Computerised Maintenance Management Systems (CMMS)

Introduction

Computerised Maintenance Management Systems are increasingly being used to manage and control plant and equipment maintenance in modern manufacturing and service industries. This view of the selection and implementation process can assist those who are considering CMMS for the first time, to decide their requirements.

The advent of the PC during the last few years has further boosted their popularity. As more and more maintenance personnel become computer literate they are regarded as an increasingly attractive option. Companies are also investing in CMMS's because they are generally designed to support the document control requirements of ISO 9001 and are a key part of the TPM philosophy.

Manual Systems

Computerised systems are now being installed in preference to the manual (paper based) preventive maintenance systems that have been around for many years. Commonly, these paper systems are little more than a record of scheduled maintenance. These have had limited success because of:

- the problems associated with training people to be disciplined enough to *maintain the maintenance system,* that is, to input the data to the system
- the effort required, by supervisors and managers, in the *organisation* and *documentation* of the system
- trade group's reluctance to become involved in paper work
- the effort associated with the *acquisition* and *compilation* of meaningful data and statistics from the system.

In a typical paper system, each piece of equipment or asset will have a history card or file. This file will contain the asset's detailed description, along with information on maintenance procedures to be used, periodicities, trades required, last maintenance dates, and perhaps some out of date information about a breakdown, which occurred years ago! To determine what maintenance is due requires someone to look through every card, check each of the last maintenance dates against the periodicities and select those, which are due.

Next, the appropriate maintenance *procedures* must be selected from the file before work instructions are raised and issued to the relevant trade's persons. Upon completion of the work, the relevant asset's file must be selected, details updated and the file replaced in its slot. Whether one or several persons complete these tasks, many man-hours are involved and to properly support any reasonable sized system of this type can become virtually a full time occupation.

What does a CMMS do?

Many CMMS's fail soon after implementation because they have been badly specified. Quite often it is not until after the installation is complete, that users realise their new system does not meet their requirements. This is understandable. Typically, prospective users may be consulted about what they would like from the system, but quite often they are not in a position to comment, as they are not fully aware of what is *available.*

Some of the standard functions available from a CMMS are discussed later in this document and those who have had no previous exposure to CMMS will find this useful. However, in essence, a CMMS may be used to:

- control the company's list of maintainable assets through an asset register
- control accounting of assets, purchase price, depreciation rates, etc.
- schedule planned preventive maintenance routines
- control preventive maintenance procedures and documentation
- control the issue and documentation of planned and unplanned maintenance work.
- organise the maintenance personnel database including shift work schedules
- schedule calibration for gauges and instruments
- control portable appliance testing
- assist in maintenance project management
- provide maintenance budgeting and costing statistics
- control maintenance inventory (store's management, requisition and purchasing)
- process condition monitoring inputs
- Provide analysis tools for maintenance performance.

The above listing illustrates most of the functions, which may be available in a CMMS. It is extremely important however, that prospective purchasers ask themselves a few questions before making any decisions. Many companies spend thousands of dollars on complex, integrated systems for which they have little use. It is only after they are installed that it becomes apparent that perhaps only 5 to 10% of the available functions will be used. You must be clear on the following:

- Do you have the resources and the commitment to implement the system? Remember that in even a medium sized company a significant amount of time will be required to collect and input data. Someone will be required to create a library of maintenance procedures where this does not already exist.
- Are you willing to provide support and administer the system on an on-going basis? The extent of this support will clearly be dependent on the size of your system.
- Do you require the system to control your stores and or purchasing? Are you willing to commit the people power to input the data for this?
- Do you need it for accounting purposes or just maintenance control?
- Do you really need a multi-user system, and if so, how many people are likely to use it? Remember that this should be based on who *is* likely to use it, *not* who you would *like* to use it.
- On multi-user systems, are you willing to commit your personnel to the training, which is likely to be required?

In conclusion, much thought and discussion must take place before any decision can be made on your requirements.

What returns can be expected?

The transition to CMMS will require a substantial investment. The return on this investment will be dependent on the suitability of the selected software package, the effectiveness of its implementation and the commitment of all personnel to the new system. Most vendors sell their packages by claiming:

- increased plant availability - by reducing down time
- lower operating costs - by reducing overtime, spares inventory and
- prolonged asset life - by more effective maintenance
- reductions in spare part inventory - by identifying parts through links to equipment
- much improved control over preventive maintenance schedule and documentation
- simplified access to maintenance data and statistics - through report generator

Whatever the claims made by the supplier, one of the main benefits to be gained from a CMMS is that it helps and encourages the user to focus on good maintenance practice. Procedures become formalised and organised through having to conform to the requirements of the new system. The table below illustrates a few of the common differences in an organised versus a disorganised maintenance department.

Factors in good and bad maintenance

Badly Managed Maintenance	Well Managed Maintenance
- Maintenance is heavily dependent on skilled and specialised trades persons - No records are kept and much of the equipment history is inside people's heads - It is impossible to estimate maintenance costs - High levels of maintenance related overtime are being worked - Maintenance is a perceived by management as a necessary evil - The greater amount of maintenance man hours is spent on unplanned work	- Maintenance is recognised by management as an integrated, essential part of production - The Maintenance section focus is upon making equipment available through increased reliability - There is an emphasis on analysis of the reasons for down time - There is a commitment to planned work - There is an emphasis on training - Continuous improvement programs are in place - Operators are involved in the maintenance of their equipment