

TIPS FOR EAM SELECTION AND
IMPLEMENTATION

WHITE
PAPER

Tips for EAM Selection and Implementation

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Selecting enterprise asset management (EAM) software can be one of the more challenging projects any maintenance or operations team will face. The number of vendors and the complexity of their products makes good, objective information hard to come by. But if the right decision is made in the selection process, implementation will go relatively quickly and within a very short period of time the new system will begin to deliver the benefits of true reliability-centered maintenance (RCM).

In this whitepaper, we'll offer up four tips for successfully navigating the EAM selection and implementation processes, with an emphasis on selection.

Finding good information

Finding good information to inform your purchase of complex business technology is never easy. The vendors themselves have an obvious agenda that drives the information they offer you, and because the EAM software market is extremely competitive, that information may be more heavily biased than would be the case in other markets.

Fortunately, there are objective third parties that can be relied on for information. For any complex product, be that product a digital camera, minivan or major appliance, you may already rely on third parties like Consumer Reports or Web sites that allow you to compare the specific features of these products side-by-side. An EAM software program is a lot more complicated in its features than the most elaborate digital camera or water heater, so this approach is very desirable. There are several Web-based comparison centers that take various approaches to comparing the functionality of competing EAM software products, offering up comparisons on hundreds or even thousand data points about each software product. Some of them even allow you to generate a request for information for software vendors based on specific pieces functionality you identify as important.

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Comparison centers to explore in your search for EAM software include:

- ifseam.technologyevaluation.com
- www.managingautomation.com/ifs
- www.plantservices.com/ifs
- eam.technologyevaluation.com/

Getting to RCM

In selecting your EAM software, what you naturally want is a tool that will help you achieve RCM. It is of course far easier to plan for a piece of equipment being down at a specific time – Tuesday morning at 10 a.m. when you can have suppliers and subcontractors on hand if you need them to effect a quick refit. Preventive maintenance executed during planned downtime also allows operations staff to work around the outage in their production planning..

On the other hand, if something fails suddenly, say, at 10 pm Tuesday night, the resulting down time will be much greater. Getting the piece of equipment back online may be harder because of conflicting priorities, as multiple pieces of equipment might be down, competing for maintenance resources. Planned maintenance that takes place as part of an RCM program is beneficial therefore because:

- Planned maintenance allows avoidance of multiple pieces of equipment down at the same time.
- Planned maintenance prevents unplanned stoppages that disrupt planned production schedules.
- Planned maintenance can reduce the overall cost of operating production equipment over its lifecycle.

These arguments for EAM and planned maintenance are hardly unfamiliar to anyone in manufacturing. And indeed, the base function of EAM software is to capture information on faults and breakdowns, schedule repair and maintenance work, manage purchase of equipment and parts necessary to keep equipment running. As data about the equipment is organized in an EAM tool, it becomes easier to determine when specific preventive maintenance activities should be undertaken in order to prevent unplanned downtime. As preventive maintenance activities are planned, parts purchasing and personnel schedules can be adjusted accordingly.

Importance of Integration

While many EAM packages are capable of the various functions outlined above, the fact remains that the success of most preventive maintenance programs relies on securing the involvement and buy-in of people beyond the maintenance department. And that is why it is of critical importance that EAM functionality be either part and parcel of a system of enterprise software used elsewhere in the business or be tightly integrated with an enterprise resources planning (ERP) package used company-wide.

A truly flexible EAM solution can either be implemented as a full-blown enterprise application including financials, human resources, manufacturing and other functionality or integrated with an existing ERP tool. The EAM functionality in IFS Applications, for instance, includes standard interfaces to SAP, Intentia, Oracle and other products. Meanwhile, a best-of-breed “niche” EAM vendor may offer some degree of integration with a broader ERP package, but the inventory management and control, human resources and purchasing functions are not as tightly linked with other applications because the underlying functionality in the EAM tool is not as robust. The standalone EAM tool is designed only to capture data for maintenance manager rather than providing all of the data required by other users of a broader ERP package.

Lacking very tight integration with other applications used within the company, there will first of all be inefficiencies as some data has to be manually transferred from the EAM system into an ERP system. Moreover, because EAM information is available only to those involved with maintenance, it will be harder to actually get the funds and cooperation of senior management necessary to fully achieve RCM.

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Certainly there are “best of breed” applications on the market that deliver EAM functionality and nothing else. These EAM-only solutions are fairly robust when it comes to functionality aimed directly at plant maintenance personnel. They do a good job of creating work orders, trending and scheduling personnel, but are limited in their ability to integrate with functionality beyond maintenance. When EAM software does not integrate with other functionality like an ERP solution, what results is a suboptimal or redundant system when it comes to ordering spare parts because most purchasing functions are undertaken outside the EAM system. Maintaining good information on spare parts in inventory and avoiding over-buying of components is extremely difficult, particularly if some items to be purchased are used in both the manufacturing process and the maintenance process. Personnel scheduling is also hobbled by a stand-alone EAM tool because the scheduling functions in a best-of-breed maintenance application are not integrated with Human Resources software where information about vacations, employee qualifications and other data is housed. Furthermore, using a standalone EAM tool will hurt the RCM effort because in budget planning, it will be harder to justify maintenance and equipment updates or other initiatives to senior management.

Other EAM tools, including the maintenance functionality of IFS Applications, are developed as part of an overall enterprise application. That means that they are tightly integrated with their own financials functionality, human resources functionality and the purchasing and other components that would make up an ERP package. EAM solutions that are part of broader enterprise applications can also be very robust, in some cases rivaling best-of breed solutions. They will capture failure data, issue work orders, schedule people and materials and purchasing requirements. But unlike standalone EAM systems, these integrated applications can, for instance, leverage the purchasing functionality already resident in the ERP application. When EAM functionality is integrated with enterprise applications functionality used by other departments, when everyone is working on the same platform and on the same data, there are a number of efficiencies that result. And because everyone is working on the same data in the same environment, it is easier to communicate with others on whom the RCM initiative relies.

During the process of comparing solutions during an EAM selection process, vendors selling stand-alone solutions may claim their tools offer different reporting or dashboards that make their solution preferable to a more integrated system.

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While these exact same views and reports may not be a central feature of an integrated EAM/ERP solution, it should be a simple matter to configure the user screens and reporting mechanisms to perform these functions, and perhaps develop other more comprehensive reports that a standalone EAM tool could not deliver. Given the wealth of data contained in an integrated ERP/EAM tool, it is a safe bet that any information you would want to track can be queried, added to a table and exported to Excel through pivot tables. Some enterprise applications also have dynamic links with Excel, allowing information to be exported to Excel, altered and imported back into the EAM/ERP tool while at the same time protecting data integrity and security. Or, a report can be configured and added to a dashboard view using existing functionality in that enterprise application.

During implementation, the boilerplate pie charts and graphs offered by the standalone EAM vendor are quickly forgotten. The critical concern is ease of use for users of the EAM system– the software must be simple and quick to use. At that point, the focus is on features like “list of values” that can minimize the number of keystrokes necessary to get the data into the system. It becomes important that we can also get information out of the system quickly and efficiently, so if a piece of equipment goes down and it was down three months ago, we can see what the previous repair was and use that information to get it back up and running faster. The ability to generate boilerplate pie charts and slide decks does not help in the day-to-day maintenance of the facility. They do not move a company closer to preventive and predictive maintenance and away from reactive maintenance. They do not help you capture costs for your maintenance activities or drive improvements in overall equipment and plant reliability.

In order to understand the problems caused by a stand-alone EAM system in real terms, let us consider the situation faced by a hypothetical manufacturer who has implemented a best-of-breed EAM that integrates minimally, if at all, with the company’s ERP software.

Purchasing for maintenance is managed within the stand-alone EAM too, and that data needs to be transferred on a batch or perhaps manual basis into the company’s ERP. There is no automation of purchasing based on planned maintenance activities. The two segregated purchasing systems cause inventory problems company-wide because some parts used for manufacturing, like bearings, are also used for maintenance. So the company winds up carrying two sets of inventory which ties up capital and increases storage costs. In the meantime, finance has no visibility of what day-to-

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day maintenance activities are costing, what expenditures have been year-to-date or whether maintenance spending is trending up or down. From a personnel perspective, systems divorced from the stand-alone EAM tool contain vital information including the costs associated with assigning maintenance and engineering people to various tasks and their availability given vacation and sick time. All of this information about people will need to be double-entered that into the point solution so the maintenance manager can make sure that he has the right people on hand. All of these disconnects involve lost resource allocation capacity and create the opportunities for mistakes and miscommunication.

Now let us consider the user experience of a company with tight EAM-ERP integration. In this case, the type of work orders for maintenance activities generated by the point source EAM solution and the more integrated solution are relatively similar, but the resulting parts and materials purchasing is all integrated with the rest of the organization, and the cost for these purchases are captured on the work order.

Let's say this company operating an integrated EAM solution needs to overhaul a pump. That process takes 2.5 man hours, and requires a new seal and a new impeller. The costs for these parts are registered on the work order automatically – which means the technician does not need to enter it. Later, the maintenance manager can see exactly what the cost of that repair was. He can then trend that information out over the course of a year and see what the cost of maintaining that piece of equipment will be, and can use that information in the building of his budget for the following year. The maintenance manager can create projections for cost by department, by equipment, by production lines, and that budget data can come in handy later. Because the EAM cost data is integrated with the company's overall financial package, finance can allocate these costs against specific accounts. In some cases when the EAM and ERP functions are separate, finance might use categories that don't make sense from a maintenance perspective, lumping exterior landscaping in with the cost to maintain capital equipment. But integrated EAM and ERP can lead to more logical thinking and improved communication and decision-making.

Improved communication and decision-making can be a key benefit for companies running integrated EAM-ERP. In any company, the maintenance techs know of a few pieces of equipment that might be lemons that consume more than their share of personnel and financial resources. Operations staffers know of these problems as well, but it is still hard to justify replacements or other improvements to fix the problem to engineering and senior management. With an integrated EAM-ERP sys-

tem, it becomes simple to illustrate the total cost of these bad actors, showing the cost of production gaps that result during down time and the cost of repeated repairs. how each time it's down, showing gaps in production, showing costs. The maintenance manager can say, "Here are our bad actors – where they're failing, and the periodicity of those failures." Because he has access to information beyond maintenance, it is possible to show how the company can not only lower maintenance costs but improve output, addressing both the top line and the bottom line.

Integrated EAM-ERP applications deliver even more value during more complex maintenance projects. Imagine the maintenance manager who is planning the overhaul of a boiler because a number of components are reaching the end of their lifecycles. The boiler must be turned off, cooled down and allowed to go through its thermal cycle. Speed is of the essence because as the boiler is down the plant is losing available capacity, so the maintenance manager has contractors and other resources on-site to turn the project around quickly.

In the course of the overhaul, it might be necessary to rent a scissor lift, hire out for some nondestructive testing and of course pay contractors to undertake certain tasks. A more advanced EAM-ERP application can capture all of the out-of-pocket expenses including labor, travel expenses, inventory usage and other purchases through a requisition right off of the work order. The purchase orders associated with that work order are processed by finance and allocated directly against that work order. That means the maintenance manager can look at the work order for that boiler repair and see the total cost rather than just the internal cost of labor and parts from inventory. Lacking good EAM-ERP integration, a maintenance manager would need to chase down six or seven information sources to find out the true cost of the repair. But all of the external costs are automatically rolled back against the project if EAM and finance are operating in an optimized and integrated manner.

Plan for Easy Implementation

Selecting the right EAM software may be difficult, but the good news is that if the right selection is made, implementation can go very quickly. With a little planning and diligence, an EAM solution can be up and running in as little as eight weeks!

The first priority in ensuring a successful implementation is selecting the right team from within the company. Apart from a vendor or implementation consultant, an internal team will be required that includes representatives from each functional

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area addressed by your enterprise software project. While very junior people or hands-on people like individual technicians may not have the strategic understanding necessary to contribute to this team, the most senior staffers like a maintenance manager may be too far removed from the daily processes to contribute much either. The most valuable input often comes from the foreman-level employees who have a grasp of the strategic concerns of the organization as well as the day-to-day activities of technicians on the plant floor.

Particularly if fast tracking EAM implementation is a priority, implementation team members will need to devote their full attention to the project, in some cases devoting 40 or even 50 hour a week. Needless to say, it is important to backfill their daily job responsibilities!

While there are certainly benefits to an integrated ERP/EAM application, trying to implement both at the same time can be overwhelming. That is why many companies, assuming the software they have selected allows for this flexibility, may implement ERP and then roll out EAM functionality at a later date as a second phase. Not only does this limit the disruption of the implementation by breaking it into manageable parts, but it reduces the amount of training necessary to roll out the EAM functionality. By the time the second phase is started, users have a strong knowledge of the overall enterprise environment and will come up to speed on the new EAM functionality more quickly.

The next step in implementation involves organizing information on the assets to be maintained. Fortunately, in most manufacturing environments this information is already very well-kept and in good order. Maintenance staffs not only have this information well-organized, but usually have a very easy time envisioning how the equipment and plant should be laid out in the new software. In some cases, if the plant is reconfigured frequently, they might intuitively know that things should be organized by equipment type rather than by production cells or product lines. This step seems to be so easy that oftentimes an EAM implementation team will have set up their equipment in the new software environment during lunch while they are still in training.

The basic information to come to the table with are an understanding of how the plant equipment should be laid out. It will be important to be able to identify different types of equipment – fork trucks, boilers, motors, conveyors, pumps. The goal is to prepare for analysis by equipment type. If you may want to, for instance, review

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how all of your hydraulic lifts are working as opposed to your electric lifts, you will want to break out the equipment hierarchy accordingly.

It is also important to have determined how people should be organized in the EAM system. You'll want information regarding the departments, maintenance groups and what type of tasks different people are to be involved in. The complexity of this step varies from one company to the next. At one company, there may be a maintenance department consisting of four employees that each have multi-disciplined skills in electrical and mechanical repair. Another company may have several distinct groups of electricians, mechanics, control engineers, planners, inventory control people and other specialists. The skill sets and qualifications of these people should be laid out in the EAM software. This allows the maintenance manager to determine what type of person should be assigned to specific types of tasks. In some plants, any maintenance worker may be considered qualified to undertake most any type of task, while at another plant only a senior electrician is allowed to perform certain tasks to avoid injuries and mistakes that could result with a more junior person.

Other things to consider before embarking on the implementation is how spare parts availability will be made visible to both maintenance staff and inventory controllers in other areas of the company. And as those parts are used, it will be important to determine how to capture that usage and how to represent it on a work order. It will be important to determine as well how to categorize failures, which can be defined by type, cause and what had been done as a repair. At any given time, a maintenance manager may want to know what the five top causes of failure in the facility are, and some planning is necessary to ensure that failure data is captured in a way that facilitates that.

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IFS was founded in 1983 and now has 2,600 employees worldwide. IFS has pioneered component-based enterprise resources planning (ERP) software with IFS Applications™, now in its seventh generation. IFS' component architecture provides solutions that are easier to implement, run, and upgrade. IFS Applications is available in 54 countries, in 20 languages.

IFS Applications provides extended ERP functionality, including supply chain management (SCM); enterprise asset management (EAM); maintenance, repair, and overhaul (MRO); product lifecycle management (PLM); customer relationship management (CRM); and corporate performance management (CPM) capabilities.

IFS has over 500,000 users across seven key vertical sectors: aerospace & defense, automotive, high-tech, industrial manufacturing, process industries, construction & facilities management, and utilities & telecom. IFS also provides a cross-industry solution for retail & wholesale distribution.

More details can be found at www.ifsworld.com. For further information e-mail info@IFSWORLD.com

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