Selecting Maintenance Software for Success

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Companies often purchase maintenance software based on the vendor who delivers the most impressive sales pitch. After spending thousands of dollars, the companies are often left with software that does not meet their needs. The goal of this paper is to provide a systematic methodology of maintenance software selection that will result in a software package that meets your needs.

To begin with, we will examine the clients the maintenance software vendors serve. They can be divided into three broad categories, which are:

1) Process Manufacturing
The simple definition of process manufacturing is that, once the output is produced, it is sold as the final product, not the basic components. Consider a can of soda. Once you put it together, you don't take apart the components of carbonated water, citric acid, sugar, etc. The food, beverage, chemical, pharmaceutical, consumer packaged goods, and biotechnology industries are examples of process manufacturing.

2) Discrete Manufacturing
Discrete manufacturing involves the manufacturing floor working off shop orders to build something. The individual products are easily identifiable. Furniture, Lego Blocks and computers are examples of products made from discrete manufacturing.

3) Specialty Markets
Specialty markets have unique characteristics that are not served by the process or discrete markets. They include oil and gas, aerospace and defense, mining and metals, and power generation.

It is best if you can find a software vendor who typically targets companies that are approximately the same size as your company (within a range). That way, your needs are similar to other customers served by the vendor, and the vendor should be more likely to respond to those needs.

The following table demonstrates the different size markets and the number of employees, revenue and number of users typically found in each market:

Size	# of Employees	Company Revenue	# of Users
Very Large	2,500+	$300M +	70-1,200
Large	1,500 +	$250 to $500M	50-1,000
Medium	100-1,000	$50 to $250M	50-200
Small	50-250	To $50M	20-50
Extra Small	1-50	To $5M	1-10

The next table shows the maintenance software vendors that serve each market:

Size	Software vendors
Very Large	Oracle (Peoplesoft& JD Edwards), SAP
Large	IFS, Infor
Medium	Epicor, Infor, Syspro, Lawson, IBM Maximo
Small	Avantis, Maintmizer, Benchmate, Champs
Extra Small	Microsoft Access, Foxpro,

Now that you understand the categories of vendors and which vendors serve each market, we will look at three key industry trends.

The first trend is industry-wide consolidation over the last few years. Here are some of the primary acquisitions by the software companies:

- IBM bought MRO software in 2006
- Infor Global Solutions- bought SSA global (BAAN) in 2006, Syteline in 2005 (shipping and warehouse) and Lilly in 2004
- Motorola finalized their purchase of Symbol Technologies in 2006
- PeopleSoft bought JD Edwards in 2003 and then was acquired by Oracle in 2005
- Epicor bought Scala in 2004 and Dataworks in 1999

The second trend is that traditionally these vendors focused their attention on very large manufacturing enterprises, the very large market (referred to in the charts). Over the past few years, growth has slowed in the very large market, so companies such as Oracle, Sap and Infor have been going after the mid-size market. According to Ray Wang, an analyst at Forrester Research "The small and medium size part of the market is where all the growth is coming from, particularly if you include divisions of larger enterprises."

The third trend is higher energy costs worsened the competitive position of U.S. manufacturers and consequently their investment in software has decreased considerably. The software vendors are trying to capitalize on this by offering solutions which monitor energy usage and assist in reducing energy operating costs as well as greenhouse gas emissions.

With all that background information in mind, you will understand what types and which vendors will be appropriate for your company. Let's move on to the process of selecting new maintenance software.

Assemble Selection Committee and Select Project manager

To begin the selection process, assemble a selection committee that includes staff from all areas affected by the implementation- maintenance, purchasing, stores, accounting and Information technology (IT). You also may want to include Engineering, as they are concerned with reliability engineering, tracking projects and change control on engineering drawings. The project team will work together to select the software program.

I have found that these teams are often full of IT personnel. While having some IT representation is important, the team should primarily consist of representatives of end users. They will be using the program on a day to day basis, not the IT staff. When people have an input in the selection process, they come to feel that the system is theirs and will be better users.

A project manager needs to be identified and this person should come from the maintenance group. The project manager has to ensure that the group works together towards the common goal of making the best selection, manage conflict, and be empowered to make binding decisions. The greater the involvement of the group, the greater the likelihood will be for a successful selection.

Let's begin with basic considerations, or ABC's. We are starting here because if a vendor does not satisfy any of these, you won't go any further to consider them.

A) Platform

You need to know the operating system (such as Windows Server, Linux, UNIX, Novell, etc.) and database the software runs on (such as Oracle, MsSQL, IBM, etc.). If the software requires a different operating system or database than you have currently in-house, this could add thousands of dollars to the purchase price.

Another option is to have the software company host your data. This means you would not have to invest in hardware and the software company would install patches and upgrades for you. This would require less support from your IT staff, but is usually more expensive than self-hosting.

Available languages may be a point of consideration as well. If the staff in your plant speaks English and Spanish and you want to install both languages simultaneously, you need to verify that the program has this capability.

B) Price and licensing

Once you have investigated the platform, hosting options and available languages, you can look into the purchase price. First you need to determine the number of people that will be using the software. Maintenance software is sold based on either ***named user*** (each user is licensed by name to use the software) or ***concurrent users*** (a large group can be given access to the software, but only a specified number can use the program at any given time.) Make sure you know the cost of adding users going forward. Finally, you need to know if on-going support (technical support) is included in the purchase price, or billed separately.

C) On-going Support

Many people do not consider this when evaluating a new software package, and it is very important. Does the company provide technical support 24 hours a day, 7 days a week? Are annual maintenance fees tied to future price increases? Can you purchase technical support later without penalty? How frequently are patches and new maintenance releases normally provided? How often the company releases patches and updated versions reflects the amount of time spent improving the software.

Are alternatives to speaking with a live person available, such as on-line help and user manuals? Is there a website where users can share problems and solutions? Finding out the answers to these questions will provide a good indication of what kind of on-going support the company will provide.

Once you have investigated the A, B, C's (platform, purchase price & licensing and on-going support), you may want to consider some features which are often overlooked when selecting new maintenance software:

- User Interface
- Search and replace feature
- Copy feature
- Ability to add to master data files on the fly
- Wizards which guide users through predefined processes such as work order creation, requisition or creation
- Are embedded business rules easily customizable by the user?

There are also some administrative tools that are important and often overlooked. They are:

- Security
  Can a user with administrative rights create groups or profiles, and then apply them to individual users? Can user groups be given rights to add, modify and delete records, and can select fields be required or read-only?

- Software customization
  Can custom fields be added without the assistance (and expense) of the software companies? Can field lengths be changed (usually users request for them to be increased) and can the type of field be modified if needed (to alpha, alphanumeric, yes/no, date, etc).

- Electronic signature
  Does the software contain an electronic signature feature for closing work orders, approving a purchase order or generating a service request? Is each electronic signature validated with a user ID and password? Is it possible to "unsign" electronically with a validated user ID and password?

You also should investigate if it will be possible to interface the software with other programs, such as purchasing and financials. This could eliminate duplicate data entry as well as data entered differently in different programs.

Document Business Process and Develop Specifications

The next step is to consider the process you want for your work and purchase orders, how scheduling and inventory will be managed, how backlog will be managed. Based on this, develop a list of specifications. You should divide the list into items you must have and want to have. The items you *want* to have should be prioritized and given a weighted factor (priority) from 1 to 10 (see addendum 1).

Once you know the basic functionality that your software must have, and some features that you want it to have, you can determine your initial list of vendors. This list will be based on vendors meeting your requirements for platform, price & licensing, on-going support.

Send vendors Request for Proposal (RFP), screen proposals and select a short list of vendors

Using the scoring tool in addendum 2, give each vendor a score for how well they can provide you with each basic requirement on your list. Score them on how well they can provide you with items on your wish list as well. Scoring the vendors will lead to a short list of candidates, usually no more than five is recommended. This short list will consist of the vendors most qualified to meet your needs.

Product Demonstration and Software Testing/Pilot

The short list of vendors demonstrates their products. You should develop a detailed agenda for the demonstrations that covers all the "must" items and many of the "want" items on your list. Use your weighted list to determine the "want" items to be demonstrated. Communicate this agenda to each vendor before the demonstration and insist they follow it. If you don't, the vendor may only demonstrate the process they know their system can handle. Be sure the vendor differentiates between their products current functionality and what could be done through customization. There is a difference between "we could do that," (provide the functionality for a price) and "we can do that" (the functionality currently exists). The selection committee should rank the demonstrations.

You may also want to test the software yourself for a predetermined period of time. This is usually referred to as a pilot test. One week is the average amount of time for a pilot and it would be best to have a trainer from the company you are evaluating to be at your facility during the pilot. This will ensure you are using their program correctly and not overlooking any of the program's capabilities. You should expect to pay for the trainer's time while he or she is at your company.

References

Many companies ask for references but never get around to actually checking them. Checking references is an excellent way to learn about the strengths and weaknesses of the vendor. I've found that you will get as many references as you ask for, the more the better, so instead of asking for the typical handful of references, ask for ten. In addition to checking references, if the vendor has a website with on-line discussion groups, log in and see what you can learn. Attending the vendors' user conference, if possible, will give you an excellent opportunity to question a large number of users about their experience with the vendor and its software product.

Final Evaluation

In this last step of selecting the vendor, list all the features you need and want, giving each a weight. Then score the vendor in how well they meet each requirement and desired feature, based on information you have from the request for proposal, product demonstration and software testing/pilot. Multiply the weight times the score to get a total score for each feature then add up the total score for each feature to a grand total. The vendor with the highest score is selected as your maintenance software provider. (All vendors on the short list have already met your requirements for platform, price & licensing and on-going support). Please see addendum 3, final Evaluation Scoring.

		Vendor A		Vendor B	
Feature	Weight	Score	Weight X Score	Score	Weight x Score
Calculate backlog and display by craft	9	7	63	10	90
Ability to bring drawings into CMMS	7	4	28	9	63
Ability to Print lock out tag out procedures	10	10	100	9	90
GRAND TOTAL			191		243

Select Implementation Partner

Once you have selected your maintenance software provider, you need to select a company to implement the program. You may choose the software provider, or an independent consulting company. Here are some factors to consider when selecting an implementation partner:

- Company size
- Track Record
- Trust and comfort
- Knowledge and skill transfer

Conclusion

This paper provides a step-by step program for selecting maintenance software. Tools are supplied to determine software feature requirements and requests, as well as to calculate how well select vendors meet that criteria.

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About the Author

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