



Business Impact

“SAS Visual Analytics helps business users to visually explore data on their own. But it goes well beyond traditional query and reporting. Its high-performance in-memory architecture delivers answers in seconds or minutes instead of hours or days.”

Jim Goodnight
CEO, SAS

Challenges

- **Too much complexity.** Current systems do not allow analysts to easily explore data and understand what it contains without first going through an extensive data profiling exercise.
- **Trial and error.** There's no way to quickly generate and explore visual patterns in really large data sets, and because of the time it takes for basic data exploration, analysts often resort to trial and error when trying to define areas for further analysis.
- **Data volume and complexity.** Due to the volume and complexity of the data it takes a lot of time to understand and process information, and this results in delays in reporting or information sharing.
- **Limited IT infrastructure.** Limitations in the current infrastructure prevent analysts from accessing the huge amounts of data they need for analytic purposes.
- **Resource shortages.** Business users depend on data analysts to prepare data for analysis, but resources with the required skill sets are in short supply and are not always available.

How can we visually explore our big data assets and make analytical insights available to a broader class of users?

YOUR GOAL: Easily analyze and visualize big data

Manufacturers have a history of deriving value from large volumes of data to drive improvements – e.g., greater processes efficiency, improved product quality, etc. And big data holds great promise for helping manufacturers generate significant productivity improvements via, for example, improved efficiency in design and production, further improvements in product quality, which will reduce warranty costs, and the ability to better meet customer needs through more precisely targeted products. And while the keys to achieving these and other advancements lie in big data, the challenge is how to integrate and analyze it all to create valuable insight that can be shared and acted upon. For example, bill of materials (BOM) data is too large to link with sales records and warranty claims. Proper part and supplier analysis is impossible because the part number listed on the warranty claim is the replacement part, not the original part listed on the BOM. Analysts need to more accurately select data for analysis, calculate part failure rates and understand supplier performance in order to more effectively identify emerging issues, define root causes and reduce warranty costs.

As another example, creating a data subset for exploration and/or model development can easily take hours for even a small number of tags because of the massive amount of sensor data involved. Engineers and analysts typically limit themselves by selecting a minimum number of tags and cutting down on time frames, which jeopardizes the quality of predictive models and reduces the likelihood of predicting adverse events.

OUR APPROACH

Using SAS Visual Analytics, manufacturers can visually explore vast amounts of data to quickly uncover insights and relationships that may lead to additional investigation. With SAS Visual Analytics, you can:

- **Use all available data – no subsetting or sampling required** – to look at more options, make more precise decisions and drive success faster than ever before.
- **Quickly identify areas of opportunity or concern** so further investigation can take place without delay using an enhanced data discovery and exploration process that provides extremely fast results to enable better, more focused analysis.
- **Improve information sharing and collaboration** both within and across departments by enabling large numbers of users, including those with limited analytical and technical skills, to quickly view and interact with reports via the Web or mobile devices, while IT maintains control of the underlying data and security.
- **Liberate IT** by enabling analysts to dynamically explore data, create reports and share information on their own, once IT loads the data and makes it available.

SAS Visual Analytics also provides you with room to grow. The solution's infrastructure is based on commodity hardware that is highly scalable to support increasing demands for access to more and more data.



THE SAS® DIFFERENCE: Visually explore big data and easily share insights

Only SAS provides a market-leading approach that processes high-end analytics and big data to produce time-sensitive insights. By combining our industry-leading business analytics software with high-performance technologies, we enable you to get fast answers to previously unsolvable problems. Only SAS provides:

- **A scalable high-performance solution that enables the visual exploration of data on commodity hardware.** Our established analytical expertise combined with our newest in-memory technology provide the unprecedented ability to visually explore billions of rows of data, glean insights from that data and easily share the insights via the Web and mobile devices.
- **More approachable analytics.** SAS Visual Analytics can be used by anyone in your organization, with unique features – such as auto-charting, “what does it mean” and drag-and-drop capabilities, which means no coding is necessary – that make it easy to use, even by those with nontechnical or limited analytic backgrounds.
- **In-memory technology that provides larger volumes of analytic computations and guided analyses.** SAS has combined the sophistication of visual data exploration with in-memory analytic computations so that large numbers of users can understand and benefit from complex data.
- **The ability to perform descriptive analytics in-memory without having to develop SQL code.** Out-of-the-box capabilities make it easy to explore and seek correlations between extremely large numbers of variables very quickly.

SAS enables you to take advantage of a highly scalable and reliable infrastructure that is optimized for large volumes of data and complex computations – even as your requirements evolve to tackle larger problems and more complex scenarios.

SAS® VISUAL ANALYTICS IN MANUFACTURING

■ Asset data selection and exploration

SAS Visual Analytics lets you explore a very large number of tags for longer time frames in real time in order to get a first visual impression of the data. This then significantly speeds the creation of filtered data subsets of more tags and longer time frames for predictive model building. By having more data at closer intervals in time, the models should yield more accurate results and give better predictions on asset conditions, as well as more accurate timing of a predicted asset failure.

■ BOM analysis

SAS Visual Analytics lets you integrate BOM data with sales data and warranty claims. The solution augments the data discovery and exploration process by providing extremely fast results to enable better, more focused analysis. Engineers and analysts can identify areas of opportunity or concern from vast amounts of data without worrying about sampling. All the data is used in the analysis, enabling further investigation to take place quickly. Also, these initial correlative results can be further analyzed by an advanced analytical solution to uncover emerging issues and conduct root-cause analysis.

■ What if you could ...

Use all available data

What if you could integrate your bill-of-material data with sales data and warranty claims data so you could select the appropriate set of products that used a specific part?

Quickly identify opportunities or areas for concern

What if you could visualize an unconstrained number of tags in seconds to detect emerging issues earlier, giving you more time to proactively address them?

Improve information sharing and collaboration

What if you could calculate claim counts, product volumes and other summary statistics on the fly and share that information with a field analyst who needs to know how many claims were filed by month, product line and region?

Liberate IT

What if you could visually explore large quantities of telematics data without the need to involve technical specialists?

■ You can. SAS gives you The Power to Know® – by visualizing big data.

SAS FACTS

- SAS has been in business since 1976 and today has customers at more than 55,000 sites worldwide.
- SAS has more than 35 years of experience analyzing warranty and service contract data around the globe and across industries.
- More than 2,000 manufacturing companies worldwide use SAS.

Learn more about SAS software and services for manufacturing:
sas.com/industry/mfg



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