Seven ways to get greedy with your information

Seven ways your existing data could help boost performance and profitability

We often hear that data is the currency of the future, but it's actually the currency right now for energy generation, transmission, and distribution companies.

Operations data — combined with external contextual data — can improve profitability through better efficiency and commercial alignment. Reliable and relevant data from multiple sources is required, but fortunately, the data is nearby, accessible, and ready for action.

Does your data team have what it needs to help you deliver?

To find out, you'll have to get greedy about information. Ask your data team to help with these seven opportunities.

1. Take advantage of out-of-the-box data system capabilities.

Modern industrial internet of things (IIoT) platforms can come with asset-analytics capabilities right out of the box. This is an easy way to start doing analytics with a low resource investment — only the time it takes to create the calculations.

Some IIoT platforms also enable users to immediately start incorporating high and low parameters for a machine, and calculate machine operation outside of these parameters.

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2. Start using advanced "Level 2" analytics.

Advanced analytics (also called Level 2 analytics) include predictive and prescriptive analytics. These incorporate machine learning and use coding languages such as Python, Microsoft R, and Matlab.

Such analytics go beyond time-series data and require a lot of contextual data. The payoff is more accurate forecasts, discovery of unanticipated outcomes, and direct guidance on best-possible scenario for a desired outcome.

Scalable Modeling

Eidsiva, a Norwegian energy company, uses a simple architecture to **leverage machine learning** for condition-based maintenance for stator coolers.

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3. Incorporate market data for more market-aligned operational decisions.

For better profitability, measure real-time performance of assets and incorporate this information into the review and planning of customer contracts.

Additionally, regulated utilities could use past-performance data to justify improvements in equipment and operations strategy.

16% reduction

Uniper, a global power-generation company, **reduced its capital expenditures** budget by 16% using a maintenance planning tool that incorporates commercial data.

4. Use event-framing to understand event impacts and improve response.

Event reports take a long time to compile and provide limited actionable insight. One reason for this is that many different people, systems, and applications own the data. Combining this data and putting it into event frames provides visual tools that can help teams identify "good" events for replication and solutions for better managing "bad" events.

For example, to shorten startup time and reduce equipment wear and tear, teams could identify how they achieved the best unit startup and then repeat the strategies for future startups. To manage "bad" events, a team could create event frames for all unit trips to determine the root cause, then take corrective action to reduce the probability of the event reoccurring.

Immediately access reports

Iberdrola Renewables, a business with 60 wind farms, can **immediately access reports** for prior-month power losses now that the company uses event frames. It used to take a team several days to compile such a report.

5. Use condition-based and predictive maintenance to lower costs and improve safety.

Real-time machine data — combined with advanced analytics applications such as advanced pattern recognition (APR) — can provide operators with more insightful and accurate maintenance-related information. The cost for data-gathering sensors, networking, and cloud computing — foundational elements of condition-based and predictive maintenance — have fallen, and new analytics capabilities make execution easier and results more impactful.

An operational data infrastructure can supply these models with historical data in order for them to "learn" and make their predictions, and then send the prediction and associated status comparison back for trending and root cause analysis.

Online monitoring

Ameren, a mid-sized utility company, is **saving money and building safer utility plants** by using online tools for continuous machine monitoring.

6. Use future data to optimize day-to-day operations.

Combining operational data with information from weather services, researchers, mapping software, and other sources results in more accurate forecasts. Xcel Energy, which provides power for 3 million electric customers and 1.9 million natural gas customers across eight states, improved wind forecast accuracy by combining data from 1,200 turbines, the National Center for Atmospheric Research (NCAR), and the National Renewable Energy Laboratory (NREL).

Another valuable use of future data is comparing the real-time performance of the generating unit with the day-ahead contract schedule. This provides shareable insight into how well the unit met its generation commitment.
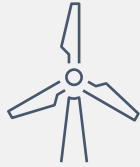
$46M

Xcel Energy was able to save **$46M in operations costs** through better wind forecasting.

7. Measure unit performance against contract terms and adjust for desired profitability.

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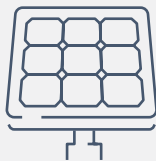
2.8 GW

Corporations in the United States signed 2.8 GW of power contracts for wind and solar in 2017.

Information is plentiful, so get greedy

Getting greedy about information can lead to new levels of operational efficiency through more accurate forecasting, market-focused resource planning, better response to impactful events, more finely tuned asset maintenance, and the inclusion of advanced analytics for more effective decision-making.

The PI System supports key power and utility processes, such as root cause analysis, condition-based maintenance, grid optimization, and more. It becomes the data infrastructure needed for these opportunities and many others.

Have a talk with your data team about its ability to support these initiatives. We're here to answer any questions you might have. Contact us at putilities@osisoft.com.

About OSIsoft

OSIsoft is now part of AVEVA, a global leader in industrial software, driving digital transformation and sustainability.

We are the makers of the PI System: the leading operations data management platform 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 operational 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 the PI System at **www.osisoft.com**.

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