking without knowing how much it will cost, how the improvement will be measured, the implementation time frame and what the return on investment will be. Key performance indicators must be identified that will aid in determining the return on investment. These items must be determined up front. The expected levels of improvement, the return on investment and realistic reports on performance and costs and are pivotal points to use in your selling process. The justification for the CMMS must be sold to those persons that will influence the purchase and the implementation. Proper selling of the concept will ensure that you get the CMMS and the assets needed for proper implementation. Very often self-doubt enters the picture and many think 'I'm not a salesman'. To that thought pattern, there is disagreement.

The concept of selling is probably centered on the image of a salesman. Many people prefer not to talk to salesmen. They would rather talk to the people that do the work and deliver results. Management and employee relationships require selling every day. The ability to sell a CMMS implementation project should be no different. First, develop a list of five to ten items that are important to each group that needs to accept the concept of CMMS implementation. Demonstrate how a CMMS will benefit their ability to do their job better. It may be as simple as showing how reducing maintenance costs and increasing production capacity will allow the product to be produced for less cost and result in greater earnings to the individual through the company's profit sharing plan. Or it may be a much more convincing argument to get the plant manager or corporate level managers to believe the amount of savings that will be realized for return on investment. This can all be overcome with research and presenting the facts in a logical manner. When addressing the various groups within your organization, put yourself in their position and ask, as they will, 'Why should I listen to you and what is wrong with the way things are now?' Properly presented, you should be able to sell the concept to each target audience.

Select the Right System

Would you walk into a store that you have never entered in the past and purchase a suit off the rack without trying it one first? Of course not. The same should be true for a CMMS that may ultimately cost you hundreds of thousands of dollars including implementation. Unfortunately, this is not always the case. One company that was trying to use a CMMS to manage facility maintenance for a major hotel resort bought the

CMMS sight unseen. A CMMS salesman, in a telephone conversation, convinced them that his system would meet their needs. Salesmen are not maintenance specialists and their idea of success does not always agree with your defined goals. The CMMS used a Microsoft Access® database. The hotel was processing in excess of twenty thousand work orders a month. The result was the CMMS was taking up to six hours a day to close work orders and the system couldn't be used for any other functions. When asked why they didn't select an SQL® or ORACLE® database version, the response was they trusted the salesman. They did not perform any vendor selection criteria.

Selecting the correct system starts with the preparation of a requirements document. The requirements document contains the requirements for both the functionality and computer hardware capacity that your organization desires in a CMMS. This document is sent to CMMS vendors that may be able to deliver the system you need. The names of CMMS vendors can be found in trade magazines, through contacts in professional societies and on the Internet. You should specify in your requirements document that contacts to your company should only be made for clarification of the requirements and not for sales calls. The information that the vendors supply should be used to develop a select list of vendors. Next, have each vendor from the select list visit your facility and demonstrate the capabilities of their system. At each demonstration, you should have representation from all key areas of the plant. At a minimum, you must have your implementation team present. Questions about the product and its capability should be prepared before hand, and if possible, send these questions and concerns to the vendor prior to the visit to allow enough lead time for the vendor representative to address all concerns. After all, the vendor is there to serve you. Be clear about what it is you want the system to deliver. These inquiries should be in addition to the items that were specified in your requirements document.

After the demonstrations by your select list of vendors, determine which package is right for you. Some items to consider, in addition to your requirements document, are the level and cost of technical support, training provided and the cost of the training, software upgrades, and cost per user of the software. If you need assistance at 3 AM on a Saturday morning and call the toll-free number, will there be a person there to answer your call and give you the information you need? If you desire training, does the company provide training as part of the software cost or are there additional expenses above the price of the software? When a CMMS software upgrade is released, is it provided to you as part of a service contract, as part of the original cost of the package or do you have to purchase the upgrade separately? There is nothing wrong with any of these options, but they must be known up front for budget projections.

Through internal selling of the concept of CMMS will eliminate the problems that arise from plant politics. Most plants have some internal political confrontations that inhibit good cooperation and coordination of the overall operation of the plant. It is essential that participation of the information systems group, purchasing, accounting and operations all be sold on the concept because they are also users of the system. Contrary to a commonly held belief, the CMMS is not a maintenance system. All of these plant entities are users of the system and to ensure a successful implementation, they must be on board with the concept and be integral team players.

Implementation Plan

After selecting the system, the real work begins. A well developed, closely followed implementation plan will determine whether you are one of the 5% to 10% of the successful companies or not. Thew plan must be concise and detailed. It must include clearly defined, achievable goals and objectives. With few exceptions, implementations are performed in phases because few companies have the financial resources to complete the implementation all at once. The specific tasks should be planned in a logical sequence with defined responsibilities, personnel, progress reviews, and start and completion dates. The plan should include infrastructure, labor and training requirements, and implementation system installation, and data base development schedules. Poor implementation plan development is one of the leading causes for implementation failure. Many companies try to speed along the implementation by not using a plan. A frequent mistake is to assign someone like the maintenance department administrative assistant to implement the program. This is a classic formula for failure. First, this person has little or no authority. Second, leaving the data collection and data entry to a person that is not familiar with the equipment and has very little understanding of maintenance is the wrong method. The implementation requires

knowledgeable personnel to establish an equipment hierarchy. A method of equipment identification that not only accounts for the equipment installation in a specific location but also tracks equipment when it is removed must be established and thought out. The nomenclature for spare parts and bills of material must be uniform and the methodology for descriptions must be compatible with the search and filter functions of the CMMS. Preventive maintenance procedures must be developed and entered and the equipment links made. Very rarely does an administrative assistant understand the equipment to the degree required. When this scenario is used, the CMMS usually ends up being used only as a work order tracking system. If that is all a company desires, an EXCEL® spreadsheet can accomplish that function.

Partial Implementation

Many companies fail in their implementation because the process is only partially completed. Many companies do not have experienced personnel to fully implement a CMMS because they lack the understanding of the software program and the system capabilities. The complete scope of the tasks involved are not fully defined during the initial implementation plan or there is little understanding of the software program intricacies and relational data base understanding to even be able to define the scope of the task to be performed. When this occurs, companies end up trying to perform actions that will make the program work. At this point, smart companies stop and seek assistance. Many consultants are able to spend a few days with the company and get the project back on track. Those companies that don't stop and seek assistance, on average, use only 10% to 15% of the total CMMS capability and the rest is wasted capacity.

When seeking the assistance of CMMS consultants to provide the experience and expertise needed to either perform a turn-key implementation or to deliver assistance to get the implementation back on track, use caution in hiring a consultant. The capabilities and the experience of the consultant or consulting firm must be verified. How many implementations has the consultant been involved with? What are some of the firm's clients? Get a list of the clients and research the clients yourself to determine if they were satisfied with services delivered. Verification is the key to using a consultant. Many consultants sound good, but can they deliver the services?

Insufficient Resources and Effort

Another major cause of failure is not assigning enough manpower to properly accomplish the task of implementation. The cause of this varies from high maintenance requirements, poor commitment from upper management, and not spending the necessary capital to allocate the needed manpower, to poor planning for development of the implementation plan. The overall result is the resources needed to properly perform the job are not available and the persons performing the task of implementation partially complete the job. Further exacerbating this situation is lack of project management oversight. An implementation project is a long-term effort and dedicated management time must be put forth to provide the needed oversight, guidance and direction. An appropriate project leader to implement CMMS must know the maintenance process. The manager assigned must also have the authority and upper management backing to complete the implementation. Many times a junior engineer with little or no maintenance background is assigned to this position or the project falls on the shoulders of the maintenance manager. He not only manages the maintenance department but also has to manage the CMMS implementation as well. These situations of project management are scenarios for failure.

Most implementations use in-house resources for the process. When totaled, the complete time required to properly do the job equates to many man–years of efforts. Most companies do not have this capability. When companies do not have adequate resources allocated, the implementation becomes a job to perform when there is nothing else going on in maintenance. We all know that there is always work to be done, especially in a reactive maintenance environment. More often than not, the end result is that salary and hourly employees are asked to put in longer hours to complete the implementation. This results in poor quality, corner-cutting and low employee morale. This scenario results in the implementation being a secondary objective and the primary objective of improving the maintenance operations and providing greater production capacity is never realized.

GIGO, Garbage In Garbage Out

GIGO is the phenomenon that occurs when information is entered into the relational database without uniformity. When you put poor data into the system, you get poor information out of the system. When numerous persons do not enter the data in a uniform manner, the system will not provide you the desired results. An example is the nomenclature for spares within the bills of material. One company allowed various persons to enter data. Do you know how many different ways there are to identify a bearing as an equipment type? It was entered as 'BRG', 'BRNG', 'BERNG', and other iterations. This individuality of parts identification made it nearly impossible to research the desired parts along with linking parts to the correct equipment. The end result was frustration on the part of the maintenance personnel trying to order parts for upcoming jobs or for immediate repairs. The system did not deliver the expected level of service. This can be prevented with proper training and planning as part of the implementation plan.

Changing the Culture

When you have reached the point where the CMMS is implemented and the database correctly populated so that the system can deliver the desired results, it is time to complete the final item. The last cause of failure of implementation is the culture of the plant personnel. Without modifying the workflow process and training the plant personnel on the new process and holding personnel accountable after they have been trained, the desired results of the CMMS will not be delivered. In order to accurately track the cost of maintenance, parts and labor expense must be applied to the equipment. Accurate costs can't be properly determined if maintenance technicians have personal supplies of spares in their locker or tool cart. This is a behavior shift for the maintenance technician. In reactive maintenance environments, craftsmen frequently develop their personal set of frequently used parts knowing the storeroom can't deliver the parts. This allows the equipment to be quickly repaired but results in no costs for spares being rolled up to the equipment.

In order for the CMMS to deliver the desired expectations and results, there must be an evaluation of the work flow process. The work flow process defines the day-to-day operation of performing maintenance scheduling and planning, and the maintenance execution. Evaluation and definition of the existing process must be performed during the implementation and be included as an integral step in the implementation plan. Along with the evaluation and definition of the work flow process, there also has to be maintenance procedures implemented that allow the craftsman to properly perform the maintenance. There has to be shift in the mentality to allow the planning and scheduling process to work. It has been shown that when maintenance is planned and scheduled, a twenty-five-person maintenance force operating with planning and scheduling can deliver the equivalent amount of work of a maintenance crew of forty persons with no planning. Planning and scheduling is most effective when there is one planner / scheduler assigned for every twenty to twenty-five persons in the maintenance force.

Computerized Maintenance Management Systems are very powerful tools that allow companies to significantly reduce their costs. These systems are an excellent vehicle to move companies from a reactive maintenance environment to a proactive maintenance environment along with allowing companies to accurately track the cost of their maintenance and determine their manpower utilization. The implementation of a CMMS is not a 'quick fix' to correct maintenance problems. It is a time-consuming effort not to be undertaken lightly. Only a small portion of the overall cost savings will be from a reduction in actual maintenance costs. The CMMS will allow accurate tracking of inventory spares, reduce excess levels of inventories, accurately track and develop realistic equipment and financial reports, allow better management of work order backlog and allow proper planning and scheduling of maintenance and maintenance personnel. The pay back will be that when the system is fully implemented and the plant is operating in a proactive posture, the return on investment will be seen through a significant rise in production capacity due to reduced equipment failures.

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