

WHITEPAPER

Build a digital service business: Real-time operations data enables valuable new services for industrial companies

Executive summary

Industrial enterprises increasingly view real-time operations data as a valuable resource. Real-time operational data provides insights that improve resource usage, efficiency, health and safety, and productivity. Now, with cloud technologies enabling cloud-based data management, operations data can also be used by industrial equipment manufacturers, suppliers, and service providers to deliver relevant services to their clients. The demand for these valuable services will grow as companies continue to pursue digital transformation, leverage emerging technologies, and replace the expertise of lost or retiring subject matter experts.

Your success in industrial services depends on the quality of the data management solution that supports your service. AVEVA™ PI System™, the industry standard for managing operations data, now can aggregate data from remote sites and deliver data to users, applications, and tools in any location through AVEVA's cloud-based data management service, AVEVA™ Data Hub. This whitepaper will detail the benefits of using AVEVA Data Hub to develop and deliver data-driven services in connected industrial ecosystems.

AVEVA PI System has been the leader in operations data management for over 40 years and has focused exclusively on capturing, enriching, and analyzing industrial data to drive operating efficiency, increase asset reliability, monitor safety, and optimize resource usage.

AVEVA Data Hub leverages the scale and flexibility of the cloud to extend those benefits to trusted stakeholders in partner organizations. With the ability to securely share data, industrial customers can collaborate more easily with partners and transfer data instantly to applications and advanced artificial intelligence (AI) and machine learning (ML) tools. Cloud-based data-sharing lets organizations build connected industrial ecosystems, helping partners bring services to market more quickly, improve service quality, and build compelling, value-added services.

Digital transformation in industrial services

In the global industrial sector, services are a fast-growing segment. Companies must work hard to identify operating efficiencies, eliminate waste, reduce risk, and find new ways to attract customers. Data is a valuable resource to achieve these goals. Data-driven services, provided by domain experts such as equipment manufacturers and service providers, are increasingly important to industrial companies as well. Several key trends in the global industry have converged to make this happen.

The decreasing cost of sensors now allows stakeholders to gather operations data from outside the traditional control and automation network, which enables industrial companies to more closely monitor their remote sites and operating assets. Sensors also give manufacturers an easier way to monitor the equipment and systems they deploy or manage for customers. Beyond basic support, manufacturers can now provide advanced services like predictive maintenance and optimization tuning based on years of historical data and advanced analytics.

Key trends in global industry



Inexpensive sensing technology



Increasing need for remote access to data



Brain drain leading to loss of expertise



The business value of secure data sharing is increasing



Cloud technology offers new solutions

The outbreak of the COVID-19 pandemic forced many companies to adopt remote monitoring to reduce in-person site visits and manual data collection. Overcoming this unexpected challenge has also made companies more accepting of automation and remote services, especially as rising turnover among subject matter experts has driven demand for third-party services to fill knowledge gaps.

Owing to the increasing specialization and complexity of industrial operations, companies are more likely to need a trusted ecosystem of technology partners to keep things running smoothly, efficiently, and securely.

The opportunity ahead

Consequently, industrial companies and their service providers can address and solve problems that, even a few years ago, might have seemed impossible. This is an amazing opportunity for service providers to develop and deliver new, high-quality value-added services.

At the same time, partners and service providers have an opportunity to decide on the data infrastructure that will power their new services. The choice can make it faster and easier for their staff to find and use relevant data, thereby reducing costs and increasing profitability.

A wide range of industrial data services

AVEVA PI System technology is used by a wide range of industrial companies, helping them achieve growth and strengthen their competitive position. AVEVA Data Hub enhances data sharing by giving trusted internal and external users secure data access over the internet. Service providers can instantly scale data capacity without incurring CAPEX, maintenance, or IT support costs.

Asset monitoring and predictive maintenance

Equipment manufacturers and other providers use actual performance data to conduct asset monitoring and predictive maintenance. The high cost of unexpected outages increases the value of product reliability and availability guarantees. Brands that offer this extra layer of risk management have an advantage over competitors that do not.

Aftermarket customer support

Performance data can also improve the delivery of spare parts, repairs, maintenance, and support. In some industries, third parties routinely provide these services. Original equipment manufacturers can use data to improve the design and engineering of products and differentiate from their competitors.

Industrial operations and maintenance (O&M)

O&M specialists rewrite processes and policies with the goal of reducing operating costs that result from plant or process design, use patterns, and data flow. Smart factories and digital twins fall into this category. These providers can use data to build models that help optimize a company's production flow and propose more efficient processes.

Engineering and design

Firms that design, build, or supervise the construction of complex plants or highly specialized industrial systems can use engineering data to validate their designs, optimize system performance, troubleshoot problems, and capture critical system start-up data. These firms can use aggregated insights from prior deployments to improve future designs and deliver increasingly superior products.

Other industrial data services

Other providers use data to develop services that help industrial companies operate more efficiently, improve supply chains, monitor safety, forecast supply and demand, and build a competitive advantage. New services will continue to emerge with further adoption of IIoT and digital transformation.



Data is driving a new generation of industrial services

Operations data is quickly becoming a key industrial resource. Like a natural resource, the value of data comes from the ability to procure it, refine it, and deliver it efficiently to the right people at the right time. The right data management solution can help you do this with speed and integrity.

As you plan and implement a data management solution, consider the following:

- Are you capturing all the data you need to deliver a compelling service?
- Is data collection reliable in adverse conditions?
- Is the data understandable to the people and systems that need to use it?
- Can you access and share data easily and securely within a trusted ecosystem?

Your data management solution matters

Not all data foundations can help you increase the efficiency of your service development and delivery or allow you to adapt to future changes and the opportunities of Industry 4.0. Several key functions heavily influence the success and profitability of data-driven services.

Capture all relevant operations data

Less expensive sensors, better software, and improved connectivity allow companies to now collect operations data that was once stranded outside the traditional control network. Sensors can now be added to legacy equipment without connectivity. Real-time data is easier to move securely and reliably. Gateways can collect and aggregate edge data for more efficient transmission. As a service provider, you now have more potential sources of data to form a more complete and accurate view of your customer's operating environment. The right data management solution will allow you to collect edge data easily and cost-effectively.

Provide data context to support users without domain expertise

In its raw form, operations data is often difficult to use. Recording measurements at high-frequency intervals in real time produces a massive amount of data. Outside of operations, analysts cannot easily differentiate one data stream from another and often need an expert to help them find what they need and validate their models. Service providers need a solution that attaches all the necessary descriptors and can show the rollups, drilldowns, and physical as well as logical relationships that give the raw data meaningful context.



Enable real-time data sharing within a trusted ecosystem

Industrial operators are increasingly working with equipment manufacturers and service providers to reduce the risk of asset failure, acquire non-core expertise, and operate more efficiently. Successful implementations have shown that sharing data insights can help companies create more compelling products, minimize capital investments, and get to market faster. The right data platform can eliminate the natural barriers to secure data sharing and enable the “connected industry of the future.”

Leverage proven expertise in data management

You can build a platform to do all this yourself, but that can end up siphoning development resources away from your core service. Will you be able to find and retain developers that have experience with time-series data sets? How much effort will be required to maintain the data platform, keep it secure, and create the interfaces for each new data source? Leveraging a ready-to-use data platform already trusted by industrial customers is the safest and more economical choice.

Connected industries in action

Chemicals: Suppliers use data from mobile delivery trucks to increase the accuracy of billing and to support local decision-making at delivery sites without network connectivity.

Energy transmission and distribution: Companies monitor and compare data from batteries and solar panels with energy demand algorithms for smart grid management.

Heavy equipment: Service providers use sensors and digital imagery to provide situational awareness and red zone monitoring that protects workers in dangerous environments.

Oil and gas: Engineering firms combine data taken from drill-bits with geographic information systems to provide intelligence for natural resource exploration to consortiums of investors.

Plant engineering: Firms specializing in the design and construction of industrial processing plants offer aftermarket monitoring services based on their in-depth knowledge of plant design. Virtual digital twins are offered to plant operators as scenario simulators and for continuous monitoring.

Advantages of the AVEVA Data Hub's cloud-native data management

Gaining access to operations data can help industrial companies and their service providers increase operating efficiency, reduce downtime, lower costs, and achieve greater profitability.

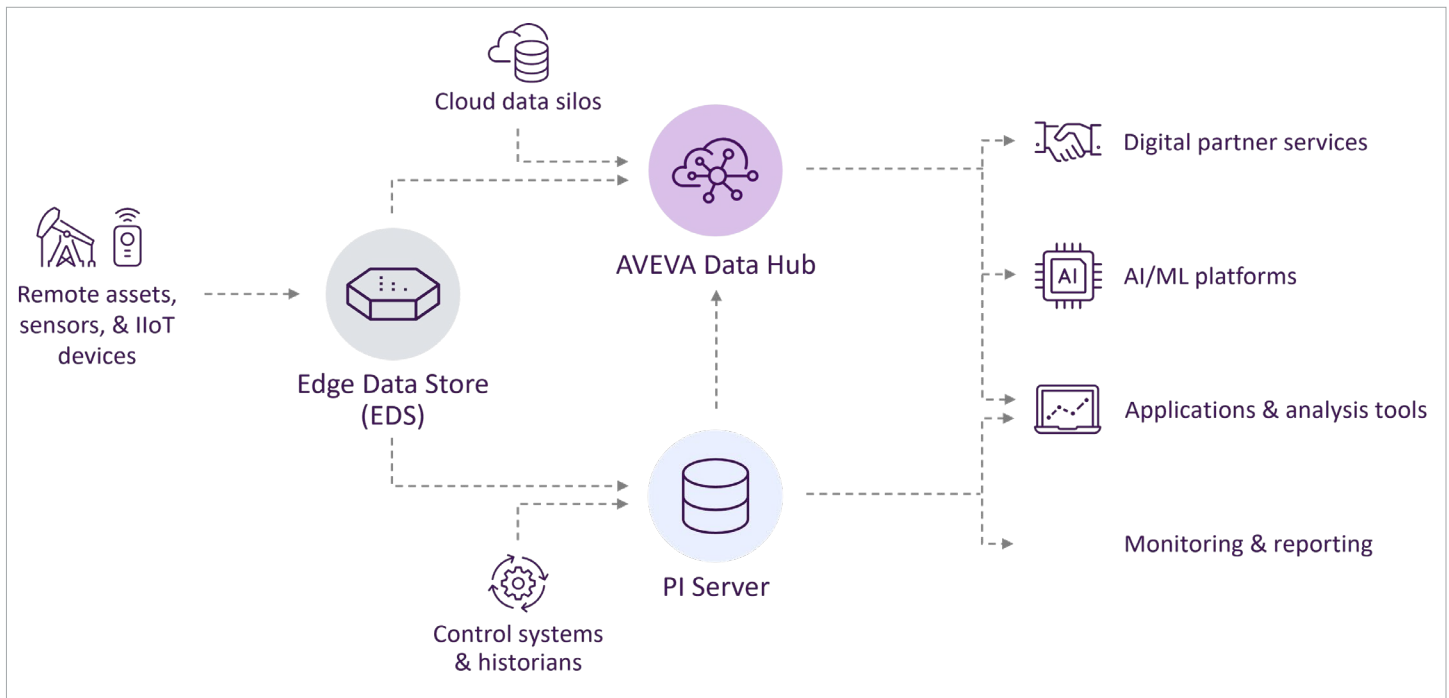
AVEVA PI System offers solutions for data storage and management on-premises at operating plants, as well as lightweight edge software to collect and use data in remote locations. Those solutions are fully integrated with AVEVA Data Hub, a cloud-native data management service that lets organizations choose how much data they move to the cloud. AVEVA Data Hub provides trusted stakeholders in any location with easy, secure access to aggregated operations data.

Operators can grant selected data views to trusted service providers, who access this technology via a flexible, subscription-based model that easily scales to meet business needs.

Operations data with context

AVEVA Data Hub was designed to aggregate, store, and share real-time operations data with speed and efficiency. AVEVA Data Hub excels at giving operations experts an easy way to add context to raw data streams. This helps analysts and users outside operations understand the data and reduces the time it takes to turn data into actionable intelligence.

AVEVA PI System enables edge-to-cloud visibility and data access





Efficient access to the edge

Remote asset monitoring and predictive maintenance can reduce maintenance costs significantly. But accessing data outside the control network can be complicated and expensive due to physical distance, dangerous conditions, unreliable connectivity, and concerns over data security (such as in a very remote location, deep undersea, or when an asset has no local IT support). Manual data gathering exposes personnel to health and safety risks. Outfitting hundreds of remote assets or more with a data management solution is expensive. Data transfer is subject to satellite bandwidth, transmission delays, lost data, and the need for data cleansing.

AVEVA Data Hub, combined with Edge Data Store and PI Adapters technology, overcomes these issues. It helps customers reduce the cost, effort, and risk associated with monitoring assets located outside the primary operations network. Combined, these solutions can easily pull real-time data from IIoT devices, sensors, and legacy assets and aggregate the information in a cloud-based data hub which securely supports authorized data users in any location, inside or outside the company. Equipment suppliers and service providers have real-time access to customer data in its original fidelity – for faster, more accurate services with less expense.

Trusted and secure

Security is key when partnering with industrial companies. Operations data may contain clues to proprietary secrets and is therefore treated as intellectual property.

AVEVA has provided operations data security and reliability for decades. With AVEVA Data Hub, customers maintain ownership of their data and control who has access privileges. Companies can use their existing cloud/internet infrastructure to enable secure data sharing and reduce the cost of setting up secure communication lines.

A separate data management layer with restricted, one-way data communication protects critical operations control networks.

As a natively integrated, edge-to-cloud data solution, AVEVA Data Hub ensures reliability and security as data moves across networks and enterprises. Robust security measures have made AVEVA a reference and one of the most trusted companies to manage critical operations data.

Create digital business services with AVEVA Data Hub

To achieve profitability as a service provider, controlling the costs of service development and delivery is key. With AVEVA Data Hub, we have you covered. AVEVA Data Hub is available as a service, requires no development or integration, and starts delivering value in hours. Subscription-based pricing lets providers start out slowly and scale up as the number of clients and data streams grows. Contracts are flexible and can be structured to fit a variety of business models and growth scenarios.

AVEVA Data Hub allows providers to:

Get to market faster

Thousands of industrial companies already use AVEVA PI System to collect and manage their operations data, giving you an opportunity to get immediate visibility into your clients' operations through AVEVA Data Hub. If you have thought about building your own data management solution with components from your favorite cloud vendor, make sure you have considered the impact on your time-to-revenue. Will the time you spend building a custom platform cost you precious time getting to market? Will your clients find other solutions that will be hard to unseat?

Use development resources strategically

Developing and maintaining an operations-focused data platform is not trivial. Leveraging an established solution lets you focus on service development and customer satisfaction, rather than building the scaffolding that supports your business.

View data from assets deployed at customer site

AVEVA Data Hub lets you view data generated by assets deployed at clients' locations. Clients grant you viewing privileges and you can monitor assets in real time to provide situational awareness, observe operations remotely, or deliver condition-based maintenance.

Scale easily and cost-effectively

Once a client purchases your service, how will you scale the service you provide as its demand grows and data volume increases? If you build your own data management solution, how long will it take to add capacity or expand into new geographic regions? AVEVA Data Hub lets you scale your data solution easily and cost-effectively with a subscription-based, pay-as-you-grow model to match your business model.

Final considerations

Operations data can help you develop value-added services that boost your clients' operating efficiency, productivity, and safety. The right data management solution can help you minimize your own business risk and achieve service profitability.

AVEVA PI System is the de facto standard for critical operations data, and AVEVA Data Hub, the natively integrated cloud data service, provides:

- **Trusted, real-time data sharing.** AVEVA Data Hub lets industrial operators give their trusted service providers easy, near real-time access to operations and asset performance data.
- **Support for flexible business models.** AVEVA's subscription model lets you adjust your consumption of AVEVA Data Hub as your business grows.

Ask your AVEVA sales representative to show you how AVEVA Data Hub can support you. You're the expert on your business. Focus on what you do best and let us take care of the data management.