OSIsoft

A REAL-TIME ASSET MONITORING SYSTEM FOR RAIL

Data-driven asset management is critical to balancing system capacity with efficiency, asset longevity, and risk.

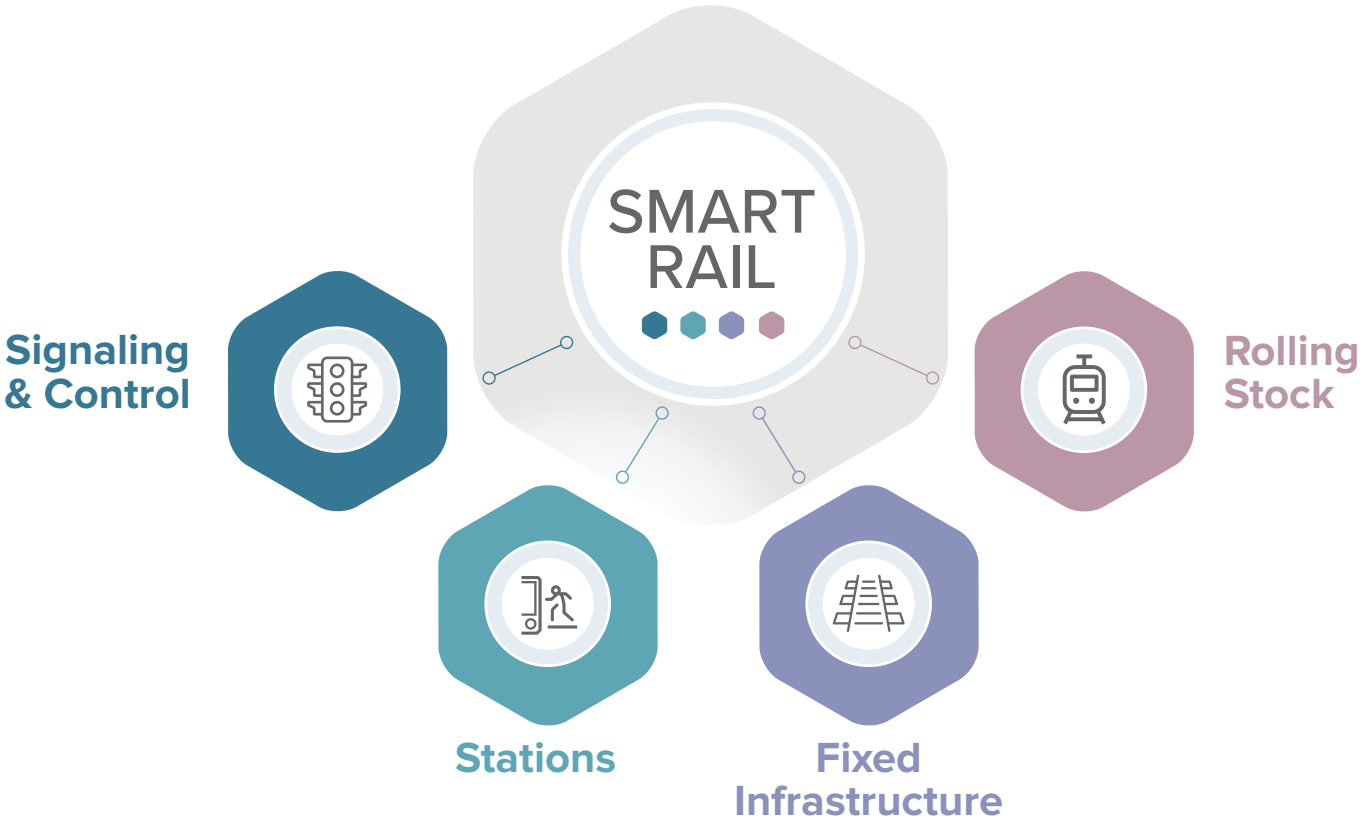
RAIL TODAY

As a major element of infrastructure, railroads are critical to supporting sustainable economic growth. Rail networks have led the way in providing reliable, fast and carbon-efficient passenger and freight transport. However, population growth, increased mobility, and accelerated urbanization are significantly increasing rail traffic without substantial extensions of rail infrastructure. Over the past ten years, for instance, EU rail networks have seen a 10% growth in passenger traffic without a comparable increase in track or unit numbers, suggesting that rail managers have to increase the number of runs trains make across a relatively fixed network.

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 connects disparate information sources to achieve integrated, network-wide operational visibility. Intuitive visualization and analysis tools combined with the PI System's pervasive connectivity gives users the power to focus on targeted initiatives like condition-based maintenance as well as broader initiatives such as managing capacity, energy conservation and system interoperability.

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 in-creased demand, developing data-driven, end-to-end management systems will be critical to maintaining reliability as well as reducing overall cost and risk.



TRANSFORM RAIL OPERATIONS WITH THE PI SYSTEM

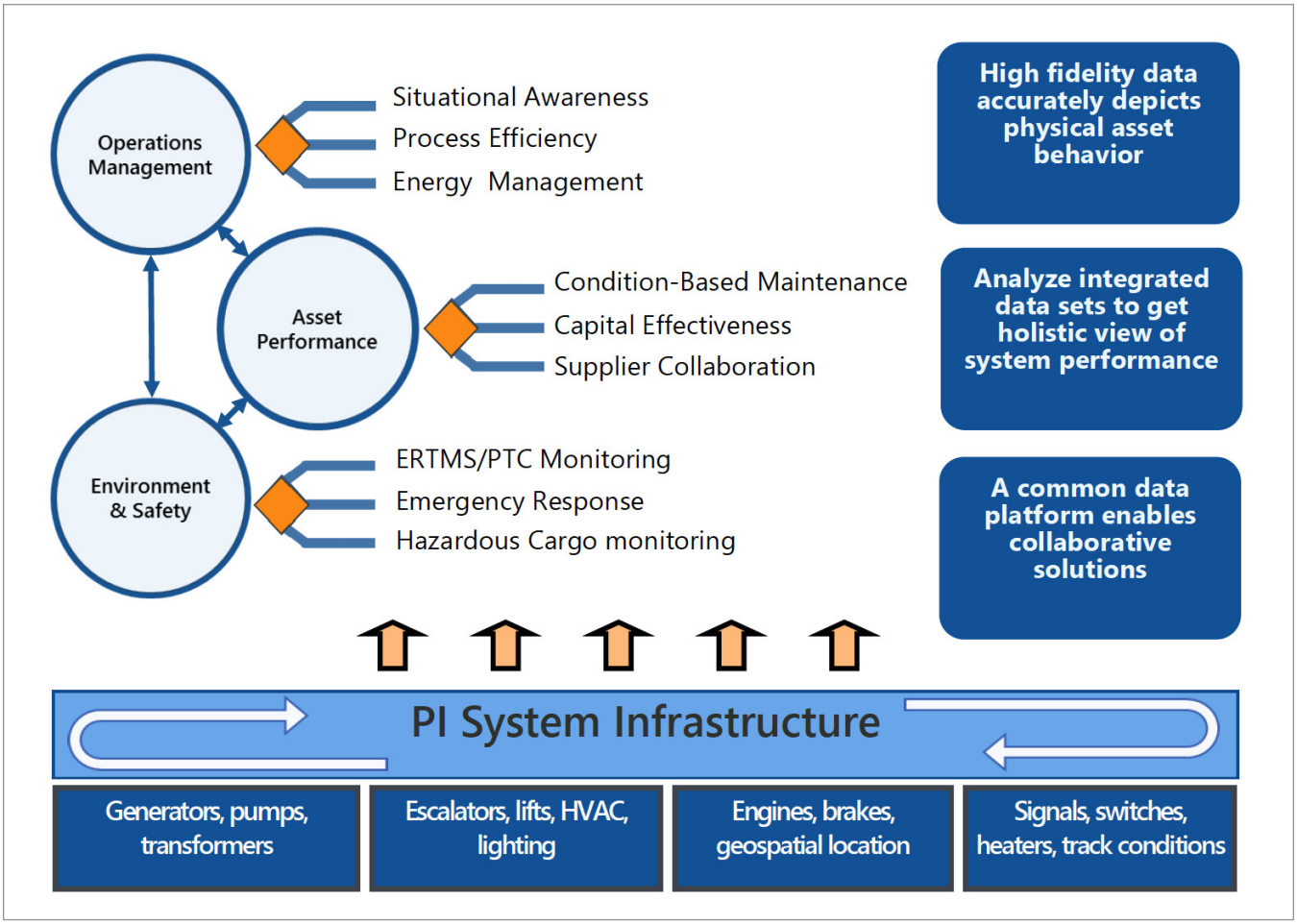


Figure 1: PI System

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

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?

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.

If you are interested to find out how this approach can help your organization, please email us for a demonstration or a digitalization workshop to better access the ability of your organization to get value from the data you have. www.osisoft.com/transportation/rail/

CONTACT:

OSISOFT TRANSPORTATION TEAM

ABOUT OSISOFT

With the belief that people can improve process efficiency, manage assets and mitigate risk if they have access to the data they need, OSIsoft created the PI System as a common data infrastructure to capture and store real-time data and make it available however and wherever needed. For over 30 years, OSIsoft has delivered the PI System with the singular goal of creating a common data source to connect enterprise data with people making decisions and solving problems.

Today, the PI System is trusted to do just that. Processing over 1.5 billion data streams across 19,000 sites, the PI System is embedded in operations and critical infrastructure in over 125 countries. Our customer base includes Fortune 100 and Fortune 500 companies in power generation, oil and gas, utilities, metals and mining, transportation, critical facilities and other industries.

To see any of the 1100+ customer success stories, product descriptions or global initiatives, please visit www.osisoft.com.

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