# Continuous Improvement for Maintenance with Robust Reporting and Analytics

*For the Upstream, Midstream & Downstream Sectors of the Oil & Gas Industry*

As you may have heard before, "You can't improve what you don't control, and you can't control what you don't measure." With the proper built-in tools, all data stored your Computerized Maintenance Management Software / Enterprise Asset Management solution (CMMS / EAM) should be accessible for use in the creation and distribution of user-configurable dashboards, Key Performance Indicators (KPIs) and metrics that meet your specific Asset Management business objectives. An easy-to-use and robust analytics platform will additionally enable powerful visualizations that allow your business to identify trends and highlight complex performance relationships that are typically lost in day-to-day tactical reports. This capability is especially important in the Oil & Gas industry where maintaining and monitoring vital assets is crucial to production uptime and avoiding complicated, costly and catastrophic equipment failures. Leveraging your CMMS / EAM data and merging it with important enterprise data from other solutions often yields significant value and helps drive continuous improvement efforts across the organization. Does your business have real-time anywhere access to the relevant and comprehensive CMMS / EAM data that is needed to support your asset performance goals and objectives? Have you identified the KPIs that are vital to your operation? If not, how are you measuring the results and able to see how well each business area is functioning?

## The Metric Pyramid

To be successful and make continuous improvements to your organization, you must begin by defining your strategic goals, and no maintenance program or strategic initiative can be effective without the proper metrics to measure progress. One single static metric is not an acceptable means of measuring progress, so starting with the most tactical first, you will to need create metrics that continue to build and measure achievement throughout all levels of the organization. The Metric Pyramid below depicts the relationship of metrics toward measuring the achievement of strategic objectives throughout all levels of an organization.
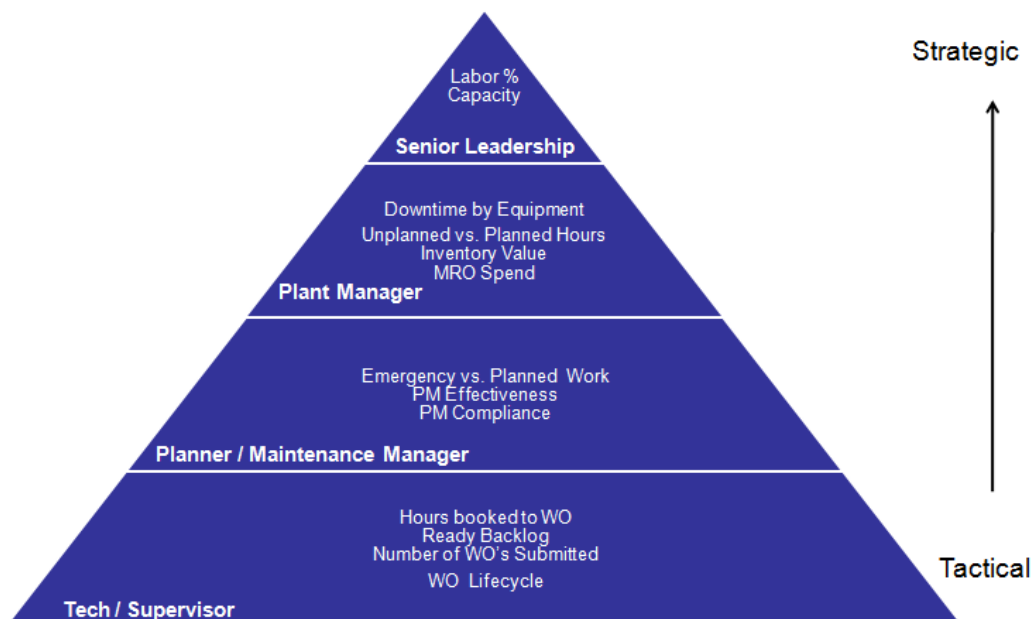
Forming the base of the pyramid are **Adoption** metrics. Adoption metrics are critical to establishing whether the Asset Management system is being utilized, and these base metrics must be stabilized to ensure that upstream performance and organizational metrics are reliable.

The second level of the pyramid is made up of **Performance** metrics. Performance metrics provide ongoing information as to how well the Work Processes are impacting the entire scope of work activity. These metrics often provide the week-to-week management information necessary to monitor the steady-state flow of work activity and judge the performance of the different job roles.

The third level of the pyramid is made up of **Improvement** metrics that translate maintenance performance to its impact in other areas of the organization, such as Operations, Quality and Engineering. These metrics are often the target of continuous improvement projects and/or collaboration activities between maintenance and the other departments.

At the top of the hierarchy are **Strategic Organizational** metrics that convert maintenance performance in terms of achieving organizational objectives. These metrics often use maintenance information such as downtime, downtime cost or overall maintenance costs to help understand the impact of maintenance on production costs or output targets.

By properly applying the Metric Pyramid concept, the maintenance organization can improve maintenance initiatives and convey to upper management how an effective maintenance program contributes to the bottom line and performance of the organization as a whole. Through the effective use of metrics, the maintenance organization can manage maintenance activity and improvement initiatives in functional areas, such as:

- Work and Equipment
- Performance
- Inventory
- Procurement

## Key Performance Indicators

Key Performance Indicators (KPIs) measure how well a facility, department, business function, job role or asset is performing. KPIs help your organization monitor a specific business process and manage the compliance of that process. The success of your maintenance management program is dependent on the adherence to a disciplined process, quality data input and well defined roles and responsibilities. KPIs are critical

to understanding how well you are performing and where you need to make improvements, but identifying the correct performance measures to implement and analyze is also extremely important. The right measures are directly tied to the department or organizational objectives and maturity level. For example, attempting to measure Work Order Response Times without an effective Work Request System in place does not make much sense.

In order to remain focused, your organization will need to identify the accurate number of performance measures to track and analyze. Too many measures can dilute focus and create paralysis, but too few measures provide an incomplete picture of performance. You do not want important processes to go unmonitored and cause key improvement opportunities to be missed.

One example of a KPI is Equipment Downtime. The focus of the Equipment Downtime metric is to ensure that critical operational equipment is available and working properly when it is called upon to produce. This metric helps the maintenance group provide more effective repair procedures by understanding which equipment is of concern. It also aids the formulation of an effective preventive regimen.
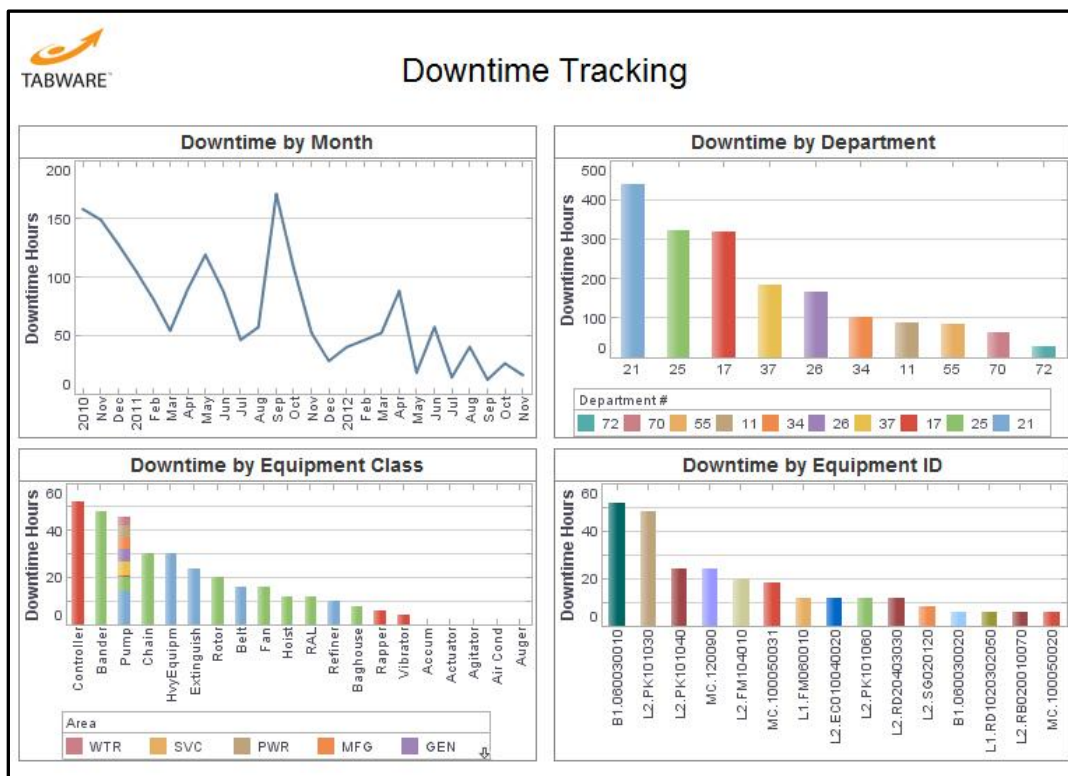


It is important to remember that even though Maintenance and Operations roles and functions are separate, their activities are integrated. Having the correct types and number of KPIs and thus the ability to provide effective asset care programs and procedures will ensure a cohesive vision across Asset Management operations.

## Evolution of Maintenance

As your organization looks to mature and improve its asset performance and deliver more efficient and cost effective products / services, metrics that provide easy to understand visualizations of Adoption, Performance and Improvement achievements and progress are vital to management and staff success. Typically, maintenance organizations operate in either a Reactive / Failure Driven (run-to-failure) mode or practice Preventive Maintenance (PM) activities that have not been proven to effectively detect failure modes. Others employ Predictive or Condition Based Maintenance (PdM / CBM) techniques that only monitor the progress of machinery deterioration rather than utilizing that intelligence to eliminate the root cause of their equipment failures. While those strategies are referred to as a maintenance evolution, one strategy does not eliminate the need for another.
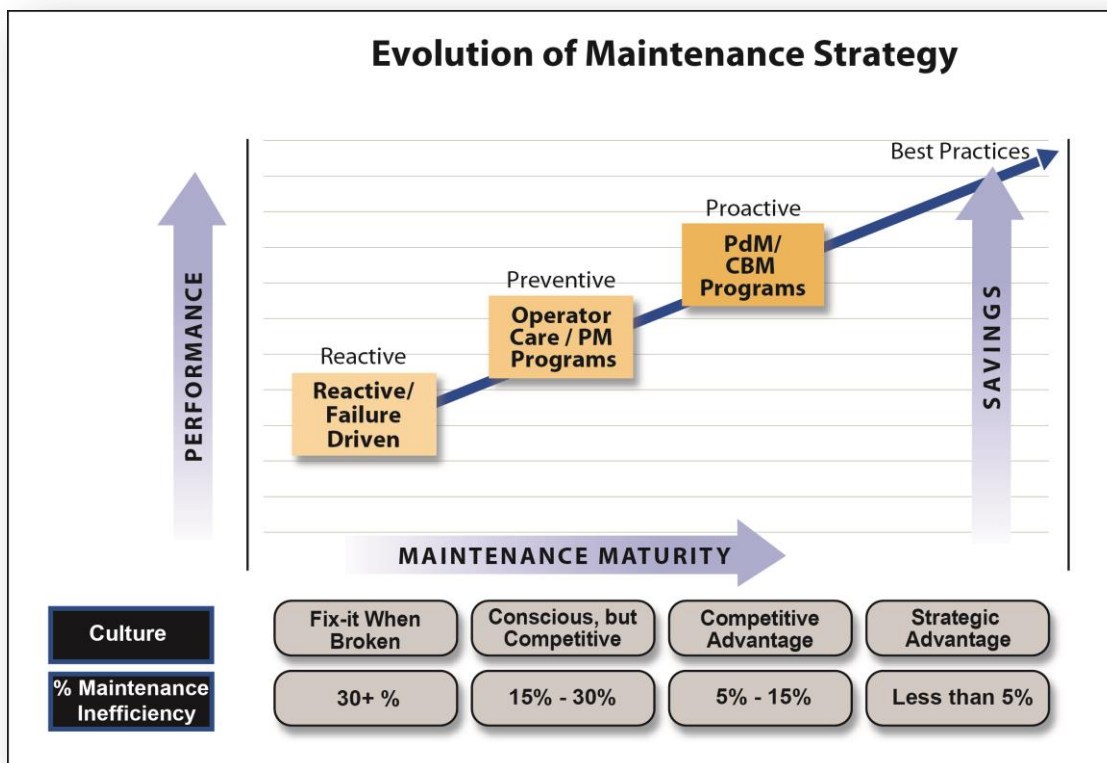


Your organizational focus should shift as a means to increase proficiency and reduce costs, and your maintenance management solution provider should partner with you to develop your maintenance strategies. User-configurable dashboards, KPIs and metrics are critical in aiding and evaluating your current maintenance performance, spotting opportunities for improvement and tracking effectiveness of efforts to achieve greater performance.

Most organizations operate at various degrees of proficiency across multiple strategies, with the majority of their maintenance operations utilizing a single strategy. A good approach to determine the expected performance of your maintenance organization is to evaluate, with your CMMS / EAM solution provider, each facet of your maintenance process to see where it fits on the "Evolution of Maintenance Strategies" chart and devise strategies for advancement and management metrics to measure success.

## Summary

A robust, user-friendly CMMS / EAM solution is an important step toward becoming a Best-in-Class maintenance organization, but you also need tools to create, configure and manage integrated visualizations of that solution data in order to facilitate the continuous improvement of your maintenance operations. TabWare Analytics is an easy-to-use and robust Analytics platform that provides the ability to manage KPIs, trends, multi-dimensional and "what if" analysis and can be merged with relevant enterprise data from other departments or external vendors. With TabWare Analytics, you will benefit from gaining:

- Out-of-the-box, role based reports and KPI dashboards
- Anywhere, anytime web access on smartphones, tablets or computers
- Flexible, user-configurable comprehensive views of data
- An easy-to-use solution from end-users to power-users
- The ability to view relevant data for your unique business needs

You should have real-time, anywhere access to more relevant and comprehensive data, and TabWare Analytics can help you manage your business processes and evolve toward a Best-in-Cass maintenance organization.

**AssetPoint has extensive experience in the Upstream, Midstream and Downstream Oil & Gas sectors, with customers involved in drilling, exploration, product transportation, refining and production. For more information about how we can help move your asset and maintenance management practices towards Best-in-Class, contact us at: 864-679-3447 or heather.cox@assetpoint.com.**