

WHITEPAPER



## ISO 55000 and Beyond:

Take Your Rail Asset Management Further With Technology

By Michael Scollo



The ISO 55000 series of standards gives guidance to good asset management. Innovate your way to *great* asset management with technology that simplifies processes and improves outcomes.

Before we begin, a disclaimer:

This paper is not intended to instruct rail organisations in asset management and compliance with the ISO 55000 set of standards – this has already been done in the excellent *Practical implementation of Asset Management through ISO 55001* by the International Union of Railways (UIC).

Rather, it is intended to get rail asset managers thinking about what comes with (or after, if you have already achieved certification) ISO 55001 compliance: how you can align yourself with best practice in a way that is time- and cost-efficient.

*“A ‘roadmap’ beyond ISO 55001 compliance is also recommended, since compliance in itself corresponds to competent, rather than, world-class Asset Management.”*

—UIC Asset Management Working Group

While you will not be able to automate and technovate your way into complete ISO 55001 compliance – there are numerous people-centric aspects to cover, such as proving top management commitment and a top-down strategic framework – technology is a key enabler for you to achieve your asset management goals.

### STANDARDS VS INNOVATION?

While standards usually seem antithetical to innovation, the ISO 55000 series is not prescriptive and leaves it to you

to decide *how* you meet the requirements for certification. So while you can certainly get ISO-certified with pen and paper processes as long as you meet the requirements set out in ISO 55001, there is definitely no issue with incorporating the latest and greatest technology into your strategy either.

If you haven’t read it yet, I highly recommend this thorough analysis of *Innovation vs ISO 55000 series* by the Asset Management Council’s Steve Doran. In this paper, Mr Doran concludes:

*“The spirit of the ISO 5500x suite of standards is not in opposition to innovation. As asset managers we are free to steer our asset vehicles into alignment with the ISO*

***5500x standards and press the innovation accelerator pedal at the same time.”***

So how can you put your pedal to the metal in terms of innovation, while staying on track with the best practices outlined in the ISO 55000 set of standards?

### MASTERING THE BASICS: DATA

The ISO 55000 series advocates evidence-based, data-driven decision-making in asset management as well as continuous improvement. This means having good asset data is essential if your organisation wishes to align itself with these standards.

Sandy Dunn, Director of Assetivity, summarises the ISO 55001

### What is ISO 55000?

The ISO 55000 series comprises three documents, designed to apply as a comprehensive set:

- ISO 55000 provides an overview and definitions around asset management and the benefits of applying the international standards.
- ISO 55001 specifies the requirements for the establishment, implementation, maintenance and improvement of an asset management system.
- ISO 55002 provides guidance for the implementation of such a management system.

The ISO 55000 series was created with input from 31 different countries and is regularly reviewed to ensure it remains current. It prioritises the alignment of processes and systems that enable control over both quality of service and maintenance over the entire life of an asset.



requirements neatly in [Asset Management Data and Decision Making](#):

1. Understand what data you need to meet stakeholder requirements.
2. Understand what data you need to achieve your organisational and asset management objectives.
3. Think about the impact that this data's quality, availability and management will have on decision-making.
4. Work out:
  - a. What data you need to collect,
  - b. The level of quality that this data must be,
  - c. How and when it will be collected, and
  - d. How and when it will be analysed and evaluated.
5. You must have processes in place to effectively manage your data,
6. As well as an effective system for document management.

I'd like to share four ways the right technology solutions can help you with this.

### 1. Make Data Collection Convenient

In the past, the way data was measured and collected was fairly limited.

Collection was reliant on field maintenance personnel, maintenance technicians or inspectors writing down what they saw and reporting it once they were back in the office. They then had the unenviable task of entering this data into a centralised location, perhaps a log book or (once computer adoption became widespread) an electronic document.

The issues are obvious: data entry errors, notebooks getting lost in the field, version problems, accidental file



deletions – the list goes on, but they all result in data that is incomplete or inaccurate and therefore, useless.

Today, there are a raft of options out there to ensure your team can collect data without going out of their way. Why settle for pen and paper (plus data entry upon your return to the office) when you could have a tablet that lets you record inspection data on the spot?

Mobile devices and technology have come a long way and past limitations like storage space and battery life are no longer barriers. Savvy asset managers will look for mobile solutions with the following capabilities:

- **Intuitive user interface – *Keep It Simple, Sunshine*** (KISS) definitely applies to any process requiring data entry on the go. Steer clear of apps with tiny buttons or which require a lot of scrolling, as these reduce useability.
- **Offline capability** – you shouldn't lose your data just because your 4G drops out.
- **Automatic upload capability** – once you're plugged in or connected to WiFi, your mobile solution should commence syncing with your main asset management system.

- **Rugged devices** that can handle hot or dusty environments and rough treatment. (Let's face it, someone is bound to drop theirs at some stage.)

Ideally, your mobile solution will be part of your asset management system instead of a standalone app. This simplifies the transfer of data as you won't have to worry about data mapping or the integration being affected if either software is updated.

In some situations, you might be able to take this even further by using sensors. When I attended [Singapore International Transport Congress and Exhibition \(SITCE\) 2018](#), I saw [ALSTOM](#) demonstrating their new rolling stock HVAC units with smart sensors that could detect airflow rate and power consumption.

These effectively eliminate the need to send someone out at intervals to check HVAC units as the sensors can detect if the unit is clogged. This saves you time and money while also letting you get your rolling stock back into operations faster.

### 2. Automate Your Processes

Collecting data electronically is good, but the automatic communication of that data (with little to no user intervention) is even better. As mentioned above, wherever possible you should strive

to automate processes so that it is as easy as possible for the users. Every extra step that a user has to take is an extra stumbling block in your journey to getting good asset data.

Automatic syncing removes the need to manually transfer files and records, plus ensures your organisation has access to the latest data at all times, regardless of whether or not your field personnel have returned to the office.

Aside from inspection and condition data, you will also need to keep track of all the preventative maintenance or repair work that has been done on your assets.

Ideally, your enterprise asset management (EAM) solution incorporates work management as well as asset management so work orders in the former carry over to the latter seamlessly. However, if you use a separate software like a computerised maintenance management system (CMMS), automating the transfer of information between that and your EAM solution is a must to ensure you have a single source of asset data truth.

Another cool automation that I've seen before is for **warranty management**. In an asset-intensive industry like rail, it's impossible to memorise all your manufacturer warranties. To ensure you don't miss an opportunity to claim, look for a CMMS or EAM solution that:

- Automatically alerts your staff when an asset under repair is eligible for a warranty claim.
- Records work order data in the right format so the claim can be made quickly.

The potential applications for automation don't stop at maintenance management. Your inventory software or EAM solution should be able to automatically alert staff when your materials drop below a certain stock level, thus removing the need for



manual checks. Even better yet, see if you can set up business rules in the software to automate sending out a purchase order to replenish your stock.

### 3. Transcend Organisational Siloes

There is much emphasis in the ISO 55000 suite of standards on a whole-of-organisation approach, with asset management positioned as a key part of business management – not a standalone activity performed by one department.

*A central theme of this series of standards is of integrated business processes.”*

—Rhys Davies, Chair of the ISO/TC251 Committee (developers of the ISO 55000 standards)

Integrated technology is now no longer optional – it is necessary. If you need to download/upload csv files from one software system to the other or re-enter data multiple times into different solutions, you will find it very difficult to ensure every program in your business has accurate and up to date asset data.

Even within maintenance, it is not uncommon for individual rolling stock,

linear or facilities teams to use different systems and methods. This is because most solutions on the market are generic, and what works for one team does not meet the needs of another.

For an asset manager, this creates difficulty as your asset data lives in different places that may or may not be accessible to you. You may also experience further complications if data is gathered or classified in inconsistent ways, resulting in the need for ‘data cleaning’ before you can use it.

You either need to integrate these different maintenance software systems with your own asset management system, or find an EAM solution that serves both your needs and maintenance’s. The latter is probably a less expensive option in the long run, as data mapping, integration and customisation work is costly and may need to be redone as you gain more asset types or grow.

The **Metropolitan Atlanta Rapid Transit Authority (MARTA)** chose the latter route. MARTA needed to improve reporting across all departments and assets, which required data on workforce tracking, warranty tracking, project tracking and more.

To accomplish this, MARTA turned to **Trapeze’s EAM solution**.



As our solution is tailor-made for rail organisations, it has specialised functionality configured for rail assets right out of the box. MARTA is now able to manage all of its assets in one database.

“Trapeze had a rail transit solution that fits our various types of equipment right out of the box...superior linear capabilities coupled with the ability to manage fleet, rail, stationary, component equipment units in the same program,” said Tim Elsberry, MARTA’s Assistant Director of Track & Structures.

“We have visibility and accountability from the time a defect is discovered until it is repaired, all in one system.”

You can go even further and integrate your EAM solution with other software programs, both internal and external:

- **Integration with operations:** improve efficiency by ensuring your operations staff know what rolling stock is unavailable.
- **Integration with scheduling:** improve safety by ensuring schedulers are aware of maintenance teams out on the tracks.
- **Integration to the asset owner’s EAM solution:** save time by automating the flow of asset condition data from your EAM solution to the asset owner’s.

**4. Fix It Before It Breaks**

In the ISO 55000 series, an asset is defined as “an item, thing or entity that has potential or actual value to an organisation”. This goes beyond PAS 55’s focus on physical assets, as it includes your organisation’s intellectual property, brand and staff.

In rail, broken physical assets mean heavy losses in terms of profit, customer satisfaction and reputation. In some cases, it can even mean safety

is compromised and people are put at risk. So the adage “if it ain’t broke, don’t fix it” doesn’t really apply to rail, as your physical assets’ condition has a direct impact on your non-physical assets.

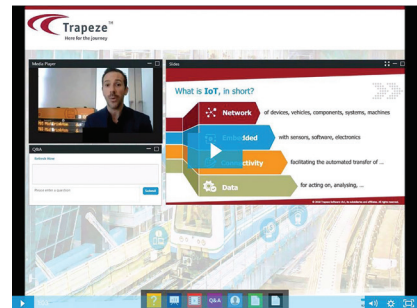
To go back to ALSTOM’s brilliant HVAC units, their sensors monitor changes in airflow and performance to determine when an issue is imminent. These smart HVAC units can be integrated with your EAM solution so your team is automatically notified when action is necessary (i.e. condition-based maintenance).

You save on costs by avoiding scheduled inspections, but without risking the wrath of passengers – a win-win!

The Industrial Internet of Things (IIoT) has immense potential to improve reliability and performance when combined with a good EAM solution. By using sensors to collect and automatically transmit data to your EAM system, you can improve data quality and reliability without any additional burden on your employees. You will also improve staff safety by reducing time on site.

We’ve seen clients achieve impressive results like quadrupling their mean time between failures (MTBF), increasing patronage by 30% and lengthening asset lifespan by 25%.

If you’re interested in learning more about this, view my recent webinar on IIoT and EAM:



**CONCLUSION**

There is plenty of technology out there to support you in your asset management and ISO 55001 compliance journey. The trick is finding the right solutions that will yield appropriate return on investment while allowing your organisation to continuously improve, even after you achieve compliance.

One such solution that ticks a lot of boxes is EAM software. If you are able to get all your asset management and maintenance personnel working in the same software and have this integrated to other business-critical systems, you’re on the right track to align yourself with best practice.

It’s also important to be open to





new innovations, particularly in the mobile and IIoT space where exciting new developments are happening all the time. If it will help you get better asset data and improve your team's working lives, it can't hurt to at least investigate the potential of **emergent technologies**.

However, while it's easy to get excited about technology, ISO 55001 compliance is about so much more than getting good EAM software in place. I'll leave you with these wise words from the UIC Asset Management Working Group:

*“Targeting compliance with ISO 55001 rather than business improvement is a common pitfall. The benefits... have been achieved by organisations that focused on Asset Management as an integrated, cross-function, continually improving approach to delivering value, underpinned by appropriate leadership and culture.”*

If you have questions about the ISO 55000 series or enterprise asset management solutions, or you would like a free consultancy session with someone from Trapeze, please contact [info@trapezegrup.com.au](mailto:info@trapezegrup.com.au)



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