50 Questions before computerization

Before computerization, as an organization, ask yourself:

1. Is there enough time, money and interest to involve all levels within the maintenance department and other stakeholders in the decision process to buy CMMS? Is there support from top management to see you through the inevitable ups and downs of the entire installation process? Management support is essential.

2. Sufficient resources for a complete installation are also essential. The resources include training dollars, time replaced on the shop floor, and computer access. If necessary, can you get typing and basic computer skills training for your mechanics? Will management tolerate the initial research and keying of files by your mechanics and staffers? Can you get the budget authorization to replace the mechanic's slot on the shop floor by overtime or by a contract worker?

3. After the maintenance system is in operation will mechanics and supervisors have the training, knowledge, positive attitude and access into the CMMS to investigate a problem? Is there continuing training in advanced concepts beyond `which key strokes to get which reports' type classes? Is there regular time set aside for thinking and using the system for research into problem areas? Do mechanics and supervisors have easy access to terminals or PC's? Are these devices hardened against the shop environment?

4. Is there organizational willpower to insure that garbage and faked data will be kept out of the system? Another way to put that is, is falsifying a work order to fill 8 hours viewed as a joke or a crime? Will the data coming out of the system be commonly held by management and the workers to be accurate and useful? Are maintenance records treated as seriously as payroll or other accounting records?

5. Does anyone (including mechanics) have the time to investigate repair history to detect repeat repairs, trends, and new problems? Related to #3 above do they have the training to use the system to answer the questions that they have?

6. Can you and your staffs spend enough time designing the system's categories to make meaningful comparisons between like machines, buildings and cost centers? This is a two step process. The first step is to have the vendor's trainer conduct a class in the category model of that system and how things are commonly handled. The second step is to actually fight out the categories that you want to use. It is critical to understand and wrestle the decisions that you make at the early steps in the set-up of a system.

7. If you have 100 pumps, probably 20 of them create the most maintenance load. This rule of management has tremendous application in maintenance. It is called the Parieto principle. Has the Parieto principle (the 80/20 rule) been taught and used to isolate the `bad actors' (that is to

identify the problem machines, craftspeople, or parts). Be sure you understand how to generate these Parieto analysis or exception reports in the system you chose.

8. Will you have the support of a responsive data processing department (or a very responsive vendor)? You will want changes, fixes, and enhancements. In fact, your ability to handle technology and sophisticated systems will improve after the first 6 months. Many organizations outgrow their first systems in a year or two.

9. Does the longer range plan include CMMS integration with stores, MRP, purchasing, payroll, CAD/Engineering? The trend is toward company wide networks. Organizations want everyone discussing a problem to be working from the same data. This means linkages of the maintenance information system to the corporate information systems with all the links and hooks that that implies. Increasingly information systems are viewed as strategic advantages. Access to information makes a major difference.

FIFTY QUESTIONS TO HELP YOUR CMMS SEARCH

Questions to ask yourself and to ask vendors, how to avoid the most common pitfalls of choosing, purchasing and installing computer control and information systems. Both the Maintenance Fitness Questionnaire and the section on installing PM systems have additional ideas.

A full function CMMS should be able to help in many areas. Many organizations purchase systems to solve specific problems. They don't need other functions or don't consider them important at the time of purchase. The following 50 questions will help you focus your attention in the various areas. They are not in priority order.

Work Order

1. Produce an easy to use work order that allows future conversion to bar codes, hand held terminals and other improvements to technology.

2. Work Order classifies all work by some kind of repair reason code: PM, corrective, breakdown, management decision, etc.

3. Easy way for a single person to screen work orders entered before authorization that work can begin. Some systems have a field that has to be checked by a supervisor or manager to release the job to the next processing step.

4. Prints up-to-date lock-out procedure on all work orders automatically. Has the ability to access a lock-out file and incorporate the right lock-out scheme (there might be only 10 variations for the whole plant). Less desirable by still OK would be an individual lock-out file for each machine.

5. Automatically costs work orders. Can look-up the value of a part in the inventory and bring the cost across to the maintenance work order. Will also look up the charge rate for the individual mechanic.

6. Provide status of all outstanding work orders. Allow sorts on different status codes. An example would be to print or display all work orders waiting for engineering.

7. Record service calls (who, what, time stamp, where, how) which can be printed in a log format.

8. Allows production to find out what happened (what status) to their work request without being able to make changes.

9. Calculate backlog of work and display it by craft.

10. Both open and closed work orders can be displayed or printed very easily. Keep work orders available for at least 5 years and preferably form birth to retirement of the equipment.

11. Does the system facilitate labor scheduling with labor standards by task, ability to sort and re-sort the open work orders by location of work, craft, and other ways.

Stock room

12. Will the system facilitate big ticket analysis by printing all parts over $500. Will it facilitate A-F analysis by printing the product of (in descending order) the unit cost times the annual usage.

13. Does the store room part of the system have part location to help the mechanic or store keeper find infrequently used parts.

14. Can the system generate a parts catalog by type of part or by current vendor with yearly usage to facilitate blanket contract negotiation?

15. Does the system recommend stock levels, order points, order quantities.

Maintenance History and reporting

16. Maintain maintenance history that is detailed enough to tell what happened years later.

17. Provide information to track the service request-maintenance work order issue- work complete-customer satisfied cycle. Include elapsed time and other analysis factors.

18. Provide reports for budgets, staffing analysis, program evaluation, performance.

19. Provide information for work planning, scheduling, and job assignment. Have the capability to store and retrieve work plans, copy old work plans and modify existing plans when new information comes in.

20. Be able to isolate all work done (sort, arrange, analyze, select, or list) by work order, mechanic, asset, building, process, product, division, floor, room, type of equipment or asset.

21. Provide the ability to easily structure ad hoc (on the spur of the moment) reports to answer questions that come up. This is called a report writer.

22. Have ability to generate equipment/asset history from birth (installation, construction, or connection) to present with all major repairs and summaries of smaller repairs.

23. System reports are designed around Parieto principles where the system helps identify the few important factors and helps you manage the important few verses the trivial many.

24. System reports on contractor verses in-house work. System can track contractor work in as much detail as in-house work.

25. Provide reports charging back maintenance cost to department or cost center.

26. Has reports with mean time between failures (MTBF) that show how often the unit has failed, how many days (or machine hours) lapsed between failures and the duration of each repair (MTTR).

27. Will the system highlight repeat repairs when a technician needs some help.

PM system

28. Allows mechanics to easily write-up deficiencies found on PM inspection tours. System then automatically generates and tracks a planned maintenance work order.

29. Automatically produce PM work orders on the right day, right meter reading, etc. PM system can sort work orders by location to minimize travel time.

30. Be able to display PM work load for a future period such as a year by week or month by trade.

31. Be able to record short repairs done by PM mechanic in addition to the PM and actual time spent.

32. Does the system support multiple levels of PM on the same asset (such as a 30 day A level and a 180 day B level on the same asset). Does it reset the clock if the high level is done (if you

do a yearly rebuild does the monthly PM clock get reset). A resetting feature prevents a 30 day PM coming up a week after a rebuild.

33. PM's are generated by location by trade to facilitate efficient use of people and minimize travel.

34. Allows the input of data from Predictive Maintenance sub-systems. This might include trending, days to alarm, baseline, and comparison to previous readings.

35. Highlights situations where the PM activity is more expensive than the breakdown.

36. Are there simple reports that relate the PM hours/materials to the corrective hours/materials to the emergency hours/materials? This will show the effectiveness of the PM program. These ratios become benchmarks for improvement.

General

37. System can the system handle 3-4 times more assets then you imagine having. Even medium sized and smaller companies go on acquisition hunts. A small successful manufacturer might find itself tripling or more in size overnight.

38. System has a logical location system to locate assets and where work is done.

39. System tracks the warranty for components and flags warranty work to recover funds.

40. Be easy to use and learn for novices and quick to use for power users.

41. System is integrated or can be integrated to purchasing, engineering, and payroll/accounting

42. Can the system easily handle a string PM such as a lube route, filter change route?

43. System runs on standard computer hardware (not special hardware incompatible with everything else). The system is compatible with existing Local Area Networks (if it is a PC product).

44. System vendor has the financial strength to complete the contract (and stay in business for several years after installation).

45. Does the vendor have software support people, can you easily get through to a person. Is there an 800 number. Once you get through to the people know the product and maintenance of factories?

46. Can the vendor provide economical customization? Do they have on-going enhancement. Are the programmer's employees of the vendor or contract workers?

47. Does the vendor have a local installation organization?

48. Are they experienced in management of installation projects of the size of your facility? Do they have start-up experience with projects this size?

49. Are the vendor's technical people well cross trained (software, hardware, and reality wear, like how a real machine works). It's important that the installation people have experience with maintenance.

50. Has the vendor been in business 5 years or more?

Executive Summary

The mission of the maintenance department and anyone in the organization to perform maintenance improvement is to decrease the need for maintenance. They should get better and better at maintaining the building, factory or fleet that they are responsible for. The maintenance professionals should take their time and look at things more closely and make the necessary changes in equipment whenever required. This will help to reduce the failure rate and also, increase the savings.

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