

What is visual data science?

A visual-first approach to data science



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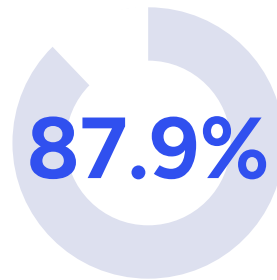
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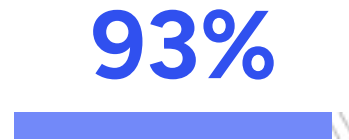
Data science is critical to your business

Our reliance on data is growing, but our ability to use this data remains stifled, whether that's due to organizational processes, budget limitations, or human resource gaps. It's time for your company to step into the new AI era and actually put your data to work. Remain relevant in an age of rapidly evolving technologies and surpass your competitors by gaining data-driven insights into your processes, resources, operations, and more. It sounds difficult, but Spotfire is here to help.

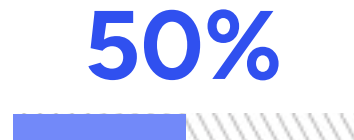
87.9% of chief data officers and other IT and business executives from 102 large organizations said investments in data and analytics are a top priority.¹



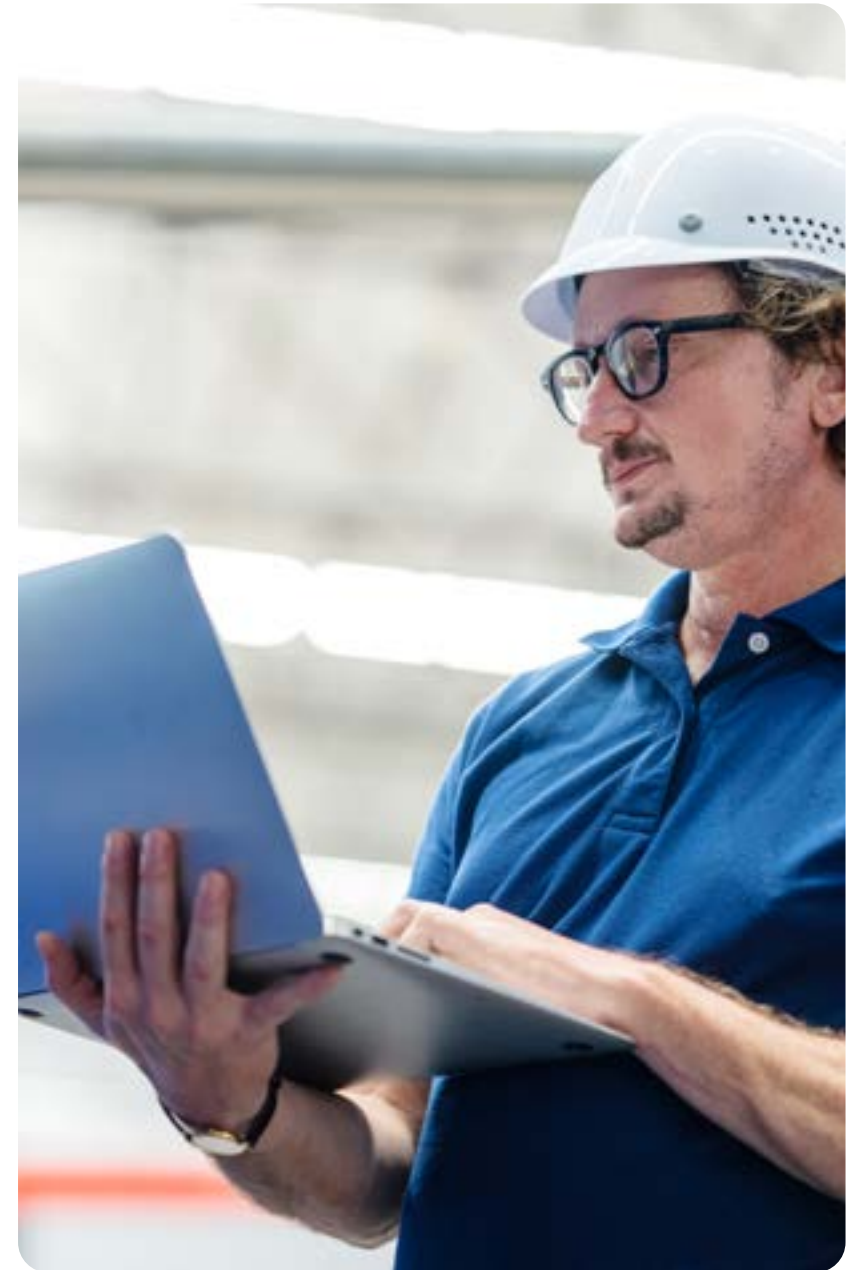
93% of respondents agreed that data strategy is critical to getting value from generative AI, but 57% had made no changes to their data thus far.²



50% of organizations will have to evaluate ABI and data science and machine learning (DSML) platforms as an all-in-one, composable platform due to market convergence by 2026.³



90% of current analytics content consumers will begin creating analytics content enabled by AI by 2025. DSML platforms continue to democratize the usage of DSML techniques beyond purely code-driven development through GenAI-driven assistive features for data wrangling and automated insight generation.⁴

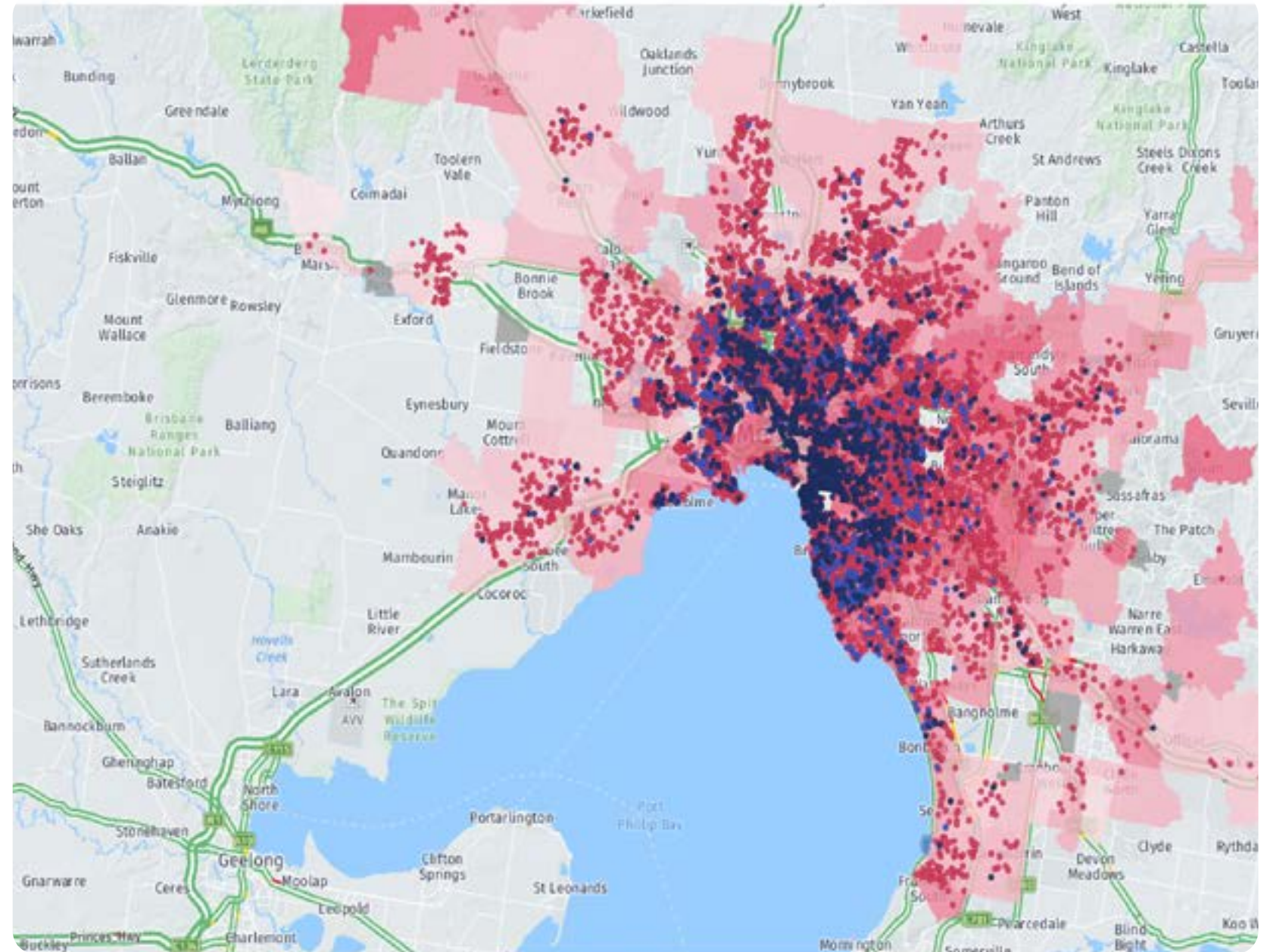


¹Wavestone 2024 Data and AI Leadership Executive Survey
²AWS 2024 CDO Insights: Data & Generative AI Reportw
³Gartner 2023 CC Report
⁴Gartner 2024 CC Report

Traditional business intelligence isn't enough

Businesses are amassing ever-growing volumes of data, but that data is only as valuable as the insights you can derive from it, and that's where Spotfire® software comes in. Spotfire visual data science enables users to wrangle the data, apply algorithms and statistical computations, and ultimately visualize data to make sense of it and distribute its findings.

Leveraging business intelligence platforms to solve some of the most complex mission-critical business challenges can be a challenge in itself - ultimately requiring multiple additional solutions and tools such as data science, machine learning, artificial intelligence, visual analytics, and custom application development. Visual data science revolutionizes this landscape by seamlessly integrating the capabilities of both advanced data science and visual analytics into a single, intuitive platform that works for users across the enterprise. By leveraging AI to make recommendations and uncover insights quickly, and easily, Spotfire empowers users of all levels of sophistication to conduct complex analyses using advanced statistical methods.





A visual-first approach to data science

Visual data science is the convergence of ABI and DSML, and more. A key value of visual data science is that it enables line-of-business users to transform raw data into easily understood, intuitive visuals for the discovery of insights critical to solving mission-critical business challenges. This ensures that any business team can analyze the data most relevant to them effectively.

Visual data science empowers individual users to share their insights seamlessly and take decisive action. This idea, that data should be accessible, easy to visualize, and capable of producing rapid-fire actionable insights, is at the heart of Spotfire’s approach to advanced analytics and interactive visualizations. There are four key attributes to our visual-first approach to data science:

Data-intensive

The first step is connecting and combining multiple data sources regardless of where they reside. Next, the tool wrangles and visualizes the technical data. By focusing on the data first, energy companies have the flexibility to maneuver and explore the data in meaningful ways.

Industry-focused

Due to different industries requiring specific capabilities to solve their unique business challenges, visual data science applies best practices and industry standard visuals, and analytics to all data during the workflow. Additionally, companies can add proprietary techniques to the process.

Dynamic data analysis

Spotfire takes a different approach to data analysis, focusing on visual data science through dynamic exploratory data analysis, that combines advanced visualization techniques and algorithms with line-of-business, and domain experts, to take decisive actions to solve complex business challenges.

Enterprise-scale

The data needs of energy companies change as the volume of services increases and decreases due to market conditions. The visual data science approach makes it easy to capture and deploy best practices for an ever-changing demand. Companies can add and manage new users, even thousands, all within minutes as demand changes based on company needs. Because each user has different needs, you can assign each user a profile based on their access.

How visual data science is different

Unlike traditional approaches that often isolate non-statisticians, Spotfire visual data science empowers all users with a platform for advanced insights. It eliminates data bottlenecks and ensures that critical information is available to decision-makers when they need it and where they need it. It empowers your people — engineers, factory managers, and technicians to use their expertise and creativity to make fast and informed technical decisions.



Immersive experiences

From data prep to exploration, Spotfire provides one immersive platform experience for all your data needs. Wrangle (organize, clean, and unify raw data sets so that they can be used for data analysis) and fix data while analyzing it with easy and non-destructive data blending, shaping, and cleansing—directly within the visual analytics environment. There's no need for other tools, just your Spotfire Data Canvas.

Enterprise scalability

Spotfire can scale up or down easily as your business remains dynamic so you only pay for what you or your business needs. Companies deploy Spotfire to thousands of users and use it for a wide range of use cases, such as root cause analysis, anomaly detection, process control, advanced geanalytics use cases, and more.

Industry-specific advancements

No matter the industry, Spotfire can create unique visualizations that relate to your specific use cases. With a wealth of expertise in energy and high-tech manufacturing, the underlying visual data science techniques of Spotfire are used across all major industries

Powerful extensibility

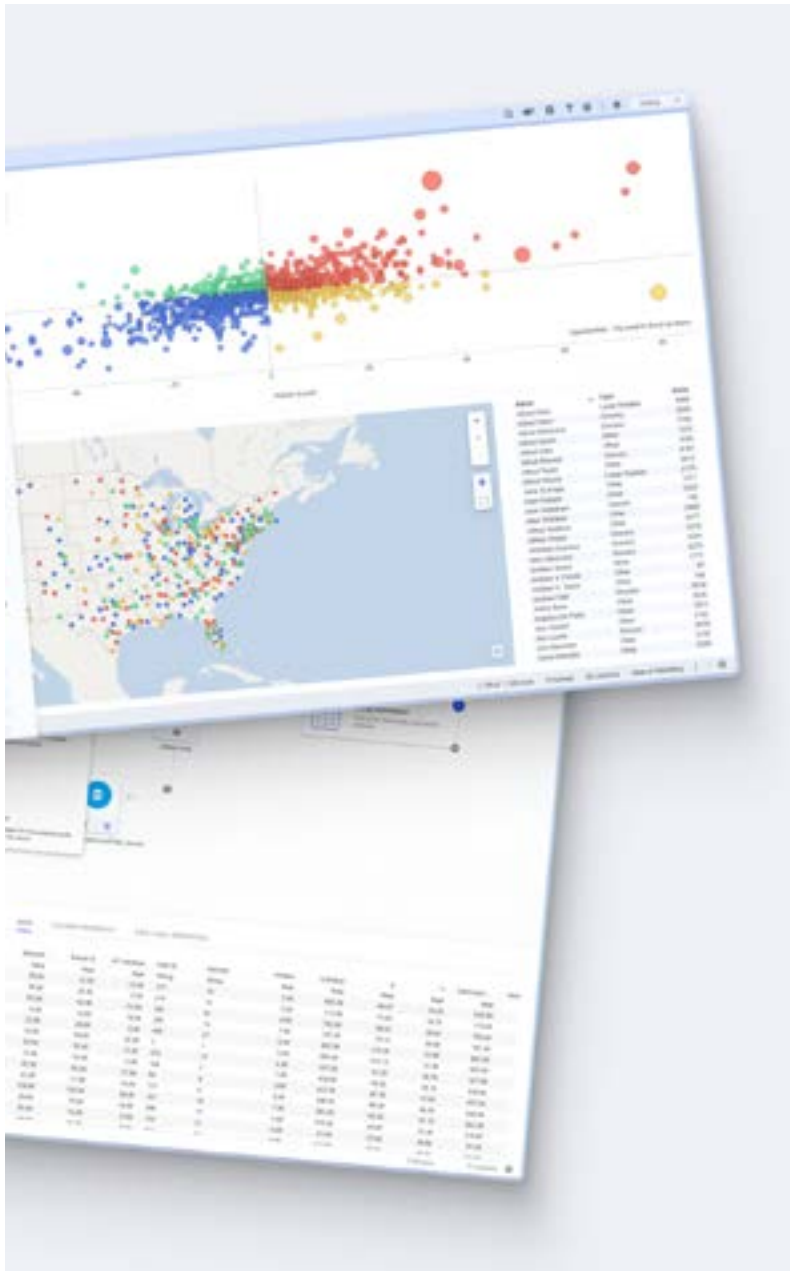
Spotfire is endlessly customizable so you can tailor your analysis based on industry, region, and different target audiences. The Spotfire Community features expert-created extensions you can download—or you can implement virtually anything your developers can imagine.

Cutting-edge technology

Spotfire is at the forefront of technological advancements and has been since our inception from Human Computer Interaction design research. Our AI-powered Recommendations engine can speed up your workflow, as can our free natural language extension, the Spotfire Copilot™ AI tool. Leverage our integration with Spotfire Statistica® for the most trusted, tested, and researched algorithms in the world.

Secure for any use case

With advanced security and compliance measures, Spotfire can handle the rigorous requirements needed for pharmaceutical manufacturing, environmental reporting, and FDA regulations.



4 easy steps to power your insights

Don't be intimidated by the limitless capabilities of Spotfire. Here's how your team can get started in four easy steps:

Connect to all your data sources

Spotfire connects to all of the most popular databases, data warehouses, data lakes, and cloud drives via out-of-the-box connectors and community extensions. Easily extend with custom data sources to meet all of your connectivity needs efficiently.

"We have a huge amount of unstructured data. Once we feed data into Spotfire, it analyses the data and provides insights and patterns from this data."

[Read full review](#)

Immerse yourself in clean data

Using the Spotfire Data Canvas, you can prep and clean your data before utilizing it in your relevant analysis. Once you're ready, drill down into insights using advanced tools recommended by our AI engine.

"Impressed with the interactivity of Spotfire dashboards, which enabled me to drill down into certain interest areas and get deeper insights. It has integrated well with our SQL Server Database, spreadsheets, and statistical software."

[Read full review](#)

Get to insights quickly and easily

Spotfire makes it faster and easier to analyze your data through interactive AI. AI-powered recommendations suggest the most insightful visualizations matched with advanced analytics algorithms, uncovering hidden patterns in data.

"Interactive AI, data science, and real-time analytics help in real-time decisions. Getting guided insights is the best. It is a completely different world."

[Read full review](#)

Act on insights quickly and automate processes

Share your custom analysis and dashboards with users around your organization for added collaboration. Set up automated actions and alerting so the right people know what's happening, whether in your factory, energy plant, logistics chain, or anywhere else you need real-time action.

"Spotfire has been the widely used tool in our company and we leverage its data visualization capabilities to optimize our operations and identify the trends and patterns originating from the large datasets. It is easy to implement, and customer support is quite good."

[Read full review](#)

Cutting-edge solutions to complex problems

Spotfire excels in complex industries because we cover many advanced use cases that can make or break your business. Whether you need to extend the life of your machines, predict better drilling sites, discover the root cause of anomalies, or visualize your entire supply chain with advanced mapping—Spotfire has you covered.

Visual data science has many features:



Anomaly detection



Predictive maintenance



Process optimization



Yield and performance optimization



Drilling optimization



Layered geoanalytics



50,000 Spotfire users

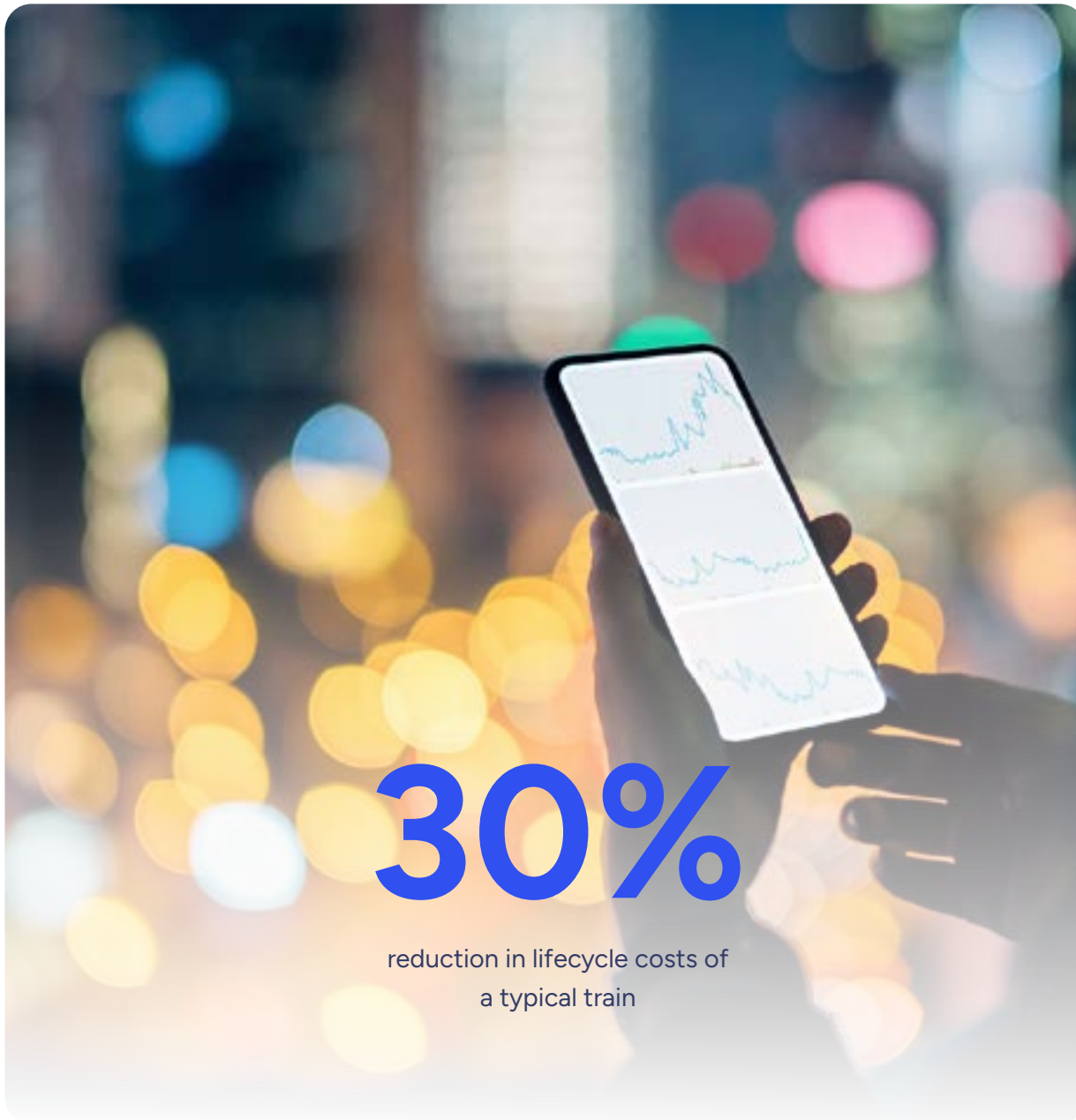


14,000 Spotfire users



100% Spotfire adoption





Case study

SIEMENS

Using Spotfire for advanced analytics and data cleansing

“We use Spotfire for advanced analytics and data cleansing, and with Railigent and Spotfire software, customers have seen a decrease in unplanned downtime by 30–50%.”

— Gerhard Kress, Vice President, Data Services, Siemens Mobility

Challenge

To prevent delays due to equipment failures, Siemens Mobility needed to provide fast, accurate insights to customers through its app—with real-time analytics for both IoT and legacy data.

Solution

Siemens Mobility deployed a robust analytics solution with Spotfire to help the company reach its 100% train availability goal. Its mobility app, Railigent, is built on Spotfire software and allows for automated corrective action and quick decision-making.

Benefits

The Spotfire solution anticipates failures and breakdowns, which led to a 30% reduction in maintenance costs and a 30–50% reduction in unplanned downtime.

[Read the full success story](#)

Case study



One of the critical tools to increase energy efficiency

We're Michigan's largest single energy user, and we are pursuing energy efficiency programs. We found Spotfire software to be one of the critical tools to increase energy efficiency. We're impressed with the results and the data science product that helped us get there.

— Keith Carey, CIO, Hemlock Semiconductor Operations

Challenge

Hemlock Semiconductor manufactures raw polysilicon, which means ensuring consistent near-perfect purity levels, taking steps to reduce energy consumption, and keeping costs low due to the commoditized nature of the product.

Solution

HSC uses Spotfire software to manage costs, monitor processes, and maximize yield in its smart factory. Custom Spotfire visualizations allow HSC to understand the most granular aspects of its manufacturing processes.

Benefits

The company now has a real-time visual representation of gaps in the manufacturing process. HSC can consume and analyze multiple years of data with Spotfire compared to just 90 days before—speeding time to insight and saving thousands of dollars in lowered costs.

[Read the full success story](#)



Learn more about Spotfire® visual data science

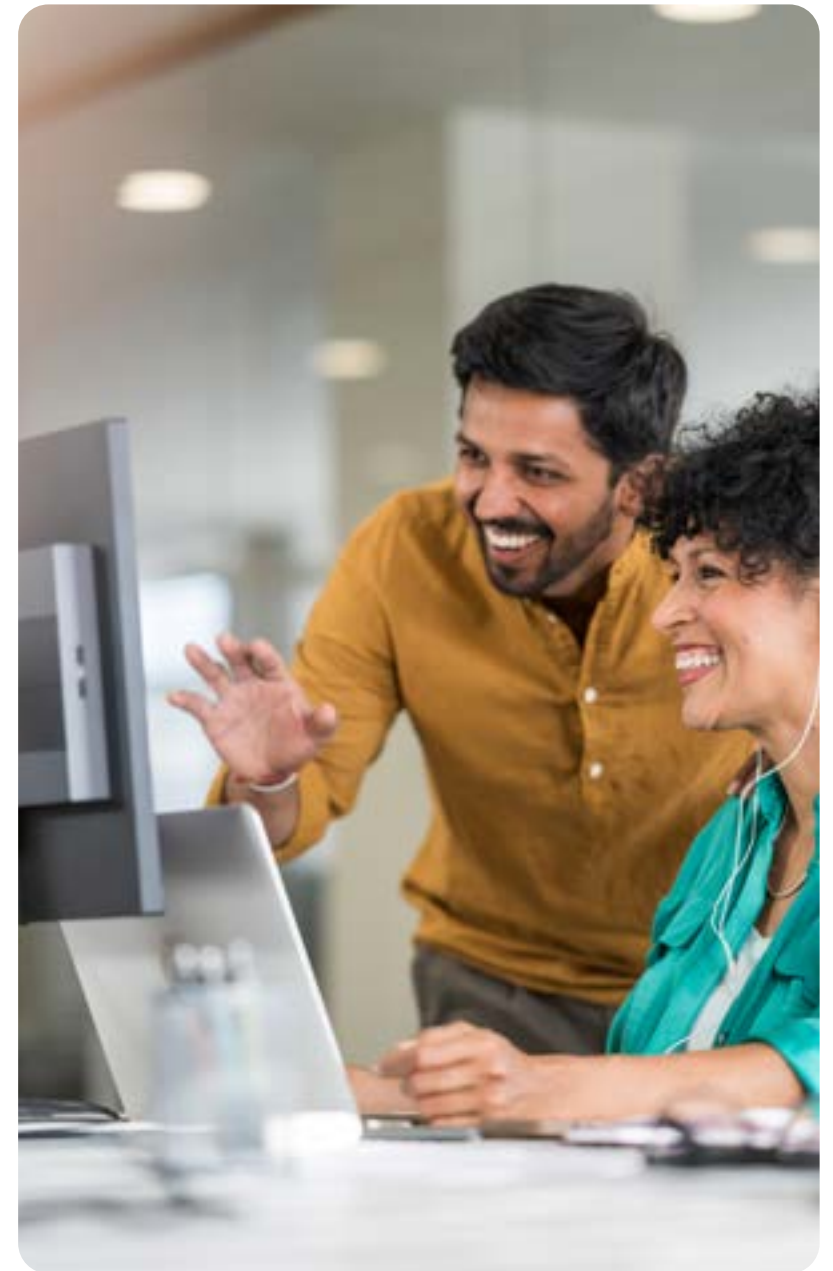
It's time to approach your complex industry problems with a visual-first approach. Spotfire visual data science makes the world's smartest enterprises and people, even smarter, with tailored visualizations, data functions, applications, and accelerators.

With Spotfire, you can:

- **Boost operational efficiency** to streamline processes and maximize productivity
- **Cut costs** with data-driven insights that refine resource allocation and reduce waste
- **Stay ahead of disruptions** by predicting trends, risks, and opportunities before they impact your business
- **Enhance decision-making** by delivering actionable insights that drive strategic moves
- **Uncover hidden opportunities** with advanced analytics to capitalize on emerging trends
- **Accelerate time to insight** with interactive visualizations and rapid data exploration

[Learn more about the platform](#)

Read our [visual data science in Manufacturing](#), and [how to harness visual data science in Energy](#) eBooks to discover the true power of the Spotfire visual-first approach to data science, specific to specialist industries.





Cloud Software Group Headquarters
851 W Cypress Creek Rd.
Fort Lauderdale, FL 33309
www.spotfire.com

Spotfire® is a visual data science platform that makes smart people smarter by combining interactive visualizations and advanced analytics to solve complex, industry-specific business problems.

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23 January 2025

