


 > Solution Brief

## Business Impact

Sensors are the DNA road map to allow unrelated things to talk through embedded microprocessors. The result will be a distributed intelligence platform with progressively more intelligence on premise, at the substation and in the central hub.<sup>1</sup>

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## Challenges

- **Integrating streaming and business data.** Sensor data only tells part of the story – to be most useful, it should be merged with other structured and unstructured data.
- **Operational insights for business users.** Nontechnical users now demand insight into asset and process optimization that only engineers once needed.
- **Error-prone, manual processes.** Manually staging data for predictive analytics causes data latency and transformation errors.
- **Legacy systems.** Integrating disparate data from multiple point solutions can be costly and time consuming.

## SAS® and OSIsoft: Big Data Analytics for the Internet of Things

### The Issue

The growing amount of data generated from sensors on monitoring equipment creates an overwhelming amount of noise. This abundance of data can mask important insights and make it difficult for companies to confidently detect emerging trends embedded in their critical asset data – much less figure out how to make timely improvements.

Whether it's a smart water meter or a gas compressor, expectations of reliability have increased across the board. Due to higher visibility and the availability of advanced analytics, companies know they should be able to identify emerging safety and reliability issues. By doing so, they could avoid significant litigation costs related to environmental impacts of a failed asset. And they could avoid costly repairs that negatively affect customer satisfaction ratings.

How can companies capture the full value from all their complex asset and process data?

<sup>1</sup> [enterpriseappstoday.com/business-intelligence/how-iot-will-change-big-data-analytics.html](http://enterpriseappstoday.com/business-intelligence/how-iot-will-change-big-data-analytics.html)

### Our Approach

With data-driven analytics, companies can make timely, auditable improvements to performance. SAS and OSIsoft have collaborated to bring sensor-based data together with other contextual data sources, helping you to:

- **Predict emerging problems with your critical assets.** SAS connects directly with the OSIsoft PI System to read sensor data and format it for predictive modeling, scoring and analysis.
- **Deliver insights faster.** SAS significantly reduces manual processing by integrating with multiple data sources, transparently ensuring data quality and connecting OSIsoft PI System data to big data architectures including Hadoop and SAP HANA.
- **Use visualization and intuitive reporting tools** to help you rapidly identify asset performance trends across the globe.

SAS helps you make faster, better decisions about asset maintenance, safety and quality issues.

## The SAS® Difference:

### Early detection of events, situations or changes in asset conditions

SAS enables deeper situational awareness of production systems and the environments they operate in. With SAS, you get:

- **An understanding of what is most likely to happen next** and knowledge of the tradeoffs that will be required to optimize quality and safety. By combining sensor data from the OSIsoft PI System with additional context-rich business and environmental data, SAS delivers advanced and predictive analytics for data-driven decisions.
- **Efficient data management.** Through tight integration with the OSIsoft PI System, SAS reads and writes from the historian's data archive. SAS can pull single sensor tags or multiple tag readings, convert data for predictive analysis, and send cleansed data back to the OSIsoft PI System or to SAS, Oracle, Hadoop or SAP HANA.
- **Analytical data quality.** SAS interpolates missing or corrupted data to deliver a robust, complete data set for analysis.
- **Faster, better decisions.** Through alerts, easy-to-use visual analytics and reporting, SAS helps business leaders make more consistent, better-informed decisions, and respond faster to emerging issues and events.

SAS helps companies maximize their return on asset investments by connecting directly with the OSIsoft PI System and applying advanced analytics to asset data.

## Case Study:

### A Major Pipeline Company

#### Situation

A large pipeline company wanted to track commodity shipments to 99.998 percent accuracy. However, it was difficult to pinpoint the root cause of losses, such as leaks, faulty readings from sensors, environmental factors and manual data errors. It took several weeks to detect, explain and resolve discrepancies, creating a negative financial impact.

#### Solution

The OSIsoft PI System collects key operational data from a wide array of sensors connected to the pipeline, measuring temperature, pressure, flow, vibration and other environmental conditions. Analytics from SAS then enhances the breadth of analysis on this pipeline sensor data while reducing the latency of analytical results.

#### Results

With analytics from SAS, the company can prevent revenue loss and develop new information-based services for its customers. It gets:

- High-fidelity data from the OSIsoft PI System and SAS Analytics.
- A real-time view of operational performance across multiple business lines, and same-day or near-real-time alerts for events that could affect the business.
- Continual history of system performance.
- Improved third-party billing accuracy.
- Increased transparency and responsiveness to incentive tolling agreements.

### What if you could ...

#### Spot problems faster

What if you could visualize potential asset problems before they happen and proactively identify preventive measures before unplanned outages occur?

#### Operate more efficiently

What if you could derive even more value from OSIsoft PI System data through contextual enrichment, efficient data transformations and predictive modeling?

#### Improve production quality

What if you could respond to real-time production conditions and quality of feed stocks?

#### Predict impending events

What if you could identify conditions and predict events that pose risks to safety, revenue and reliability?

**You can. SAS gives you THE POWER TO KNOW®.**

### SAS Facts

- SAS helps customers at more than 75,000 sites improve performance and deliver value by making better decisions faster.
- SAS is a Leader in **Gartner's 2015 Business Intelligence and Analytics Platforms Magic Quadrant.**
- SAS Event Stream Processing won the **Axeda IoT Excellence Award - Independent Software Vendor.**

Learn more about the Internet of Things at [sas.com/iot](http://sas.com/iot).