

Increase oil and gas yield with Spotfire® analytics

The start of the global pandemic caused unprecedented market volatility. Investors became more cautious. The resulting economic impacts have challenged the leadership of many oil and gas (O&G) organizations to find new ways to do more with their existing assets.

A strong data analytics solution is critical to ensuring employees and shareholders alike have the data they need to make intelligent, actionable decisions.

This whitepaper describes how O&G companies today can get more from their data by bringing it into a powerful and easily accessible analytics tool: Spotfire® visual analytics. This is not merely a theoretical concept, but an actual industry solution that is already transforming energy operations.

Challenges can lead to better analytics solutions

The oil and gas industry is always looking for new ways to better characterize reservoirs, which requires a clear understanding of geology, geophysics, engineering, logistics, and other information. Wireline data—resistivity, gamma ray, sonic, caliper, and other analyses of rock properties—helps identify minerals, fluids, and structures at depth.

However, it is very challenging to visualize this data without the right analytics tools.

Visualizing wireline data

One of the largest producers of oil and gas in the world sought a new way of allowing its users to access and visualize well-log data. The company needed to use a method that was easy and reproducible, meaning it could not involve difficult coding that users had to translate or sift through to obtain information.

After establishing a SWAT team, the company experimented with several technologies and methods to produce and customize the well-log data as Spotfire visualizations. Python, JsViz, and eventually the Spotfire community-supported JavaScript visualization framework were tried. These technologies produced solid and useful visualizations, but all the software required heavy coding and setup that could not be managed by many of the company's users.

To get the job done, they needed something much simpler, so the team turned to Spotfire for ideas. Together, both teams worked to develop a new custom solution that would allow the company to accomplish important data evaluations more efficiently and faster in every capacity. For example, rather than spending time coding, developing, and customizing each visual well-log trace, the team wanted to drag and drop these kinds of items into dashboards.

With the help of Spotfire analytics, the oil and gas producer created a well-log Spotfire® Mod with easy-to-understand, drag-and-drop capabilities. It simplified data analysis methods and made the coding effort a thing of the past.

The new solution used visualization features like zooming, mapping, highlighting, panning, and marking to properly visualize log data to analyze potential oil sites.

The Mod can be added to any Spotfire analysis for producing configurable well-log measurement visualizations. Users can then explore the data properly, saving time and money because another tool is not needed, leading to faster results. Due to this centralization and data democratization of well-log traces, efficiency has also increased. An oil and gas data analyst at the company said, "Our initial results showed we reduced reservoir modeling steps by 80 percent."

Analysis of drilling, geology, trends, and anomalies

The oil and gas giant also chose Spotfire analytics for its ability to accomplish set tasks and surface very specific information that would be used for drilling analysis and spotting trends and anomalies.

To evaluate drill-bit performance, the company needed to identify geological conditions. With this information in hand, the company could reduce downtime, increase performance, and improve production.

To find trends and anomalies, the company needed certain historical and operating data on hand. Trends could ultimately provide hints as to why certain well failures were occurring and lead to problem resolution and prevention. The data would also allow the company to react appropriately should well shutdowns become necessary or if a large failure occurs.

Spotfire analytics makes it possible for this team to quickly analyze large datasets using technologies such as artificial intelligence (AI) and clustering methods for multi-dimensional analyses of complex datasets and to ensure that statistical methods remain accurate and up-to-date.

Spotfire analytics and smart drilling

Hunt Oil also turned to Spotfire, with dramatic results. The company's inflexible vendor-supplied applications weren't providing the agility needed to remain competitive. It needed fresh insights, and it needed them right away.

Over the course of just six short weeks, using Spotfire software and the Spotfire® Drilling Accelerator, Hunt Oil established a new smart-drilling system that gave it access to real-time views of geological analyses. The enterprise was able to obtain data at faster speeds, ensuring it saved time and money.

As Brian Alleman, senior drilling engineer, explained, "We are combining sets of data in ways we were never able to do in the past, leveraging data from our reporting and engineering databases. With [Spotfire], we take data from the server and turn it into an asset that is going to make a difference."

Using insights to deliver data-driven results

Spotfire software is built to:

- Help you develop deeper insights with AI-infused visual analytics and customized apps that enable your company to reach its full potential
- Combine both streaming and historic data so you can better predict trends with embedded analytics and data science

Spotfire enables:

- Predictive decision-making
- Proactive intervention response
- Process optimization
- Improved operational excellence

Spotfire analytics can help you make the most of your data to generate real-time insights and make more informed decisions about how to extract necessary resources safely and efficiently. Armed with up-to-date information and insights, you can do more with less and ensure your oil and gas company continues to thrive.

What Spotfire delivers

As the most complete analytics platform available today, Spotfire software can give your oil and gas company access to several tools including:

Immersive visual analytics

A single-pane-of-glass experience that offers:

- Visual analytics
- Data discovery
- Point-and-click insights

Spotfire® Visual Analytics offers clear imagery and visuals of historic and real-time data that you can use to make educated drilling decisions.

Spotfire Mods

Used to build innovative “grab and go” customized visualizations and analytics apps, Spotfire® Mods give you easy access to customized functions and stronger interactivity, plus visualization libraries, APIs, and workflows.

Embedded AI and data science

The power is in the science, and through smart analytics you can identify unique patterns in your data stream, spot anomalies, and take proper precautions. Spotfire® Data Science, with custom expressions and data functions, lets you manage and write scripts using native R and Python engines without dealing with difficult coding. Let end users leverage these functions in a graphical way and without coding.

Real-time streaming analytics

Data is never static. It flows constantly, making it difficult to pin down the information that may help your company perform better. Bring all your data together through the single, powerful Spotfire® Streaming tool to analyze and digest the streaming and historical data and keep your enterprise on track.

Strong geo-analytics

Multi-layered map charts can bring deeper insights into the locations you’ve chosen to explore. Use real-time data to recalculate models and update plans on the fly.

Intelligent data wrangling

Spotfire data wrangling capabilities deliver all data through the fastest methods possible, pulling information from multiple sources. Data is auto-recorded, shareable, and editable, thereby simplifying future changes and audits. Basic tasks such as AI-powered smart joins are automated to ensure data preparation remains easy.

Entering a new era for oil and gas

Over the past months, the state of the world has changed drastically, with war affecting oil reserves and causing prices to rise in every part of the globe. Evolving supply challenges are forcing many upstream oil and gas organizations to rethink how they extract resources. The key to getting as many barrels of oil as possible through existing assets is to have access to the right data and the insights it can yield, such as:

- Promising assets and sites
- Geology most likely to present barricades
- Prevalent trends for making more accurate predictions

Leveraging your data optimally can help your upstream oil organization engage in better drilling and extract more oil, leading to:

- Favorable fuel prices
- A healthier global economy
- Surging investor confidence

Let’s talk about how Spotfire helps your company

Spotfire analytics was built with companies like yours in mind. When you use the most complete analytics solution available, you’ll find yourself exploring and visualizing new data discoveries through tools like advanced analytics and immersive dashboards. Spotfire is presently offering a 30-day trial, giving you a prime opportunity to try the Spotfire solution risk-free. Take that opportunity today; sign up for your [free 30-day trial](#) and [learn more](#) about our energy and utilities solutions.



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Spotfire® goes beyond basic rearview dashboards to offer a single visual analytics platform for data exploration and real-time decisions. Backed by point-and-click, no-code data science, Spotfire allows even the non-developer to analyze both data-at-rest and data-in-motion, together, for faster time-to-insight and better business outcomes.

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