

# Using Service Metrics to Make Intelligent Business Decisions

*Dawn MacNeill, Thermo Fisher Scientific, Scientific Instruments Division, Billerica, Mass.*

## Key Words

- Key Performance Metrics
- Service Metrics
- Service Management
- Asset Management

## Knowledge is Power

When it comes to choosing your suppliers for buying instruments, equipment or services, are you effectively utilizing maintenance and service information to help you make wise purchasing decisions? Do you know how well your suppliers are performing? Do you know how your manufacturers and service providers compare to each other in quality and service delivery? Do you have the tools and information to help you leverage the volume of your purchasing power and negotiate better deals?

Most organizations have a wealth of data available to assist in the decision making process. However, in many cases, the data is not organized or reported in an informational manner to be effectively utilized. Knowledge is power, so how does one transform service data and information into knowledge? One way to do this is through the measurement of specific key performance metrics (KPMs) on your assets, manufacturers and service providers.

KPMs play a vital role in helping organizations maintain a competitive advantage. KPMs enable an organization to purchase the best-in-class assets and utilize the highest quality service providers, as well as lower the total cost of ownership. With rationalization and standardization, an organization can realize cost savings through volume purchases, operational efficiencies in end-user training, reductions in administrative burden, such as a reduced number of suppliers to manage and qualify, and more.

## What are KPMs and how do you generate them?

Key Performance Metrics (KPMs) are metrics that are used to help a strategic organization measure the progress of “something” or “someone” to develop a course of action or to identify specific initiatives to improve the progress. KPMs vary and are typically tied to an organization’s or a department’s goals and objectives. In this case, we are referring to the performance of capital assets, such as laboratory instruments and equipment, their manufacturers and their respective service providers.

The ability to generate specific key performance metrics is dependent upon having the people, processes and tools to know which data to capture, store, analyze and report for business intelligence. The foundation for developing asset and service provider key performance metrics is an accurate inventory. An accurate inventory is reliant upon individuals who understand the instruments and equipment. This is especially important when

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capturing instruments and equipment that are part of an overall system, i.e. a single entity comprised of a main component (sometimes referred to as the “parent”) and individual components (sometimes referred to as the “children”).

Outlined below are the high-level steps that an organization needs to take to produce asset and service provider KPMs:

- Obtain an accurate, up-to-date inventory of your assets, including “parent/child” hierarchies, to enter into your enterprise asset management database
- Determine other necessary inventory data elements, such as asset owner, manufacturer, model number, serial number, installation date, warranty expiration date, service type, etc
- Set-up processes to maintain an accurate inventory
  - Inventories are dynamic and are in a constant state of flux. Therefore, it’s critically important to have processes in place to update the changes as they occur in your database. Otherwise, you will need to repeat the process of capturing an up-to-date inventory, which is very time-consuming and costly.
- Establish five (5) or six (6) KPMs to be measured
- Set-up the processes to capture and store the data points required to calculate the KPMs
- Using your enterprise asset management database, develop a method for reporting the KPMs

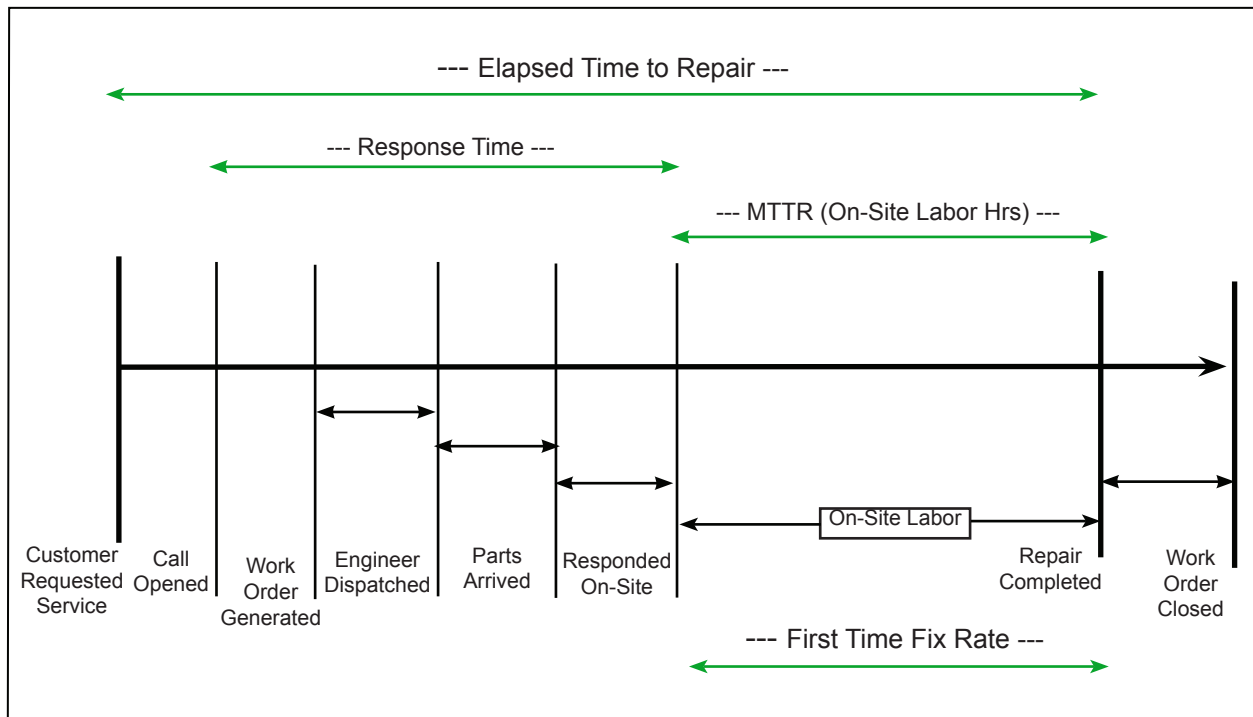
Prior to establishing specific service levels and/or performance targets for your organization, you should determine a baseline for how well your assets, manufacturers and services providers are performing.

## What KPMs are typically measured?

Below, we will define some key performance metrics, show the data points that need to be collected and provide recommendations on how to use the information to make improvements in your organization.

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*Exhibit A: Provides an overview of the data points, including their respective dates and times, required to be captured for each step involved in an on-site corrective maintenance event. The average number of days between corrective maintenance events is considered the Mean Time Between Failure (MTBF) rate.*

- **Response Time** measures a service provider's performance by calculating the average time in hours upon receipt of a customer's request (Customer Requested Service) for field service engineers to arrive on-site (Responded On-site) to perform corrective maintenance events.
  - **Mean Time to Repair (MTTR)** measures a service provider's performance by calculating the average time in on-site labor hours (On-Site Labor) to actually perform corrective maintenance events.
  - **Uptime** measures both a manufacturer's performance and a service provider's performance. Uptime can provide a measurement for assessing the reliability of a manufacturer's product, as well as provide a measurement for assessing the ability of a service provider to return an asset to its proper condition for use quickly. It is calculated by subtracting the total elapsed time required for a corrective maintenance event (Elapsed Time To Repair – ETTR), assuming the asset is down (Downtime), from the total time an asset is expected to be available for use, and then dividing it by the total available hours. For example, an asset's operational hours may be Monday through Friday, 9:00 a.m. to 5:00 p.m., 48 weeks per year. The total annual hours the asset is expected to be available for use is 1,920 hours. If the downtime is equal to 16 hours, then the uptime is 1,904 hours divided by 1,920 hours or 99.2%.
  - **Mean Time Between Failure (MTBF)** measures the reliability of an asset by calculating the number of days between the corrective maintenance events of asset within a one-year timeframe. For example, if an asset's MTBF is 547 days, then one might be able to anticipate that an asset will fail once every 18 months.
  - **First Time Fix Rate** measures a service provider's performance in the area of on-site preparedness and efficiency by calculating the frequency in which a service provider received a request for service (Customer Requested Service), responded on-site (Responded On-Site) and resolved the issue in the first visit (Repair Completed).
  - **PM Completion Rate** measures a service provider's performance in the area of performing preventative maintenance events when needed and on-time.
- These measurements are often used by Original Equipment Manufacturers (OEM's) to identify opportunities for improvements in their customer support operations, as well as improvements in product reliability. In analyzing the data across the same asset classification, OEM's can determine how well their field service structure is set-up to support their customer base, as well as benchmark field service engineer performance to identify best practices and training opportunities.

However, these KPM's can be also be used by an organization to create a scorecard to grade asset, service provider and manufacturer asset performance. This scorecard is an invaluable tool to aid in decision making process. KPM examples for a scorecard are below:

- Asset (instrument and equipment) performance
  - Which assets have the highest MTBF?
  - Which assets have the highest uptime?
  - Which assets have numerous corrective maintenance events?
  - Which assets should be replaced?
  - How often are corrective maintenance events occurring due to user error?
  - What department may need additional training?
- Service provider performance
  - Who provides the fastest service?
  - Who provides the best price?
  - Who provides the best overall value (TCO)?
- Manufacturer performance
  - Who makes the most reliable products?
  - Who provides the best service in terms of responsiveness and timeliness of repair?
  - Who provides the best overall value (TCO)?

#### Using KPMs to Analyze Asset Performance

The objective of using KPMs to analyze asset performance is to identify those assets within your organization that are the most reliable, as well as those assets that are unreliable. Reliability can be measured by comparing MTBF and Uptime of the same asset classification / technique across various manufacturers. For new purchasing decisions, the objective is to determine which asset to buy for your organization and which assets to replace. Rationalizing your asset base can provide numerous organizational benefits:

- Increases purchasing power
- Reduces end-user training requirement
- Streamlines SOPs
- Provides for redundancy
- Improves operational efficiency

#### Using KPMs to Analyze Service Provider Performance

The objective of using service KPMs to analyze service provider performance is to confidently

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The higher the MTBF and Uptime, the more reliable the instrument & the more productive the staff

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identify those service providers who deliver the highest quality service. Service quality can be measured by comparing Response Time, MTTR, and First Time Fix Rate. These KPM's should be generated to analyze specific asset classifications and more specifically, techniques, across various manufacturers and service providers. For ongoing maintenance and operations, the objective is to determine which service provider to use for your organization and which service providers to replace. Standardizing your service providers can provide numerous organizational benefits:

- Increases uptime
- Improves staff productivity
- Reduces overall service spend
- Lowers parts inventory carrying costs

Combined together, if your KPM's identify a manufacturer who has both a high-performing asset and is a high-performing service provider, you have identified a supplier on which to develop a more robust business partnership.

#### Get the Power

Today, many organizations are sitting on a gold mine of data that is under-utilized. Organizations that have invested in the people, processes and tools to generate these KPM's are well positioned to compete in the marketplace by optimizing both their capital equipment and service spend, i.e. the cost of instrument and equipment ownership throughout their lifecycle.

If you're unable to make the investment, there are asset and service management solution providers who can transform your maintenance data into knowledge and provide the business intelligence you need to make more informed acquisition, operation and disposition decisions. Business reviews are provided on a periodic basis to discuss KPM's to date and identify strategies and tactics for continuous process improvements. And, with online reporting tools and customer analytics, these KPM's can be made available 24 x 7; enabling you to make business decisions in real-time, anytime.



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USA  
+1 800 532 4752

[www.thermofisher.com](http://www.thermofisher.com)

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