



# USING KPIS TO MEASURE FLEET & FACILITY MAINTENANCE EFFECTIVENESS

## The Challenge

How well are you applying your resources & funds in managing fleet & fixed assets?

Having consulted with many heavy/highway construction companies throughout my career, I've observed that most do not effectively measure ROI on their fleet and facilities maintenance practices. Typically, only costs are monitored: cost per quarter, cost per annum, cost year-to-date (YTD), cost compared to last year, etc. But, as the Nobel- and Pulitzer Prize-winning author John Steinbeck once stated, "Anything that just costs money is cheap."

Think about it. You don't measure your 401k by how much you have contributed this quarter, last quarter, YTD, or this year compared to last year. You want to know its yield and its performance measured against others.

Asset management is just that – managing assets, not just fixing equipment and sending invoices. Asset management is the science of preventing failures by applying the science of reliability and predictive strategies to forgo unplanned events.

And just how well are you applying your resources and funds in managing fleet and fixed assets? The problem is many leaders are not sure, and often rely on the wrong set of metrics to measure. Refer back to the 401K; the only key performance indicator (KPI) used is cost per pay period invested. Herein lies the challenge.



## Lagging & Leading KPIs

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It's important to maintain an effective balance of leading and lagging KPIs focused on asset management. This involves indicators or metrics that not only show your activity, but the results of that activity that answer the question: Are you managing your assets wisely?

Lagging indicators are typically output-oriented measuring results. While often easy to measure, lagging indicators can be hard to improve or influence. Comparatively, leading indicators are typically input-oriented, hard to measure, and easier to influence. Leading indicators change before lagging indicators and usually result in lagging indicator action; think cause and effect.

Because you measure process or activity, you must also measure leading to produce lagging (i.e., process yields results). Think of your current KPIs of production units (tons) per hour as leading measure, and earnings before interest, tax, depreciation, and amortization (EBITDA) as a lagging measure.

Now, let's relate that to equipment with annual capital expenditure percent of annual sales as a leading indicator. But, how would you assess an adequate benchmark?

While studies have confirmed that 2.5-3% is a good range, this is a leading indicator, not a result. Return on Net Assets (RONA) should be used as the lagging indicator, a traditional one for equipment return. From our benchmark studies, we can confirm 25-30% as a good average, but 50% would be classified as Best in Class. Now, a contributor metric and a result metric are clear.

Another example would be 95% PM Schedule Compliance as a leading indicator and a 10% improvement on Mean Time Between Failure (MTBF) on critical assets as lagging. An annualized 10% improvement on critical or Class A equipment MTBF would be a good indication of progress on a PM program.



## Lagging & Leading KPIs

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We see a leading indicator of Emergency Maintenance man hours (Priority One) work of 1-2% providing us a lagging indicator maintenance cost at 4% of Estimated Replacement Value, showing the low emergency rate is netting lower costs. Both of these are in the Best in Class range.

One last example: A storeroom turn rate of .6-.8 would be the industry norm in heavy construction, while a turn rate greater than 2 would be considered Best in Class. This leading indicator measures progress in storeroom activity, indicating that store items are moving.

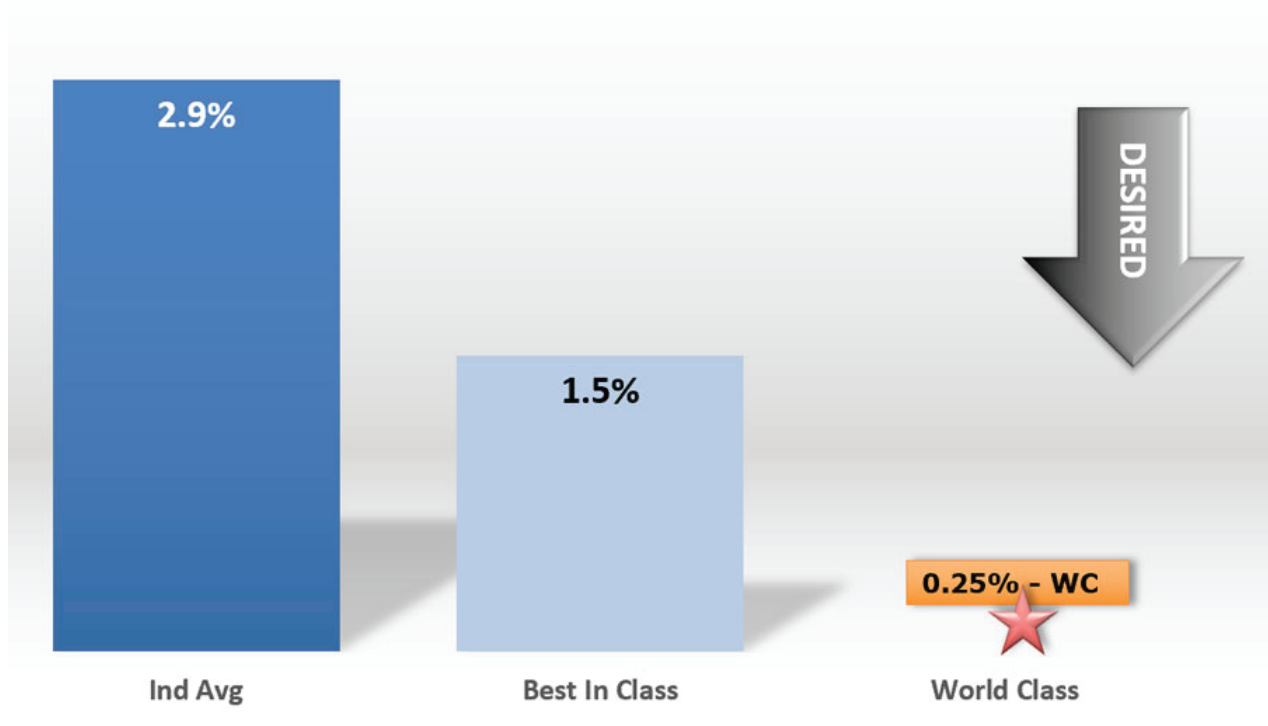
The reciprocal lagging indicator would be total costs. While a 2.9-3% stores value of fleet replacement value rate would be typical for most construction companies, as shown in Exhibit 1 below, a Best in Class operation would be around 1.5%, while World Class would be much closer to .25%. Bear in mind, World Class companies depend on strong planning and scheduling to identify parts and material needs in advance of jobs. Therefore, they require far less stocking of “just-in-case” components and materials. This means far fewer stocking costs.

However, without some reference metric, leadership would not know if they had too many or too few parts in the storeroom. Too few would result in excessive direct buys, causing equipment downtime and excessive purchase order handling costs. Too many parts result in “dust-suckers,” or parts and materials that add no value, and cost on average 25-30% of holding or carrying costs to shelve them. Plus, many may have shelf obsolescence and will deteriorate over time.



**Exhibit 1**

## Maintenance Stores % Fleet Replacement Value



A typical fleet or fixed assets operation should have around 25 leading and lagging indicators to measure both costs and performance. Tracking leading and lagging metrics allows us to make the right decisions at the right time, see the impact of those decisions, focus our efforts, and understand when to celebrate success. Most importantly, it can help us gauge the ROI of our investment.

## Preston Ingalls

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President/CEO of TBR Strategies, has over 46 years of experience and has led maintenance and reliability improvement efforts across 30 countries for Toyota, Royal Dutch Shell, Exxon, Occidental Petroleum, Hess, Mobil Chemical, Aera Energy, Skanska, Bayer, Baxter Healthcare, Lockheed Martin, Unilever, Monsanto, Pillsbury, Corning, and Texas Instruments. He consults extensively with heavy equipment fleets, heavy construction industry, and the oil and gas industry in the areas of equipment uptime and cost reduction. He holds two undergraduate degrees in engineering and a Master's degree in organizational development. He is a contributing writer to seven trade publications and has written over 80 articles. Visit TBR Strategies at [www.tbr-strategies.com](http://www.tbr-strategies.com).