AVEVA™ PI System™

System of record for critical operations management

Eliminate data silos and give everyone across your organization access to a single source of truth. AVEVA PI System is a suite of industrial-grade software products that are purpose-built to collect, enrich, visualize, and share onsite operations data.

Engineers, operators, plant managers, and analysts all need a trustworthy system of record for real-time, high-fidelity operations data

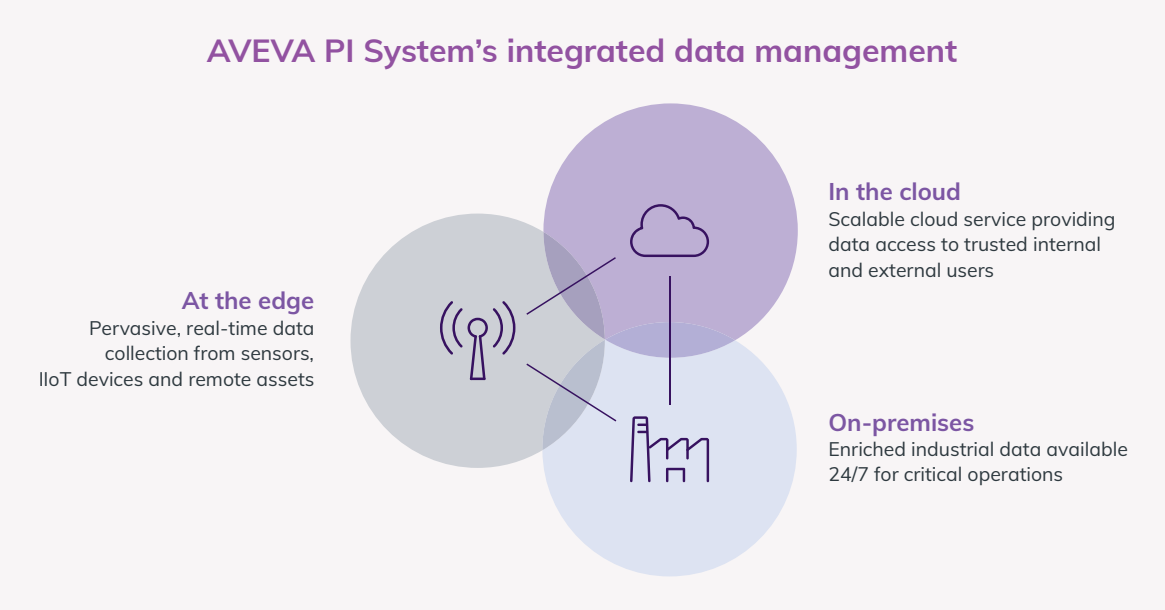
Empower your team with data-driven insights to help maintain quality and safety. Increase asset performance and uptime. Improve process efficiency and ensure regulatory compliance.

Optimized for operations data

The integrity and availability of critical data are vital to decision-makers in industrial companies. But operations data isn't like other types of data. The hundreds or thousands of resulting data streams are difficult to understand and use without added context. And fast data access requires a database structure optimized for time-series data, which behaves differently from relational data.

Most importantly, operations data needs to be available in real time to onsite engineers and technicians who may not have programming skills.

A data management system with integrated, self-service visualization tools makes it easy for users outside the operations domain to identify and access the data they need to maximize uptime, maintain safety, and improve process efficiency.



AVEVA PI System manages high volumes of critical real-time data at operations sites and plants.

AVEVA PI System

Industrial-grade software to collect, store, enrich, and deliver real-time data from onsite operations to people, platforms, and applications.

Benefits for operations

- Reduce time and effort collecting operational data.
- Ensure integrity and availability of critical real-time data.
- Give operations staff self-service access to data for faster insight – no programming required.

Benefits for business

- Make years of data easily accessible for predictive analysis.
- Drive business applications with curated, trustworthy data.
- Enable rapid integration of data into analytics platforms, enterprise applications, and business intelligence tools.

Gather time-series data from any source

AVEVA PI System provides a rich set of options for gathering high-fidelity, time-series data from diverse sources – whether they communicate using modern connectivity standards or proprietary, vendor-specific technology. We've developed hundreds of native interfaces for streaming data from legacy and proprietary assets, control systems, and sensors. These connectivity solutions give you immediate access to operations data right out of the box – eliminating the need for programming or manual data collection.

Data integrity and availability

To ensure critical data is not dropped during a network disruption, all PI System data collection options include data buffering. You can also opt for fail-over and auto-discovery of data sources to ensure clean, reliable data.

Store, manage, and enhance data

At the heart of PI System is AVEVA PI Server, the industry's most reliable and hardened operations data archive. PI Server maintains the full original fidelity of time-series data, giving you immediate, real-time retrieval and data visualization – whenever you need it.

PI Server runs on Microsoft Windows and Windows Core OS to ensure the best possible performance. You can also deploy a containerized version of PI Server on private cloud infrastructure to reduce your infrastructure costs.

Data context and organization

It's hard to understand millions of data streams if they have zero context. PI System includes features that make it easier for organizations to use, interpret, and collaborate on operations data.

Stores years' worth of operations data with maximum efficiency, so engineers and analysts can discover patterns and trends, and visualize data relationships

AVEVA PI System features a unique data structuring capability that lets you associate multiple data streams with a particular asset type, location, or process. You can easily build structures that reflect the physical or logical context and reveal the bigger picture.

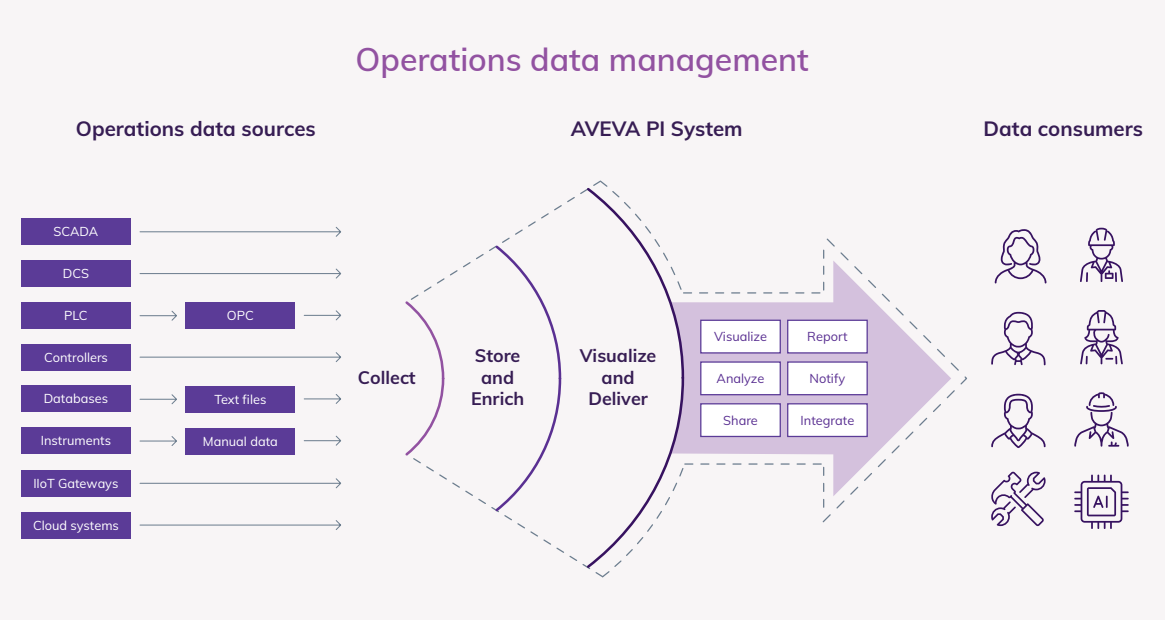
Foundational analytics

Simply collecting raw data has enormous value. But processing raw data in real time can provide transformational insights. PI System includes a suite of calculation tools to perform everything from simple averages and unit conversions to more complex calculations like total energy used or days of raw material remaining.

Event tracking and notification

The impact of different shifts, batches, equipment startups, and process changeovers are easier to analyze when you can compare them to similar industrial events. PI System lets you use event frames to gather and analyze data within a period of time defined by criteria you set.

This feature lets you conduct comparisons, perform root cause analysis, ensure consistency, and replicate best practices throughout your environment. Should conditions require intervention, PI Server Notifications can alert appropriate team members or systems in real time.



AVEVA PI System collects, enriches, and delivers real-time operations data in mission-critical environments.

Visualize your data

AVEVA PI System offers integrated tools that let engineers and operators access data in familiar formats to enable real-time decision-making and immediate action.

Self-service, mobile displays

AVEVA™ PI Vision is an intuitive, web-based tool you can use to create real-time, mobile-friendly data displays. A simple drag-and-drop interface lets you choose the data you want to see and how you want to display it: trendline, numerical value, or gauge. You can create dashboards in seconds, display them on any connected device, and share them with colleagues to facilitate collaboration and get everyone on the same page. PI Vision uses Windows Integrated Security to keep your data secure.

Spreadsheet analysis

AVEVA™ PI DataLink pulls PI Server data directly into Microsoft Excel, so you can analyze operations data with familiar spreadsheet functionality. Create live, interactive spreadsheet-based models that compare and analyze assets and processes in real time. Summarize years of historical data, view it alongside current values, and forecast data using regression analysis.

Integrate data seamlessly

The more you share your operations data across your business, the more valuable it becomes. AVEVA PI System offers solutions for enabling fast, secure data transfer to a broad set of tools, applications, and platforms.

Transfer data to analysis tools

The more you share your operations data across your business, the more valuable it becomes. To share data securely across organizations and functions, AVEVA PI System includes products that ensure fast and secure data transfer to a broad set of tools, applications, and platforms.

Transfer data to analysis tools

Because of differences in the underlying database design, sensor-based and time-series data require special preparation for integration with relational data and tools.

PI Integrator for Business Analytics reduces this preparation burden with an intuitive interface that lets you select and shape the operations data you need into a clean, interpolated row-column format – no programming required. This makes it makes it faster and easier to transfer analysis-ready operations data into business intelligence tools, machine-learning algorithms, and cloud platforms.

Easily fill data lakes built on Azure, AWS, and Google Cloud Platform. Analyze large, complex datasets using familiar tools such as IBM Cognos, Power BI, Qlik, SAP, SAS, Tableau, TIBCO Spotfire, or any tool that accesses data using Open Database Connectivity (ODBC) or SQL standards.

Programmatic data access

In addition to pre-built integrators, you can also access PI System data programmatically by tapping a rich library of APIs and SDKs. These developer tools make it easy to add high-quality operations data from PI System into your own custom applications and advanced analysis systems.

Secure, cloud-based data sharing

You can also easily share select data views with internal users in remote locations or trusted external stakeholders using AVEVA Data Hub, a cloud data management service natively integrated with AVEVA PI System. Together, the two solutions form a hybrid data architecture that gives industrial companies control over which data they shift to the cloud. AVEVA Data Hub allows each ecosystem participant to have their own private and secure data view and decide what other participants can view.

AVEVA PI System: industrial-grade data management for operations

For data collection:

PI Interfaces, PI Connectors, and PI Adapters	Hundreds of off-the-shelf connectivity options collect high-frequency data from control systems, assets, and sensors and send it to AVEVA PI Server. The best choice will depend on your specific data source and collection preferences.

For data storage and processing:

AVEVA PI Server	Data storage and processing software for managing large volumes of time-series operations data and associated contextual information.

For data visualization and integration:

AVEVA PI Vision	Self-service, web-based visualization tool for creating real-time dashboards and process monitoring displays with AVEVA PI Server data.
AVEVA PI DataLink	Add-on to Microsoft Excel that pulls data from AVEVA PI Server into familiar spreadsheets for analysis or creation of compliance reports.
PI Integrators	Software that transforms raw AVEVA PI Server data into cleansed, row-column data sets for business intelligence tools and AI/machine-learning platforms.

For cloud data sharing:

AVEVA Data Hub	Cloud data management service that scales on-demand and provides trusted internal and external stakeholders with secure and easy data access.

Summary

AVEVA PI System is a suite of industrial-grade products designed specifically to collect, enrich, visualize, and share onsite operations data. With PI System, your engineers, operators, and analysts have the data they need to optimize efficiency, productivity, asset performance, safety, and regulatory compliance.

PI System is optimized to:

- Collect and store real-time sensor and time-series data with full integrity.
- Enrich data streams with context and metadata to increase usability.
- Provide easy, self-service data access without programming.
- Enable fast, secure transfer of trusted, high-fidelity operations data to people, applications, and platforms.

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