

CMMS Evaluation and Recommendations Report



Summary

Asset Management is not a software program; it is important to remember that asset management is a thought process in which data is used to help systems make better decisions. However, strategically employing various technologies can assist a utility in the handling of the data sets they have. There are several technologies that might be beneficial, such as supervisory control and data acquisition (SCADA), geographic information systems (GIS), financial databases, automatic meter reading, but the focus of this report is technologies that can be used to store asset inventory and maintenance data. These software programs are referred to as Computerized Maintenance Management System (CMMS) or asset management software (AM software).

While smaller systems can make use of inexpensive programs, such as Microsoft Excel, larger systems may wish to have a more sophisticated software program developed by a third-party vendor. This report helps utilities determine if they need more sophisticated software and discusses the various aspects of the software selection process.

Does your utility need CMMS?

Many utilities, especially small utilities, may be unsure about whether CMMS software would benefit their operation. Below are some guiding questions that can help a utility decide whether to take the next step in their CMMS research or determine that operations can continue without one.

What does your record-keeping look like? Is it chaotic, with related material kept in many different locations? Is it hard to locate assets?

When record-keeping is unorganized your team could spend more time finding relevant information than making repairs. CMMS software is capable of storing everything in a single, searchable database that allows you to make informed data driven decisions. It also improves the tracking and scheduling of labor, helping you identify and resolve bottlenecks in labor utilization and improve response time.

Are routine processes moving smoothly? Maybe routine processes are running smoothly but are they as efficient as possible? Are you easily communicating what needs to be completed daily?

It is challenging to plan facility repairs and service in advance and thus you may currently be fixing problems as they arise rather than preventing them from happening. CMMS software helps you proactively plan most maintenance tasks with standardized processes and set procedures. This will reduce reactive repairs and free-up valuable time. The software enables you to move from a reactive maintenance program to a preventative maintenance program.

Have you ever failed to complete repairs in a timely manner because important spare parts were unavailable? Maybe you have the part but have no idea where it is. Or you thought you had it only to realize you used it in a previous repair and forgot to order another.

Waiting for parts is a common setback. CMMS software allows you to create a spare parts inventory so you can adjust new material orders based on stock level and identify a pattern of materials consumption. You gain control over your inventory and ensure critical parts are available when needed.

If your utility experiences some of the above issues then it is worth investigating CMMS further. The software is not inexpensive but is available at varying prices with varying capabilities and most systems will find a product that matches their needs. There must also be a commitment by staff to learn a new system. However,

the payoff can make it worthwhile. The next step is to begin creating a list of what your utility wants out of CMMS software before you begin researching software companies.

Specific software needs

Once you've decided your utility will use CMMS software, think about your utilities needs and create a list of features the CMMS must have to help you fulfil these needs. Split the list into essential features versus optional features. Many CMMS softwares will do more than your utility needs and your utility does not necessarily want something that comes packed with thousands of features. You can save money by knowing exactly what you want out of the software. It is also important to not exclusively focus on your current needs, you should also consider what your needs may be in 5 to 10 years. You do not want to outgrow your CMMS software. The table of CMMS Criteria on the following pages will help you select criteria that you want in your software. It can be modified to fit your needs.

CMMS Software Criteria

Item	Must Have	Highly Desirable	Desirable	Only if Standard with the Software
Cloud-based platform				
Ability for local data backup				
Asset inventory				
Ability to add new assets in the future in a user-friendly way				
Ability to change/modify asset inventory information in a user-friendly way				
Ability to search for assets in a variety of ways (e.g., by asset ID, by asset names, by asset type, etc.)				
Ability to tie assets to asset ID numbers				
Ability to assign user-created asset ID numbers (i.e., a deliberate numbering system, not just randomly generated ID numbers)				
Use existing asset hierarchy structure (e.g., facility, group, parent, child, etc.)				
Asset criticality and risk assessment				
Ability to integrate existing asset risk data				
Asset risk analysis tools				
Mechanism to use asset risk to facilitate decision-making (e.g., prioritize work orders and repairs, inform capital improvement planning)				
Ability to integrate asset useful life estimates				
Standalone capital improvement planning feature				
Ability to use asset data (inventory, risk, etc.) to generate a capital improvement plan or suggested list of capital improvements				
Spare parts inventory				
Work order system				
Easy to create work orders (preventive and corrective)				
Work order status tracking				
Ability to schedule preventative maintenance work orders based on operational parameters (e.g., by pump run time) or frequency				
Ability to track total cost of work order (at least in a simplified way)				
Ability to use mandatory entry fields for work orders (i.e., to ensure critical data capture)				
Ability to integrate safety (e.g., lockout/tagout, confined space)				
Coordination or integration with ESRI-based GIS				
Ability to track progress towards key performance indicators (KPIs) and level of service goals				
Ability to create and display KPI dashboards				

Item	Must Have	Highly Desirable	Desirable	Only if Standard with the Software
Mobile applications				
Compatibility with Android, Apple, or Windows devices				
Compatibility with smart phones and tablet devices (tablet will most likely be used)				
Ability to collect data and use applications in on-line or off-line modes (highly likely that parts of the system will not have connectivity at all times)				
Documentation of asset inspections				
Ability to store photos, videos, and audio recordings				
Report generation				
Ability to create and edit data collection and/or productivity-type reports				
Report customization and guidance included by vendor during installation and configuration				
Platform for entering/cataloguing business workflow processes (e.g., SOPs, org charts, chain-of-command, QA processes, etc.)				
Process control data/regulatory data capture				
Elimination of data input redundancy (i.e., each data point is entered only once in the system for use by any person or process)				
Ability to add this type of data through mobile devices				
Customer inquiry/complaint tracking				
Ability to create standard “form letter” responses to customers				
Ability to track resource usage				
Employee time tracking				
Vehicle inventory and tracking				
Tracking both personnel and equipment, including vehicles				
Integration with closed-circuit television (CCTV) system				
Ability to store CCTV inspection data				
Ability to store or link to CCTV videos				
Ability to tie videos to assets (pieces of pipe)				
Ability to store CCTV inspection reports/results/ratings				
Ability to have different levels of user access – read, write, full access, no access				
Ability to link to/communicate with a supervisory control and data acquisition (SCADA) system				
Compatibility with Other software (<i>mapping and financial software</i>)				
Ability to facilitate fixed asset inventory audits/updates				
Ability to easily integrate other Departments now or in the future				
Other:				

Item	Must Have	Highly Desirable	Desirable	Only if Standard with the Software
Other:				
Other:				
Other:				
Other:				
Other:				
Other:				
Other:				
Other:				

The following paragraphs discuss some of the issues involved in selecting a software.

CMMS integration and upgrades

CMMS can be locally stored or cloud-based. Companies may only offer one or the other or in some cases, both are available, and there are advantages and disadvantages to either one. A cloud-based system requires fewer upfront costs because a utility does not have to purchase the storage device and their IT department does not have to set up and manage the server. A cloud-based system can also quickly implement updates and issues with the software can be solved remotely. An on-premise solution has better security and if a utility has data or regulatory requirements that force the data to stay on site then it will be the best option. All CMMS software should indicate whether the software is cloud-based or on-premise or both. When researching CMMS software, utilities should ask their IT department if it has any requirements that mandate either cloud-based or on-premise solutions.

The only hardware considerations for either solution would be the acquisition of hand-held devices to access the system in the field and connectivity via cellular data, or possibly allowing for data recording in the field and syncing via wireless (WiFi) service. Utilities should check with their IT department to determine if existing workstations are sufficient for handling access and usage to either solution.

Needs and Cost analysis

Each CMMS software will have a different pricing scheme. Pricing may be available on a company's website but more often you will have to request a price estimate. Most utilities will have to create a request for proposal (RFP) to purchase software. By creating an essential features list and researching CMMS companies prior to RFP creation, a utility will be able to create an RFP that accurately identifies all of their needs while also staying within their budget.

It is important to understand the pricing structure and whether it includes an initial cost with annual maintenance fees (fairly common), only a one-time purchase price (uncommon) or a cost per year that is fairly uniform over time (sometimes). Almost all systems require annual fees of some kind so it is important to budget for both initial and annual costs.

CMMS stability

The ability of the software to meet the listed criteria and the cost of the software are not the only factors that should be taken into consideration. Other questions regarding the stability of both the software and the company should also be addressed. Some questions that can be asked include: What happens when the computer operating system changes (i.e., if Windows 202X comes out and their software no longer works, what would the process be)? How long has the company been in business? How many clients does the company currently have? Can the data be extracted to a universal format? What are customer service response times?

Training

It is important to consider the training needs of the utility. What type of training you want, when you want it, how you want it delivered, and who should be involved should all be considered. It is important to determine if the price of training is included or is separate. Also determine what on-going training (past year 1) might be desired and if so, what the cost of that training would be.

Demos

It is vitally important to schedule demos with the software companies you are considering. The software needs to fit the culture of the organization and the skills and capabilities of the employees who will use it. It also needs to be user friendly, which can only be determined by the **actual users**. What is “user friendly” to one group of people may not be “user friendly” to another. Ask the companies to show the capabilities of the software in the areas you are most interested. Schedule plenty of time for the interviews/demos and make sure that they are very willing to answer ALL of the staff’s questions. If the company is not forthcoming with the type of answers you are looking for at the time of the demo, it is unlikely they will be forthcoming later. If you do not get all the answers you need, schedule an additional demo that focuses on the additional information.

Selection Process

Ensure that the proposal review team is a cross-section of employees and that they attend the demos of the software companies. Have each individual grade the proposals against your selection criteria and determine if there is a consensus conclusion on which will be the best software for your utility. If there is a consensus, enter into negotiations with that software vendor. If there is not a consensus, discuss each person’s views on the top contenders and try to reach a consensus.

Steps in the process

The following pages present a roadmap of the selection process.

Your Roadmap to CMMS Software

Step 1: Form Your Software Selection Team

- The most important people to engage are those already familiar with maintenance operations and facility managers.
- Include at least one person from each department that will be using the system, including billing and IT, to ensure that everyone's needs will be met.

Step 2: Understand Your CMMS Needs

- The more you know about your utility and its needs, the better prepared you will be to pick the right software. Knowing exactly what you want will also save you money.
- Ask yourself what you want out of CMMS software. Do you want to be able to track work orders? Are you looking to do preventative maintenance? Do you want to be able to access information in the field?

Step 3: Understand Your IT Needs

- Do you want your CMMS software to be cloud-based or installed on-premise? Companies will usually offer one or the other but not both.
- A cloud-based system offers fewer upfront costs. Additionally, upgrades and troubleshooting can be done remotely, saving more money.
- An on-premise solution provides better security. Check with your IT department to determine if your utility has requirements that force the data to stay on site.

Step 4: Create Your Essential and Optional Features Lists

- Once you understand your utility's needs, create an essential features list and an optional features list.
- It's important to not exclusively focus on your current needs. You should also consider what your needs may be in 5-10 years. You do not want to outgrow your software.

Step 5: Establish Your Method of Procurement

- Option 1: Your utility may require an RFP or have a similar process.
 - If your utility is required to take bids or write an RFP, make sure to include all of the features on your essential and optional lists in the RFP. Also include whether or not the software must be cloud-based or installed on-premise.
 - Once bids come in, request demos of the top three candidates. You will not know if the software is right for your utility without demonstrations.
- Option 2: Your utility does **not** require the RFP or a similar process.
 - If your utility is allowed to pick software begin researching companies using your two features lists as parameters.
 - Once you have thoroughly research companies and found some that check every feature off your essential features list, create a short list of companies, 3-4, and set up a demo.

Step 6: Demo

- Companies will tailor the demo to reflect the items on your two lists.
- While the demo is going on think about functionality and ease of use. Does each feature seem user friendly?
- As each feature is shown, ask questions. For example, if preventative maintenance is on your list make sure the software supports preventative maintenance in the way you do it or would prefer to have it done.

Step 7: Price

- Each CMMS software will have a different pricing scheme. Pricing may be available on a company's website but more often you will have to request a price estimate. Do this early on to see if it is within your budget.
- Prices can be based on one or all of the following: gallons per day, number of connections or number of users (concurrent or total). Have this information before asking for a price estimate.
- There are many hidden costs in CMMS software. Below are questions you should ask the company to understand the full cost.
 - Is it subscription or license based? Does the license or subscription fee stay the same or increase every year?
 - How much are the onboarding and training fees?
 - Is there a cost to importing and integrating data into the system?

- Is there an additional cost for technical support?
- Is there an additional cost for upgrades?

Step 8: Technical Support

- All companies should provide some type of technical support but the type may depend on whether your software is cloud-based or on-premise.
- The following questions will help you gage the level of technical support provided.
 - How does technical support work? Is there around the clock support?
 - Do you provide instructional videos, in-software guides, live chat?
 - How are upgrades done? Are we shown the changes?