RIZING

PREPARING FOR ASSET PERFORMANCE MANAGEMENT (APM)

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Executive Summary

SAP EAM provides an excellent tool to allow the planning and scheduling of preventative maintenance, the management of reactive and refurbishment work, and the capture of the history of work carried out on the asset.

Work history includes key reliability data such as breakdown information, asset availability and failure codes and cause of the damage. It also contains key asset condition and performance information such as measuring documents which can be used to show deterioration and condition of the asset. Work history also contains key financial information such as the cost of repairing the asset. This is all key data which can be used to tell asset managers exactly how assets are performing and what they are costing to maintain. The question must be asked ***"is this data being used to its full potential?"***

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Whilst SAP EAM is good at the planning management and recording of work on our assets, it does not allow predictive analytics to be performed. Predictive analytics allow asset managers to be able to improve reliability and availability. SAP EAM does not provide data modeling functionality. Maintenance operations have a finite budget to plan which assets to refurbish, replace or plan new capital investment. It is therefore essential that they have a means of making the best decisions for the business based on accurate performance and condition information.

Asset investment managers need to run models based on the asset condition and performance data that is collected by maintenance management systems, to ensure that the correct assets are repaired or replaced, to ensure that the maximum improvements in reliability and availability are made, drive down operational and reactive maintenance costs and make sure the quickest and maximum return on the investment can be achieved.

It is clear that Asset Managers and Asset Investment Managers need more than the standard maintenance management systems currently provide. ***But how can this be achieved?*** The answer is through **Asset Performance Management (APM)**. There are a number of APM solutions in the market place that are capable of using the wealth of asset information that asset intensive organizations collect as part of day to day operations. APM solutions can give both, Asset Managers and Asset Investment Managers the ability to run predictions, projections and perform models on the data held in SAP to provide the following benefits:

- Improve asset reliability
- Improve asset availability
- Drive down the costs of reactive maintenance
- Drive down the costs of operational maintenance
- Maintain assets with the minimal maintenance
- Improve the amount of asset that can be maintained
- Reduce backlog
- Ensure the correct assets are repaired or replaced
- Better mid and long term asset investment planning
- Achieve the quickest return for asset investment

To get the maximum benefits from APM solutions, it is essential that maintenance organizations prepare correctly for the implementation APM. Failing to do so will minimize the effectiveness of these products, and the associated benefits that can be achieved from adopting them. This White Paper outlines the steps required to prepare for APM to achieve the maximum benefits both in terms of asset management and asset investment from the APM solutions.

Introduction

The emergence of the Internet of things (IoT), cloud based solutions and big data has led to the development of APM solutions that are capable of performing predictive analytics, operational sustainability and data modeling in the asset management and asset investment planning space.

APM solutions are designed to help asset-intensive organizations get the most value out of their costly equipment investments. APM solutions can also be used to assist Asset Managers and Asset Investment Managers with the decision making framework, as a tool to recommend the correct assets to repair or replace, in the timeliest fashion. Having the ability to do this can maximize the return on investment, through achieving the highest possible operational and reliability efficiencies.

The predictions, projections and models run by APM solutions are only as good as the quality of master and transactional data that exists in the maintenance management system. So it is essential that before implementing APM, a program is run to prepare for the solution ensuring all data required to run these predictions projections and models is available in the maintenance system, and that it is consistent, complete and up to date.

Problem Definition

Asset intensive organizations have realized that there is a growing need to be able to use our asset data, to improve reliability. Asset managers have a requirement to be able to identify bad acting assets, and also predict when assets will fail based on their current performance. This allows them to plan timely interventions. By having this ability it is possible to improve reliability and availability and reduce the costs of reactional and operational maintenance. By doing it is also possible for the lifespan of the asset to be extend.

Are assets being maintained at the correct frequency? Over maintaining assets whilst achieving the optimal performance of the asset, is both cost and labor intensive. This affects technician utilization and eats in to the operational maintenance budget. Under maintaining the asset can lead to costly reactive work, operational downtime and unnecessary use of manpower resources. Therefore, maintenance operations need a means of predicting the optimal maintenance strategy for all of its assets, ensuring assets are maintained to the optimum level with minimum maintenance.

Asset Investment Managers have a pot of money for capital investment to improve reliability and availability which in turn will reduce operational maintenance costs. ***How do we make sure that the correct assets are selected for repair or replacement to get the biggest bang for our buck?***

These are all problems that maintenance organizations face, problems that can be solved by implementing an APM solution, based on robust processes, high quality master and transactional data. The combination of the APM solution and preparing our processes and data for APM provide a solution capable of accurate asset decision making, based on how assets are actually performing.

High Level Solution

To get to a state where a maintenance organization can utilize APM to its full potential a three phased approach needs to be adopted in readiness for APM.

These stages are:

Foundation

A solid asset foundation needs to be built based on consistent asset information, bringing the asset hierarchy up to date is essential removing redundancy, and ensuring asset master data contains all attributes that will be required to utilize APM to its maximum potential.

Operation

Next processes and the way the organization operates must be analyzed. In order to assure that all essential asset maintenance history is collected by technicians, as they perform their day to day maintenance. Analysis needs to be performed on work history to capture and correct any exceptions or omissions from key data. This ensures that the highest quality of transactional data is collected. Having this key data ensures that when predictions, projection or models are run in APM, they are based on consistent accurate up to date data.

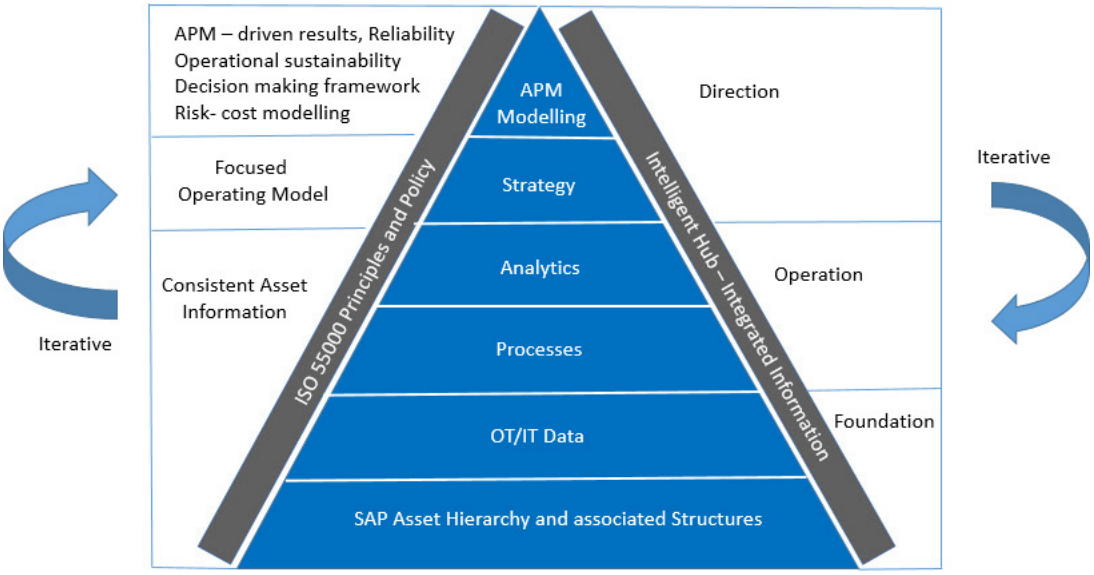
Direction

Once these stages have been addressed we need to look at the focused operating model. This is our maintenance strategy. Here we should constantly be performing analysis of the transactional data, adopting the strategy by taking an iterative approach, and reacting to the transactional data collected during work execution and close out to improve reliability and availability.

Everything is now in place to implement and use an APM solution. By following all of the preparing for APM steps, this will be done in the knowledge that the highest quality master and transactional data will be available to make sound decisions that can be used to dictate the direction of maintenance operations, maintenance strategy and the direction of asset investment programs. By doing so leading to improved reliability and asset availability and reducing operational costs.

Detailed Solution

The detailed solution has been based around the Rizing APM Pyramid which has been developed through real world experience of implementing SAP with APM solutions.



The Rizing APM Pyramid is based on using consistent asset information, and adopting a focused operating model, in order to provide the highest quality master and transactional data to the APM solution. By doing so the APM solution can be used to provide data driven results to facilitate improvements in reliability, availability and asset investment.

The solution is based around the principles of ISO55000 which if adhered to will provide an integrated, intelligent asset hub capable of making decisions which will assist with improving asset availability and reliability, helping to optimize maintenance strategy, and guide the direction of asset investment programs to ensure the best return for investment can always be achieved.

Consistent Asset Information

It is essential that the asset information we pass to APM is based on consistent asset data, this is broken in to two sections: foundation (Master Data) and operation (Transactional Data).

Foundation

The foundation asset management system is built on the asset hierarchy and its associated structures. It is essential that the asset hierarchy is kept up to date and that any change or addition to the hierarchy is done so in a consistent manner. It is recommended that a master data governance strategy is adopted to ensure the quality of master data is always of the highest quality being complete, up to date and consistent across all assets.

Critical asset master data which is required to drive APM are attributes such as the start-up dates used to perform accurate MTTR/MTBF, acquisition values which calculate the current value of the asset, and criticality information which can be used as a driver in deciding which are the most important assets to replace. It is essential that measuring points associated with the assets are designed to be able to clearly plot deterioration in condition and performance of the asset.

Operation

As our technicians perform maintenance we collect the transactional data, such as breakdown information, availability information, the costs of maintenance, cause and damage codes which form the basis of FMEA/FMECA, and asset performance and condition information. It is essential that our business processes are designed to capture all required data that will be needed to take advantage of the full benefits that APM solutions offer, and also make the most accurate decisions that can be made.

It is essential to monitor process adherence in order to capture exceptions in missing data and non-compliance so that these can be corrected, in the process ensuring the highest quality of transactional data is delivered to the APM solution.

Direction

To get to a state where the APM solution can help lead the direction of maintenance strategy and asset investment policy, maintenance organizations need to first deliver a focused operating model. The focused operating model is used to adapt the way assets are maintained based on transactional data such as breakdown, condition and performance data relating to the asset.

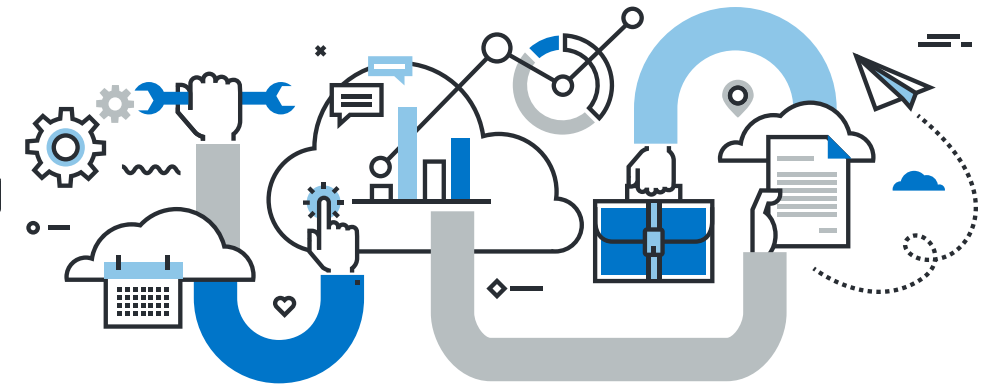
Focused Operating Model

Maintenance operations should adopt a focused operating model. This model should adopt an iterative maintenance strategy which is constantly evolving based on analysis of the transactional data entered by technicians. In other words, if something is to change the strategy for the asset, monitor the change and keep reacting till the optimum performance of the asset is achieved.

By adjusting the frequency of work based on performance and condition, assets can be maintained to the optimum level with minimum amount of maintenance. This approach is avoiding costly over maintaining assets, and eliminating costly reactive maintenance where assets fail due to insufficient maintenance.

Readiness for APM

With all previous steps achieved, a state is reached where the maintenance organization is ready to implement and take advantage of the full benefits that an APM solution provides. By following the preparation for APM program, they can rest in the knowledge that the decisions that the solution is used for are reached using accurate and up to date master and transactional data. Therefore, an extremely high level of confidence can be achieved in the predictions, projections and models that the APM Solution will provide.



Benefits

By implementing the recommendations in this White Paper, Maintenance Organizations will be able to achieve the following benefits:

- High quality asset master data
- Improve asset reliability
- Improve asset availability
- Drive down the costs of reactive maintenance
- Drive down the costs of operational maintenance
- Maintain assets with the minimal maintenance
- Improve the amount of asset that can be maintained
- Reduce backlog
- Ensure the correct assets are repaired or replaced
- Better mid and long term asset investment planning
- Achieve the quickest return on asset investment

Summary

SAP EAM is an excellent tool to allow the planning and scheduling of preventative maintenance, the management of reactive and refurbishment work, and the capture of the history of work on the asset. During the course of maintenance activities, key breakdown availability, maintenance costs, performance and condition information is collected. The question must be asked “are maintenance organizations making the most of this data?”

The emergence of the Internet of things (IoT), cloud based solutions and big data has led to the development of solutions capable of performing predictive analytics and data modeling, allowing for the development of solutions created specifically for Asset Performance Management.

Asset Performance Management solutions are designed to help asset-intensive organizations get the most value out of their costly equipment investments. They can also be used in the decision making framework to recommend the correct assets in need of replacing in the timeliest fashion to maximize the return on investment through achieving the highest possible operational and reliability efficiencies. As highlighted above in the benefits section, the adoption of APM solutions can bring massive benefits to maintenance organization.

The predictions, projections and models run in APM solutions are only as good as the quality of master and transactional data that exists in the asset management system. So it is essential that all data required to run these predictions, projections and models is not only available in the maintenance system, but it is also complete, consistent and up to date.

It is recommended that a two phased approach be adopted to get the most out of APM solutions, and gain the maximum achievable benefits. Firstly, adopting a program to prepare for APM as stated in this paper, then implementing and utilizing an APM solution.

Does APM sound like the ideal solution for your business? Let Rizing professionals help you assess your current SAP EAM system and processes, identifying next steps for an APM implementation. Sign up for an SAP EAM assessment today.