

# A Real-Time Asset Monitoring System for Railway Owners and Operators



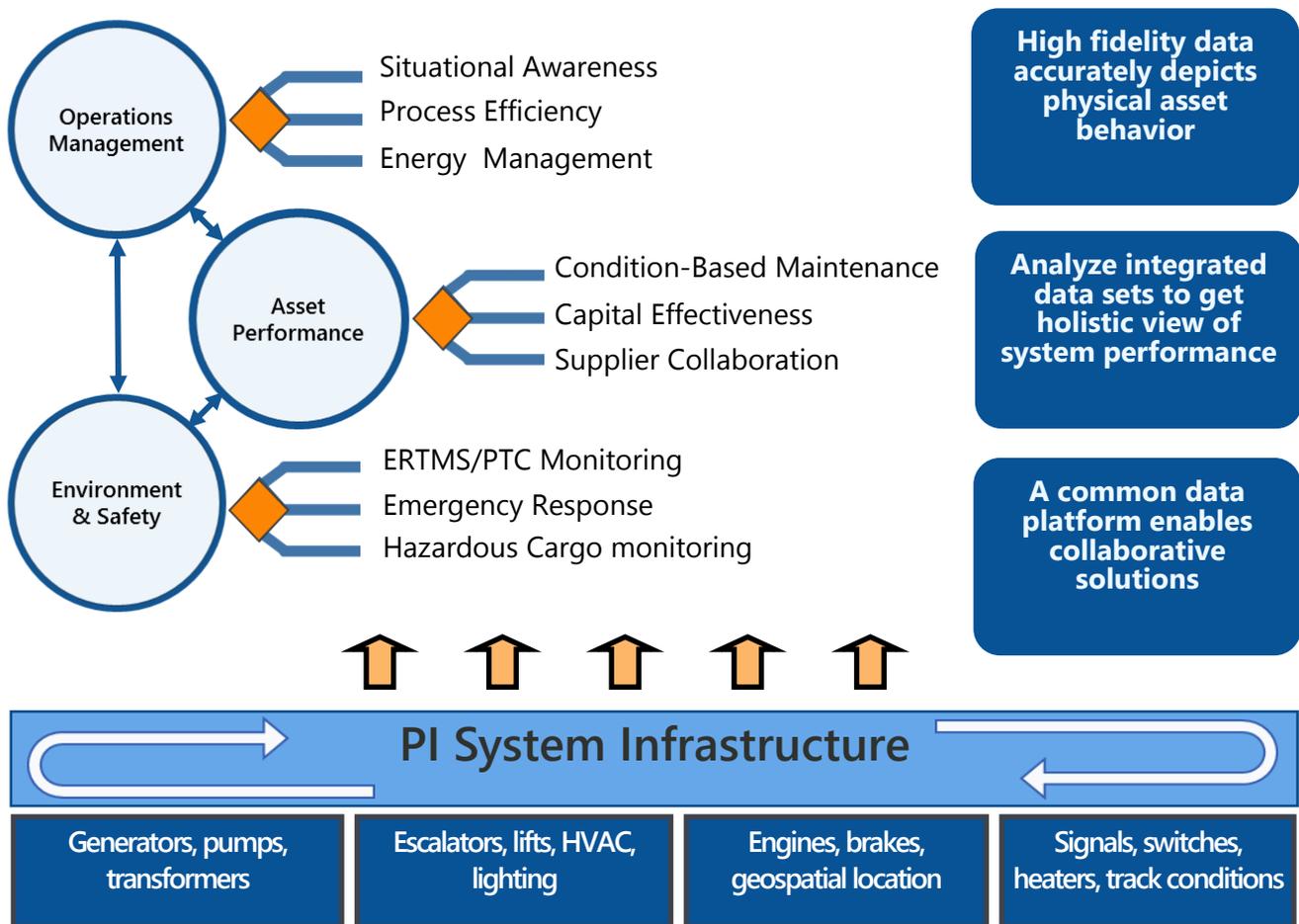
# NATIONAL RAIL TODAY

As a major element of our national infrastructure, railroads have historically led the way in providing cost effective bulk transport; however, other modes continue to pressure the industry to improve delivery times, on time arrivals and shipment visibility. New opportunities in Oil & Gas will further stress network infrastructure capacity and the need for real-time tracking of hazardous cargo for better emergency response.

Pressure to sustain reliable, cost-efficient and safe service is catalyzing the need for data-driven asset management systems to balance system capacity with efficiency, asset longevity and risk.

The purpose of this document is to outline the benefits of implementing OSIsoft technologies to construct a data infrastructure that has the scale and connectivity to provide continuous, real-time visibility across track and rolling stock assets. Embedding a scalable, end-to-end data platform removes information silos to create deep, integrated situational awareness and collaborative working environments for business and operational stakeholders.

## TRANSFORM RAIL OPERATIONS WITH THE PI SYSTEM:

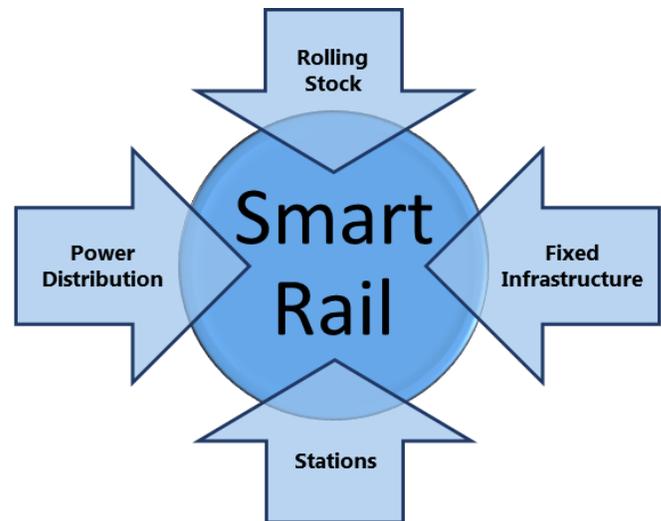


## PI System Capabilities

- Integrate rolling stock, signaling, track and electrification data regardless of vendor.
- Increase asset availability and network safety by analyzing holistic, integrated data sets
- Optimize maintenance by using real-time asset condition notifications to initiate MRO workflow
- Centrally manage distributed asset software components
- Securely share data with trusted partners to forge collaborative solutions to cross-modal initiatives
- Accurately assess and report operating costs to create transparency for auditors, stakeholders and customers

# OPPORTUNITY SUMMARY

Railroads encompass a wide and ever increasing variety of data sources. Despite the growing ability to connect to these assets, there can be significant, data-related challenges to developing safe, reliable and cost-efficient rail systems. Often, asset data can be hard to access, functionally siloed and have fragmented sources. Properly used, operational data, can give visibility into asset health, performance and efficiency. As railroads face increased pressure to meet increased demand, developing data-driven, end-to-end management systems will be critical to maintaining reliability as well as reducing overall cost and risk.



## WHAT IF:

- **ALL** your data - rolling stock, track, signaling, electrification - were available from the same system?
- Your asset data was easily accessible, stored and organized according to function and context?
- Customized displays could pinpoint power outages, faults or asset failure in **real-time**?
- High fidelity asset data could predict failures before they happened?
- You could track asset use and health from wherever you are?
- All your asset data was available in your GIS Platform ?
- Your data could **trigger** fast, coordinated responses to acute problems? Or schedule customized maintenance?

For a network whose safety and performance depends on coordinating millions of data streams, a collection of isolated point solutions can inhibit holistic network management. By creating an end-to end data infrastructure, the OSIsoft PI System removes fundamental barriers to achieving integrated, network-wide operational visibility. Intuitive visualization and analysis tools combined with the PI System's pervasive connectivity gives users the power to focus in on targeted initiatives like condition-based maintenance as well as broader initiatives such as managing capacity, energy conservation and system interoperability.

## THE PI SYSTEM MAPS TO ASSET MANAGEMENT STANDARDS

In today's economic climate, asset managers are turning to performance-based standards like PAS 55 & ISO 55001 to reduce costs, increase asset availability and mitigate risk; however, fractionated data management systems can prevent effective implementation of these standards. When organizations collect data through multiple, domain-specific point solutions, data archives are often incomplete, fragmented or unavailable to all stakeholders. Users can be at a loss when trying to solve problems, conduct forensic analyses or integrate cross-modal information.

A PI System infrastructure approach to information management shapes, integrates and protects critical data. All organizational levels have access to a common source of both real-time information and comprehensive asset data history to support PLAN-DO-CHECK-ACT phases of performance-based standards.

**PLAN** – Leverage comprehensive data archives to set accurate baselines and establish relevant asset management objectives and plans.

**DO** – Create information management systems through customized displays, embedded calculations and automatically updating tables

**CHECK** – Compare real-time performance to goals and generate performance-based lifecycle analyses.

**ACT** – Use data with a traceable lineage to produce auditable reports and identify leading indicators and risk factors.

Whether data originates from rolling stock or track and electrification infrastructure, rail organizations can use high fidelity data to move from reactive to predictive asset management strategies. PI System data also enables early fault detection to avert unscheduled downtime and avoid break-fail situations—reducing costs, increasing availability and enabling overall system reliability.

# Why the PI System?

**Get up and running quickly** - off-the-shelf software can be deployed within a few days.

**Self-Service Tools** - end users can access, visualize and analyze data without coding or IT intervention.

**Data ecosystems** - share data with trusted colleagues, academia and service providers.

**Futureproofed solutions** - Evergreen PI System installations adapt and scale with growth, new technologies and innovation.

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## WHO ARE WE?

Sixty-five percent of the Global 500 operating companies use the PI System for core business initiatives such as asset management, process optimization, quality control, risk mitigation and compliance. According to the ARC Advisory Group, OSIsoft is the largest supplier of Corporate Performance Management software in the growing Inform and Visibility Market.<sup>1</sup> Our customer base includes Fortune 100 and 500 companies in Power Generation, Oil and Gas, Utilities, Metals and Mining, Pharmaceuticals and process industries. Our growth is organic, and our new market penetration is often driven by working with long-standing customers to expand their PI System capabilities to address new challenges or opportunities. Currently, leading **rail** companies in Europe, Asia and North America use the PI System for real-time asset monitoring, environmental reporting and condition-based maintenance for rolling stock and track infrastructure.

OSIsoft was founded as and remains a private company in San Leandro, CA. Our mission is to ensure that our customers have high fidelity operational data available to support profitability, growth and innovation – wherever and however it is needed. We adhere to our founding principles and are committed to making PI System data infrastructures reliable, scalable yet agile enough to bring value now and over time.

