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ACHIEVING THE FULL POTENTIAL OF ASSET PERFORMANCE MANAGEMENT PLATFORMS

STEPHEN FLORY, *Senior Systems Specialist at PinnacleART*

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INTRODUCTION

Software implementation in a business environment can be a challenging process with many pitfalls and risks. On one hand, software vendors tend to promote their solutions as the answer to all of your ills, but software users know the reality—the results often fall far short of those expectations. While the blame tends to fall on the software, it's typically the other activities around the software implementation that were not completed that tend to have a larger effect on the success of the implementation.

Asset Performance Management (APM) software is no different. Gartner defines APM software as software that “encompasses the capabilities of data capture, integration, visualization, and analytics tied together for the explicit of improving reliability and availability of assets.” With these robust capabilities, one may ask, “why are these software implementations so challenging?”

Regardless of the software, many companies fail to realize the full potential of these robust applications. The Meridium application (recently purchased by General Electric and now referred to as “Asset Performance Management by GE”) is one example of such a platform and will provide the context for this article. As many are, it is a feature-rich asset performance management tool with potential for significant return on investment.

In my 20 years of experience of working for and with multiple companies in different industries implementing this application, I've observed some common themes that impede return on investment that applies to any APM software. These themes revolve around the approach to the implementation (**Figure 1**)—establishing a vision, recognizing and addressing data as a foundational element, optimizing asset strategies, and streamlining processes and software thru technical configuration and implementation. By focusing on these key elements, the full potential can be unlocked.

THE APPROACH

The diagram above highlights an approach to the implementation of any software. It is not new or revolutionary, and in fact, most likely makes sense to many people. Nevertheless, many steps in this process are overlooked, deemed unnecessary, or not considered due to cost or timing concerns. In fact, many start their initiative at the technical configuration stage where they review the platform's capabilities and work processes and customize the application (**Figure 1**). While this stage is important, it is not the optimal place to start the implementation process.

GOAL & VISION: DEVELOP YOUR VISION FIRST!

What does a top-notch reliability or mechanical integrity program look like at your organization? What are the key elements of these programs? What information are you tracking or should be tracking? How will you know if your program is effective and



Figure 1. General Approach for APM Software Rollout

meets both company and jurisdictional requirements? These questions should be answered at the beginning of your initiative.

In many instances, companies start reliability or mechanical integrity improvement initiatives as the result of an incident or incidents. In these cases, the need for swift action results in the acquisition and installation of the software as the solution or goal of the response. This approach typically leads to struggles and questioning the value of the application.

Case In Point:

For example, an oil and gas company purchased an integrated suite of reliability modules after struggling with \$75 million dollars in lost production across multiple plants due to issues with heat exchangers. They did not have a clear vision of their reliability program but felt that purchasing the software was the key to solving their lost production issues and could help facilitate a reliability culture.

They set forth to solve the specific heat exchanger issues using reliability analysis tools and were successful in driving down the lost production cost. However, that success was specific in nature and not transferable to other equipment or other issues. Over the years, they pursued other specific issues for equipment and had successes. Yet, every couple of years, their management and plant personnel repeatedly questioned the value of the tool and whether they have realized a return on investment. Even today, when asked about their vision for the reliability program, their response is, “to get more value from our APM software.”

Developing a vision, linking that vision to value, and communicating that vision across your company helps set a direction

within your company and achieves commitment from all levels of the organization. This goes a long way towards development and implementation of standards and best practices, and avoids “re-inventing the wheel” from site to site.

Case In Point:

A chemical company with numerous sites purchased an APM platform as a response to several significant mechanical integrity-related incidents. However, they did not have a clear vision for a mechanical integrity program and did not set forth or push down any standards, even though standard procedures were a way of life for them. As a result, each site was left to fend for themselves, without clear direction (other than “we want to improve mechanical integrity and compliance”). Some pushed forward with the tool and struggled, while others stayed with their current systems and processes. The advancement of the tool eventually stopped and those that implemented it were left using the tool with only a fraction of its capabilities in use.

DATA CLEANUP: DATA IS THE FOUNDATION!

Today, we live in an information economy. Information and technology are fundamental to our everyday personal and professional lives. In business, important decisions are made every day based on the information available, and for mechanical integrity and reliability programs, it's essential for data to be current and accurate. In fact, current and accurate information is foundational for these programs.

This information includes the master equipment list, technical and/or design data, drawings, documents, inspection and failure histories, etc. If this information is not accurate and accessible, mechanical integrity and reliability programs and their associated return on investment will struggle. For example, without a full and accurate equipment list or inaccurate P&ID's, missing equipment will not be included in preventive maintenance or inspection plans, and as a result, incidents could occur leading to unplanned unit or plant shutdowns. Additionally, a poorly maintained central equipment repository typically leads to the rise of multiple “rogue” databases and the development of workarounds and inefficiencies.

Case In Point:

A chemical company purchased an APM platform as a solution to help resolve their mechanical integrity challenges, but their data, drawings, and documents were in poor shape. Much of the initial effort focused on the software and functionality and not on data or data cleanup. As a result, their initial pilot site stalled due to data problems in both the APM platform and SAP, inaccurate inspection plans, and inspection histories (basically, “garbage in, garbage out”). Management and plant personnel became very frustrated with the lack of progress. To keep things moving, the inspection group settled for minimal use of the tool—essentially using the tool as a spreadsheet for documenting inspection results. Due to their pilot results, other site implementations were put on hold and remained with their existing systems.

Conversely, a separate chemical company acquired the same platform's mechanical integrity program as their right to

operate had been threatened due to chronic issues. Much of the first three months of their implementation project was spent cleaning up their data, updating their P&ID's, updating their equipment files, optimizing their circuitization and inspection plans, conducting baselines inspections and field walk-downs, and developing evergreening best practices. The implementation of the software went very smoothly and the long-term effect has been the site went from potentially being shut down to a company-recognized new standard for a mechanical integrity program. Additionally, the parent company elected to spend millions to upgrade and expand the facility—a sign of confidence for the plant and their program.

STRATEGY OPTIMIZATION: FOCUS ON PROGRAM!

One of the most common challenges in realizing value of APM applications is the approach to the implementation. Many companies, in a desire to complete their initiative and save costs, take what they are doing today and simply mimic it in the tool. For example, they might copy thickness monitoring data from spreadsheets or copy paper rounds into the Operator Rounds module. I'm reminded of that old adage that says, “If you do what you've always done, you'll get what you've always gotten.”

The idea that software alone can solve all of your challenges is not a winning strategy and typically only amplifies the other issues—whether that be data, work processes, or the (lack of) vision. A software implementation can present a tremendous opportunity to evaluate what you are doing, why you are doing it, and to start fresh with a new and focused approach. For example, taking paper-based readings and copying them into your APM or any electronic system will only offer benefits of elimination of paper, potential operator efficiency, and electronic access to the readings. Those are great benefits but there's so much more potential in conducting review of rounds to eliminate those that are unnecessary and focusing on those “value-added” activities that are required or have an impact on reliability, safety, and availability. Additionally, developing operator responses to field conditions and incorporating those into the software can also have tremendous impact.

Case In Point:

An oil and gas company used this approach—optimizing rounds, incorporating operator responses, etc.—and had a two percent improvement in availability, which was directly tied to their implementation of operator rounds. This result would not have been achieved had they strictly focused on copying what they are doing today into the platform.

Another approach that should be considered with APM implementation, but often is not, is the optimization of asset strategies. That is, ensuring that scarce resources are focused on the right things at the right time to enhance your reliability or mechanical integrity initiatives. In many cases, you hear customers saying that they are doing a significant amount of preventive maintenance or inspections, yet they are struggling with reliability or mechanical integrity issues (“too many PM's and too many unplanned shutdowns” is a common refrain).

Implementing the software platform by itself will not resolve

these issues, but coupled with optimization efforts, significant achievements can be made. Conducting a review of strategies can take time and dollars but the final results are worth the effort.

Case In Point:

An oil and gas company that had been struggling with leaks implemented their APM product by copying their data from their old system to the new. The CML list had built over time as incidents occurred and they were conducting a significant number of UT and RT readings. In spite of this, leaks were one of their dominant issues and they became proficient in tracking and reporting them. However, their issues did not go away because of software implementation with this approach—it just carried them forward. And, because they had spent money on software and implementation, there was heightened awareness and expectations around results which were not met. By conducting a risk-based review of their corrosion program to coincide with their implementation, they could have used the opportunity to improve and optimize and not just “check a box.”

TECHNICAL CONFIGURATION: KEEP IT SIMPLE!

APM platforms are configurable tools—meaning that they can be customized to meet specific requirements or needs. However, customization can be both a good and bad thing. For instance, a customer can spend a considerable amount of time and money to modify screens, forms, reports, business rules, and also create new functionality. Yet, in the long run, this increases costs of support from both internal and external sources, and increases upgrade costs. Additionally, as new versions of the software are introduced, older technologies can be dropped and newer technologies adopted, making those customizations that rely on the older technologies obsolete.

The overriding principal is to keep things simple—whether it's work flow, functionality, training, etc. No system meets 100 percent of your needs. If 80 percent of your needs are met, it may be years before you get to 100 percent and will require significant additional investment.

Case In Point:

An oil and gas company purchased an APM platform license and spent two years configuring the equipment database to capture all information about their equipment. After that, they spent additional years gathering and loading the equipment data. Eventually, after all the investment in configuration changes and data gathering, validation, and loading, they changed course to only populate the data that their plant personnel would use on a routine basis with the rest being attached as reference documents. It was a huge effort that delayed implementation of their reliability and mechanical integrity modules by two to three years. They did realize a solid return on investment, but it wasn't until five years after the original software purchase. Moving forward with a simpler approach would have shaved several years off that time.

APM platforms typically have a wide variety of functionality and capabilities, but the end users typically stay within a certain work process. For example, plant operators stay within the Operator

Rounds module and inspectors stay within the mechanical integrity modules. It is important that the platform be set up in a manner in which the functionality that a role requires are presented to him/her in an easy-to-use and accessible format. For example, establishing standard home pages or dashboards by role such as operator, inspector, and reliability engineer, etc., with key queries or KPIs that are used daily. In addition to the setup, it's important that the training for those roles be focused on a general understanding of the tool and the functionality they will use in their jobs in a timely fashion.

IMPLEMENTATION: PROVIDE THE SUPPORT!

Another key to a successful APM software implementation is the people within the end user's organization from the inspector, operator, middle management, and all way to the top. Every level should buy into the vision and stay committed to the completion of the implementation. Top management needs to communicate the vision to all personnel, provide the resources (people and dollars) necessary to achieve that vision, and ensure that the priority and commitment stays focused throughout the life of the project. At the same time, middle management needs to stay engaged to ensure that all necessary resources are allocated appropriately and ensure other distractions don't negatively impact the project.

Another resource that is critical to the success is an individual that develops detailed knowledge of the software capabilities, understands the needs and priorities of that plant/company, develops the vision for how to match the software's capabilities with the plant requirements, and drives completion of the initiative—overseeing both company and contractor personnel and reporting progress to all levels of management. This person is often referred to as a “super user,” “platform coordinator,” or “power user.” This person not only functions in this role during the implementation, but is also the key person to manage the program into the future to assist with problem resolution, guide the adoption of new features and functionality, and ensure the program continues to meet business requirements.

Case In Point:

One of the most amazing examples of top-notch support was a chemical company moving forward with the APM tool on a mechanical integrity initiative. The level of commitment demonstrated from all levels was extraordinary and was clearly demonstrated in the project kick off meeting. All management and key personnel participated and were very engaged in the meeting. Each person expressed commitment to the initiative and a willingness to provide any resources necessary for the project. The plant manager set the tone early by emphasizing the importance of the project to the future of their plant and emphasized that the importance of “doing this project the right way.” He backed up his words with full funding for the required activities for the project. As a result, this plant has tremendous success with their mechanical integrity program. They have set a new standard for mechanical integrity programs within their organization and become the standard bearer for the company from which other plants are compared and measured.

Another example is an oil and gas company that had been using

their APM platform for reliability and mechanical integrity for years, but had been struggling with the tool and their results. Their management made a commitment to review every aspect of their program, assigned a strong “APM platform coordinator,” and developed a course of action to optimize their asset strategies (where they had previously just copied previous activities into the software), simplify and streamline the tool closer to the platform’s “out of the box” functionality (where they had heavy customization), and commit to a major data cleanup effort including their equipment information, functional location hierarchy, and P&ID’s. It was a major investment coming several years after the initial implementation, but with the commitment of management and the skill and dedication of their team, they were able to align the software with their vision/goals and completely turn their program around. Today, they are one of the top users of the application.

CONCLUSION

APM platforms have tremendous potential for return on investment, but many users struggle to fully tap into that potential. By focusing on the correct approach—establishing goals and vision, optimizing strategies, managing data, simplistic configuration, and proper support— users can achieve the full potential of the application and realize significant return on investment. This achievement of full potential can be realized whether you are implementing an APM platform for the first time or have been using it (and struggling) for years. ■

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Contact Us

+1 281 598 1330
info@pinnacleart.com
PinnacleART.com



STEPHEN FLORY

Stephen Flory manages technology initiatives that help clients enhance their reliability programs. His primary responsibilities involve implementing software tools to meet project needs and improve project efficiency. Stephen's industry experience includes 18 years as a business analyst and five years as an engineering consultant. In addition to his extensive experience, Stephen is a certified Six Sigma Green Belt, and has Meridium APM Foundation Work Process Fundamentals and Meridium Mechanical Integrity Work Process Fundamentals certifications. In his current role at PinnacleART, Stephen enjoys creating innovative solutions that provide clients improved efficiencies and reduced expenditures. Stephen received his Bachelor of Business Administration in Management Information Systems from Bowling Green State University in Bowling Green, Ohio.