

INTRODUCING

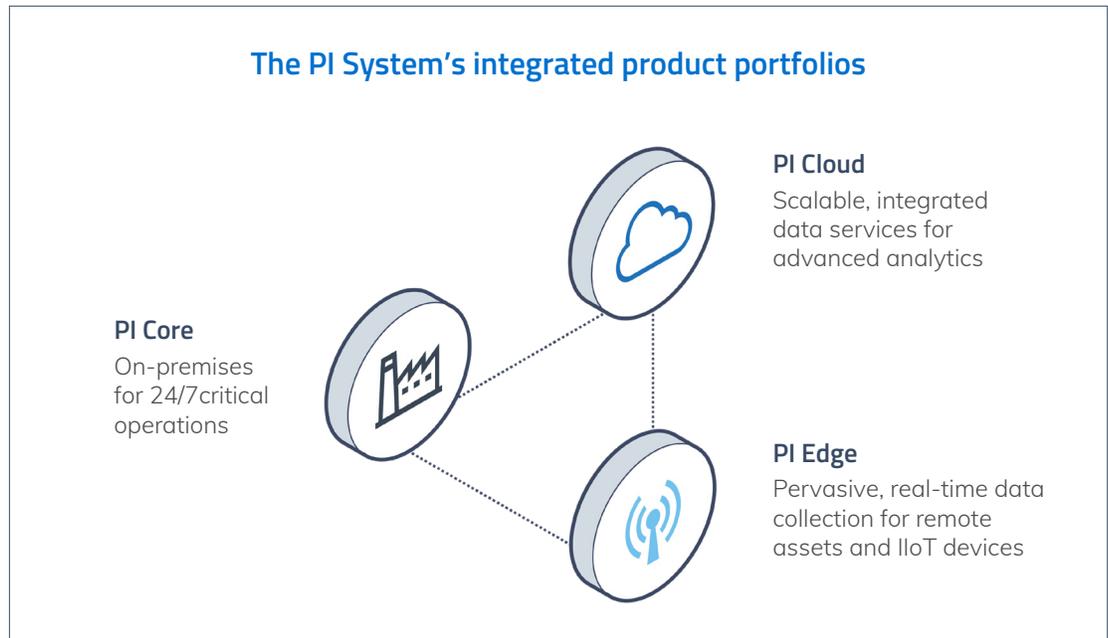
# PI System™

Edge-to-cloud  
data management  
for industrial operations

Imagine what your company can achieve with deeper operational insight, faster analysis of critical data, and expanded visibility to remote assets and IIoT sensors.



With trusted operations data delivered in real-time to people, applications, and platforms across your organization, you can unlock new business value and drive efficiency, flexibility, sustainability, and resilience.



*PI System helps you collect, store, interpret, and share real-time operations data from plant (PI Core) to edge (PI Edge) to cloud (PI Cloud).*

PI System is a data management system built specifically to collect, store, and manage sensor and time-series operations data through three integrated product portfolios: PI Core, PI Edge, and PI Cloud. The seamless hybrid architecture lets you gather critical data anywhere in your operating environment and make it available to engineers, analysts, data scientists, developers, and decision makers in any location.

PI Core runs on-premises to provide real-time information for running and optimizing core operations. PI Edge expands data collection and data access to remote locations with sensor-enabled devices. And PI Cloud uses the scalability and cost efficiency of cloud to make data easily available to remote users, advanced analytic tools, business partners, and even customers. Together, the PI System product portfolios ensure the integrity and availability of data, at scale, across a distributed enterprise.

## Proven in industrial environments

OSIsoft pioneered technology to optimize the capture, storage, tagging, and indexing of massive volumes of sensor and time-series data generated at high frequency intervals. The company has decades of experience implementing solutions in essential industries such as oil and gas, energy, utilities, forest and paper products, mining, metals, food and beverages, chemicals, pharmaceuticals, and more.

Thousands of companies — and two-thirds of the industrial Fortune 500 — rely on PI System for:

- Energy, resource, and facilities management
- Asset health and predictive maintenance
- Quality monitoring
- Process efficiency and improvements
- Safety and regulatory compliance
- Digital transformation

Many companies configure PI System for high availability with end-to-end redundancy and immediate failover to support disaster recovery, maintain emergency operations centers, and maximize uptime. You can deploy PI System components in a variety of architectures, including in a DMZ, on virtual machines, and in cloud environments.

### PI SYSTEM

Three integrated product portfolios turn operations data into valuable insight.

- **PI CORE:** Collect, store, enhance, and deliver sensor and time-based data from critical operations to people, platforms, and applications on-premises.
- **PI EDGE:** Expand data collection to remote locations and sensor-enabled equipment outside your on-premises control system. Expand data access to field technicians.
- **PI CLOUD:** Expand data storage and enable broader data access using cloud-based operations data management services.

### BENEFITS FOR OPERATIONS

- Single system of record for consistent decision making
- Add context and meaning to data without programming
- Easy, self-service access and visualization of real-time data

### BENEFITS FOR BUSINESS

- Full security across all domains
- Data aggregation in distributed environment
- Rapid integration with analytic tools, enterprise applications, and decision-support systems

## PI System maintains a system of record for operational data collected from many sources and used by engineers and analysts across your organization.

### Collect data from every valuable source

The key to developing valuable and accurate insight begins with capturing data from every relevant source. Operating environments contain a diverse set of assets, from proprietary and industry-specific systems and equipment that is no longer sold, to remote, mobile, and smart industrial IoT devices. PI System lets you capture data automatically from any source, to ensure full integrity and liberate your employees from tedious manual collection.

#### Operating sites and plants

On-premises at operating sites and plants, PI Core products pull real-time data from complex industrial systems such as programmable logic controllers (PLCs), distributed control systems (DCSs), SCADA, instrumentation, laboratory information management systems (LIMS), and others. Legacy equipment is no problem. We've developed over 450 native interfaces and 20+ smart connectors across

vertical segments that work out-of-the-box to collect data and centralize it in a common data archive.

#### Remote assets and IIoT devices

As a result of digitalization, many industrial companies now have hundreds, or even thousands, of sensor-enabled devices located beyond their core operating facilities. PI Edge products collect data from these assets to expand insight across a distributed operating environment. Some companies even use data from equipment deployed at client sites as the foundation for new service offerings. PI Edge products let you tap data streams from:

- Smart IoT devices
- Mobile assets with intermittent connectivity
- Assets in rugged environments
- Assets deployed in environments without technical support
- Assets deployed at customer sites

## Manage and enhance data to increase value

Once the data has been gathered, PI System software helps you transform, refine, calculate, and contextualize data, making it easier to uncover operational and business insights.

### Single source of truth

PI System maintains a system of record for operations data used by engineers in different domains and by analysts at the enterprise level. This architecture eliminates data silos and gives everyone access to a single source of truth. With PI System, you can store millions of data points and decades of history to support trending, benchmarking, and predictive analysis. New data is seamlessly integrated as it arrives in real time, whether that is once every hour, minute, or fraction of second.

### Metadata and data context

Operations data arrives in massive volumes, and it can be hard to interpret thousands or even millions of data streams. PI System products let operators and engineers define

metadata to help those using the data understand the bigger picture. Additionally, PI Core products let your team easily create reusable data structures to aggregate and organize data in meaningful ways. With this feature, you can view data by asset type, location, process, or any other useful category. Being able to see data in context helps new employees identify anomalies and trends, just like more experienced engineers.

### Analytics and event tracking

PI System products provide analytic tools you can use to track key performance indicators. Compute simple averages and unit conversions, as well as more sophisticated calculations like total energy usage or the days of raw material remaining. You can also define key events in your production process to trigger data collection and compare data to similar events. If performance degrades and action is needed, PI System lets you send automatic email notifications in real-time to appropriate team members.

**PI System is a cost-effective choice for companies deciding whether to buy or build an operational data store to support analysts and data scientists.**



## **Deliver data securely and efficiently**

In operations, the more widely you share data, the more valuable it becomes. PI System products ensure the safe and fast delivery of high-quality operations data across your enterprise, to the people, analytic tools, and applications that turn data into insight.

### **Operations engineers and management**

PI Core is the heart of the PI System, running on-premises in critical operating environments. PI Core empowers operators and engineers with easy, self-service data access tools to drill down and view relevant data without

using programming skills. Plant managers can pull data into familiar Excel spreadsheets to see data trends and create regulatory reports. Process engineers can view data in mobile-friendly dashboards or process displays.

### **Data scientists and analysts**

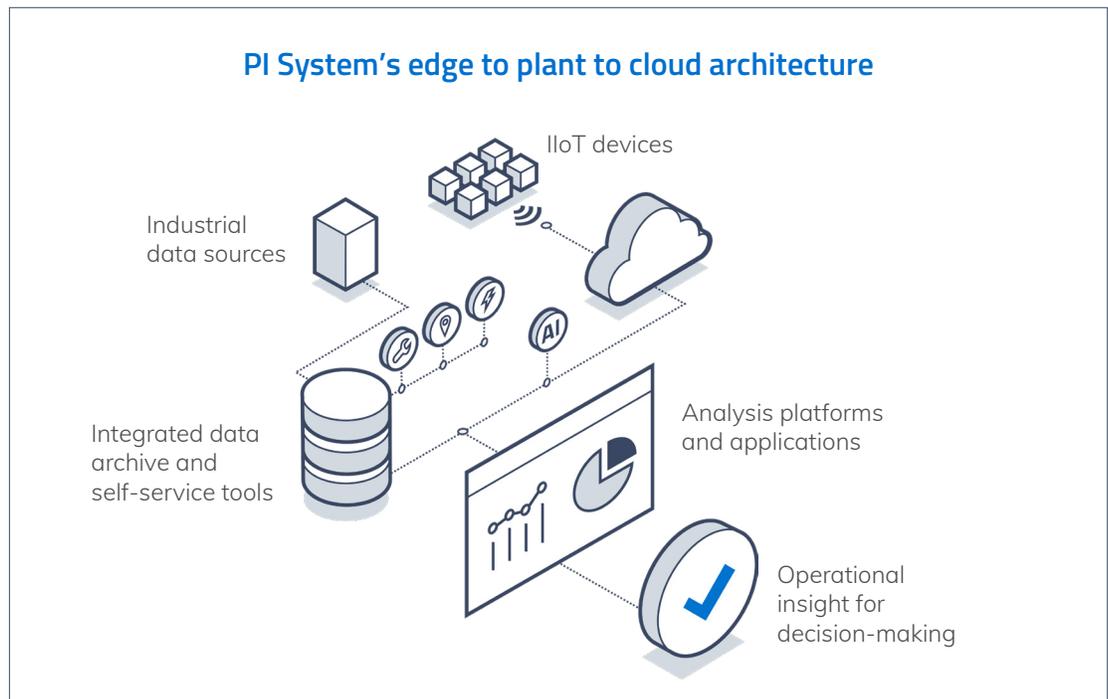
Operations data can also be a gold mine for business analysts, data scientists, and leaders of digital transformation. PI System includes products to shape and format operations data for fast and secure transfer to business and scientific platforms used for deeper analysis.

Integration products provide out-of-the-box data delivery to popular enterprise applications and platforms such as Apache Hadoop, Esri ArcGIS, Microsoft Power BI, SAP HANA, Seeq, TrendMiner, and more.

PI System is a cost-effective choice for companies deciding whether to buy or build an operational data store to support data scientists. PI System handles all the complexity associated with defining, integrating, enhancing, and maintaining operations data, and offers programmatic access to data through standard REST APIs. This means data scientists spend less time on data hygiene and preparation, freeing them to focus on analysis and next steps.

### Secure data sharing

Digital transformation is expanding interest in operations data beyond the enterprise to a growing network of third-party service providers and supply chain partners. PI Cloud makes it easier to share operations data by offering an operations database management-as-a-service that provides programmatic access to aggregated data for analysis and decision-making. For example, an oil and gas exploration venture can share drilling data among its partners. Because the service is cloud-based, it easily and cost-efficiently scales to handle any volume of operations data. PI Cloud lets you share select operations data with authorized users anywhere, anytime.



PI System enables data collection, enhancement, and sharing throughout a distributed enterprise and business ecosystem.



## Summary

OSIsoft's PI System is an edge-to-cloud data management system that provides trusted operational data for data-driven decision-making and digital transformation in a distributed enterprise. PI System supports pervasive data collection from operating sites, assets, and sensor-enabled devices. It enhances data streams with useful contextual information. And, PI System delivers cleansed and formatted data to analysis tools, data science and

AI/ML platforms, and applications. The seamless integration of PI System products across the operations core, edge, and in the cloud ensures data integrity and allows data to be shared securely outside the industrial control network. PI System empowers employees across and beyond the organization with ready access to a rich set of operations data to visualize trends, reveal relationships, and support new business opportunities.



## About OSIsoft

The world's most essential and complex industries rely on OSIsoft to manage the lifeblood of the industrial enterprise: operational data.

OSIsoft is a pioneer in data infrastructure strategy and a global leader in operational data management software. The company brings over 40 years' experience helping industrial organizations meet next-generation demands for efficiency, reliability, security, sustainability, and resilience.

OSIsoft's market-leading PI System is the proven system of record for operational data in essential sectors such as power generation and utilities, water, oil and

gas, mining, metals, manufacturing, pharmaceutical, facilities, transportation, food and beverage, and more. Every day, industrial professionals in 146 countries rely on the PI System to improve performance, protect health and safety, keep the lights on, and make the world run more smoothly.

Learn why two-thirds of Fortune 500 industrial organizations choose PI System at [www.osisoft.com](http://www.osisoft.com).

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