

Are you overlooking and underutilizing one of your greatest assets: the data in your systems?

Key strategies for using Asset Performance Management (APM) to enable maintenance optimization and increased ROI on your Enterprise Asset Management (EAM) investments.

Lloyd's Register

How to avoid pitfalls that seriously hamper your ability to:

- Experience rapid time to insight and business value
- Optimize asset performance and reliability
- Maximize ROI and minimize OPEX
- Help ensure safe operations and minimize risk
- Achieve production objectives and business goals
- Do regulatory compliance in a fraction of the time

What's at stake?

"A reliable plant is a safe plant and a cost-effective plant." Ron Moore, author and Reliability SME.
At LR we understand that you seek expert engineering solutions and technologies that provide accurate and actionable up-to-the-minute information. You also want assurance that any risk to asset performance and resulting business interruption has been identified and addressed ahead of time, with the scheduling and execution of the most effective preventative maintenance actions. That's why like many owner/operators you've invested significantly in Enterprise Asset Management (EAM) or Computerized Maintenance Management Systems (CMMS) to manage the maintenance process. However, chances are you are not realizing the benefits and return on investment.

Unplanned downtime or, worse, a containment incident, for example, that harms people and/or the environment can set back production gains in an instant. Safe and reliable operations are business and moral imperatives. While technology to address these challenges has progressed and been made easier to deploy and connect to systems, adoption and implementation is often a struggle. The result - an inability to fully address the causes of unplanned downtime, an overwhelming number of work orders, and an inefficient use of maintenance staff time - putting their operations at risk.

Three factors that minimize the ROI and effectiveness of your EAM System.

1) **You've spent millions on your EAM System but aren't getting the returns you expected.**

Chances are, especially if you were an early EAM adopter, your system may not have been set up properly in the first place, often because the implementation was done by your company's IT department who simply did not have the engineering, asset management, or reliability background. The result? You have decades of captured data you can't access to constructively improve asset performance throughout its life - but are unsure of and daunted by, the prospect of going back and remedying the lack of properly structured data.

In other cases, your original well-intentioned EAM (Enterprise Asset Management) or CMMS (Computerized Maintenance Management System) provider may have left you with a system set-up that is no longer relevant or helpful to ensure safe operations, minimize risk and manage OPEX efficiently. What's more, you may no longer have access to as many in-house Subject Matter Experts (SMEs), many of whom may have retired, who previously could quickly and effectively help you out of this dilemma.

This makes it very difficult to reap the myriad benefits of EAM/CMMS – a higher ROI, improved asset performance, increased safety and faster, easier compliance.

2) **You're not able to perform the correct maintenance at the correct time in the correct way.**

Due to a lack of readily accessible data on assets and equipment, and the lack of robust reliability and analytical tools in most EAM/CMMS systems you aren't able to focus personnel effort where the largest cost savings and benefits are.

Many asset management and maintenance teams see hundreds if not thousands of work orders generated with no ability to truly understand and prioritize the risk and consequence of failure. In an ever tightening budget environment and retirements due to the aging workforce, many organizations have lost the risk and reliability SME expertise to perform accurate risk based analysis of plant assets like Reliability Centered Maintenance (RCM), Root Cause Analysis (RCA), Failure Modes and Effect Analysis (FMEA) to investigate why an asset failed and so you can prevent such failures in the future.

The upshot of this is that you are likely spending way too much time and resources on routine maintenance while serious asset performance, safety and compliance issues are under addressed. What's more, you may be juggling thousands of work orders with no clear way to prioritize the most important ones.

3) **You're unable to harness the immense power of advanced analytics and digital risk modelling to further your business objectives.**

This can be due to a previous implementation that didn't enable you to set up the proper data structure to help you maintain and service a highly complex and aging infrastructure. And in some cases previous EAM/CMMS implementations relied on future tools and capability - that are still in development.

You're worried that going back and properly re-structuring your data so you can try to reap the full benefits of maintenance optimization will be time-consuming, extremely expensive and beyond your work force's capacity and capability. You'll be happy to know this is not true.

Many asset management and maintenance teams see hundreds if not thousands of work orders generated with no ability to truly understand and prioritize the risk and consequence of failure.

The kind of transformational results that are possible with Asset Performance Management (APM).

A supermajor reduced OPEX by $18 million and cut 74,000 hours of offshore labor in just 20 weeks.

This fast-track project continues to deliver high value to the client using a targeted approach where "high traffic" activity sets are addressed on a value basis.

An offshore operator avoided shutting its facilities down to do relief valve testing – reducing its OPEX forecast by $350,000.

Reviewing its maintenance plan, this operator wanted to ensure effort was optimized on 970 low voltage (LV) motors across 11 offshore facilities. This 3-month study had another quick payback – reducing planned maintenance by 65%.

An offshore facility operator increased safety and achieved a 30% reduction in planned maintenance.

They did this by reviewing their entire Planned Maintenance Plan and also linking their Safety Critical Maintenance to Performance Standards and determining activity levels based on historic testing results.

$18 million
Reduced OPEX

11
Offshore facilities

Increased safety

74,000hrs
Offshore labor saved

65%
Reduced planned maintenance

30%
Reduction in planned maintenance

> A full understanding of risk in relation to industrial assets, plant performance and reliability is a critical component of any APM strategy. LR understands how risk impacts asset performance. They have been helping customers address these issues for more than 250 years.
>
> **Paula Hollywood, ARC Advisory Group**

Key steps to increasing asset reliability and ROI of your EAM.

Having a multi-disciplinary Operations team involved in the design, implementation and operational phases of an EAM deployment pays significant dividends.

It's vitally important you have sufficient input from technical personnel in the design, architecture and set-up of the EAM system to correctly reflect the way the system will be used in Operations. Similarly, continually optimizing the content of the EAM in operations is vital to maximize ROI.

Make sure you factor in issues like these to avoid going back and making changes later:

- The impact on dynamic datasets such as maintenance backlog, workflow and consequential impacts.
- Changes to Safety Critical data and documentation requiring Technical Authority (TA)/Subject Matter Expert (SME) approvals.
- Poorly architected Planned Maintenance regimes that create tens of thousands of work orders – a burden beyond your workforce's ability to manage and address.
- The need for regulatory compliance and tie-in with regulatory bodies and frameworks.

Taking the time to get design and implementation right at the start avoids costly overhauls of your EAM system.

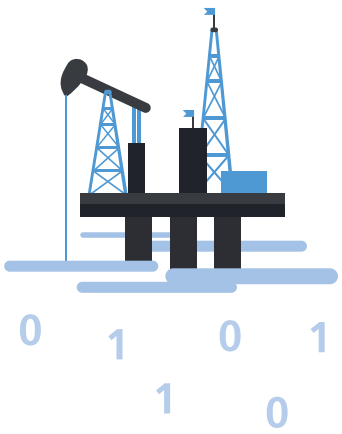
How costly? Making changes to your EAM system in Operations is at least 10 times more expensive, time-consuming and difficult. You want to avoid that.

Specifying and optimizing critical Key Performance Indicators (KPIs) so business-critical reports can drive performance.

Your Operations team plays a key role in identifying KPIs and should also be focusing on workflow, approvals, corrective maintenance scheduling, work order prioritization and backlog management. Continuously tailoring these reports, and subsequent business responses is vital to maximizing ROI.

Leverage the value in your data to increase performance and maximize ROI.

Like most owner/operators you will have data of value in your EAM system (whether you realize it or not). Terabytes of data are collected over an asset lifecycle but are often not used to improve business performance – which raises the question of the value of collecting it in the first place. Take full advantage of the insights and efficiencies your data can provide by continuously analyzing data to determine true information on which optimization decisions can be taken.



Large numbers of spare parts are often held in stores and not being used in Planned Maintenance operations.

Fully document, upfront, the rationale for the technical content of EAMs.

Not doing so can create significant ramifications later on. For example, a Maintenance program is generated but none of the Operational team knows why, what its origin is and if it can be changed. Other examples: Onerous Management of Change (MoC) that demand several approvals and Failure Codes without meaningful descriptors that can hamper future analysis. This base can then be used in operations as a solid platform for ongoing optimization and performance improvement.

Prevent spare parts from creating large costs.

Large numbers of spare parts are often held in stores and not being used in Planned Maintenance operations. Yet they are incurring significant storage costs. Optimize maintenance to reduce the volume of maintenance and lower the number of spare parts needed. This also reduces OPEX costs and the 'pull' on the supply chain and consequential total cost of ownership.

Upgrade training to ensure a seamless deployment and use of your EAM system. Make sure to remedy an insufficient focus on the following areas and user groups:

- Dealing with spare parts and procurement and relationship to Planned Maintenance
- Training of associated third-parties such as sub-contractors who are involved in the execution of your Planned Maintenance program, particularly important if you have a large volume of sub-contracted services, or are changing service providers
- Advising Health, Safety and Environmental colleagues in the construct of the EAM systems that support and demonstrate compliance with relevant regulatory frameworks
- Educating staff to avoid making seemingly small decisions with large consequential impacts – e.g. adding a weekly maintenance activity for a specific equipment type. This seems like a good idea, but when multiplied over thousands of equipment items can require hiring more maintenance personnel. Performing unnecessary or inappropriate maintenance can also bring unwelcome regulatory scrutiny.

Keep your Total Cost of Ownership (TCO) as low as possible even as your equipment ages.

If the underpinning economic characteristics change – in terms of production, product value or equipment configuration, there are simple but robust means of tuning Planned Maintenance and associated OPEX cost to continuously demonstrate and derive the lowest TCO.

Integrate an Asset Performance Management (APM) software platform to complement your EAM/CMMS investment.

By adding a comprehensive APM platform, such as LR AllAssets™, you'll have the advanced analytics, failure data library and templates as well as risk modelling to improve asset strategies, and with much better accuracy, predict and thus schedule maintenance to prevent failures.

You need to ensure, your APM platform seamlessly integrates with EAM/CMMS systems and provides best-in-class equipment models/ strategies that are developed and endorsed by an independent industry expert such as Lloyd's Register. This enables an efficient and effective means of deriving an appropriate maintenance and inspection program to be deployed into an EAM along with an associated underpinning audit trail and justification. Further, it is seamless and simple to tailor these models/strategies to the specific needs of individual equipment items and to derive an optimized maintenance regime that can be modulated as the facility moves through the operational lifecycle.

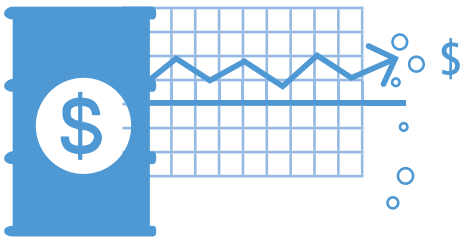
Terabytes of data are collected over an asset lifecycle but are not being used to improve business performance.

Prevent spare parts from creating large costs

Integrate APM software to complement your EAM/CMMS investment

Better accuracy prediction to prevent failures

Customize Planned Maintenance and OPEX cost to lower your TCO



Leverage the value in your data to increase performance and maximize your ROI.

Conclusion.

- EAMs are powerful tools that bring huge benefit; however, they are big, expensive and complicated to deploy with limited analytical and risk modelling capabilities. Adding an Asset Performance Management (APM) solution to your EAM will enable robust analytical capabilities and provide a single platform for reliability and inspection methodologies.
- EAMs look after massive amounts of equipment items and retain huge volumes of big data representing the lifetime history of the plant and equipment that they manage. Harnessing the power of this intellectual property is a challenge without an APM solution.
- Setting EAMs up in an intelligent way at the start can pay huge dividends and minimize the OPEX expenditure; this requires operational and technical input, and auditable equipment models and strategies that are independently verified and endorsed.
- Using these swathes of data intelligently in conjunction with an APM solution allows you to tune your maintenance and inspection activity in response to changing reliability and commercial attributes of your asset or facility, minimize OPEX, reduce facility downtime and continuously demonstrate lowest TCO.



EAMs are powerful tools that bring huge benefit to customers



EAMs retain huge data volumes representing the lifetime history of the plant



Harnessing the power of the data in your EAM system is a challenge



Adding APM will enable robust analytical capabilities that drive improved ROI



$10k
maintenance optimization challenge



10 days
to identify areas for improvement



up to
30%
cost reduction

Take the maintenance optimization challenge. Identify areas where up to a 30% cost reduction can be achieved, in 10 days for $10k. Click here

Subject to terms and conditions of contract.

Lloyd's Register: Who We Are.

We started out in 1760 as a marine classification society. Today, we're one of the world's leading providers of professional services for engineering and technology – improving safety and increasing the performance of critical infrastructures for clients in over 75 countries worldwide.

The profits we generate fund the Lloyd's Register Foundation, a charity which supports science and engineering-related research, education and public engagement around everything we do. All of this helps us stand by the purpose that drives us every single day: Working together for a safer world.

In a world of increasing complexity – overloaded with data and opinion - we know that our clients need more than technology to succeed. They need an experienced hand. A partner to listen, cut through the noise and focus on what really matters to them and their customers. Our engineers and technical experts are dedicated to assurance. That means a commitment to embracing new technology, and a deep-rooted desire to drive better performance. So we consider our customers' needs with diligence and empathy, then use our expertise and over 250 years' experience to deliver the smart solution for everyone.

After all, there are some things technology can't replace.

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