

Harness the Power of Data Visualization to Transform Your Business

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Executive Summary

Data underpins the operations and strategic decisions of every business. Yet these days, data is generated faster than it can be consumed and digested, making it challenging for small to mid-size organizations to extract maximum value from this vital asset.

Many decision makers – whether data analysts or senior-level executives – struggle to draw meaningful conclusions in a timely manner from the array of data available to them. Reliance on spreadsheets and specialized reporting and analysis tools only limits their flexibility and output. After all, spreadsheets were not designed for data analysis. And specialized reporting and analysis tools often lack integration with other critical business applications and processes. Moreover, dependence on the IT group for ad hoc reports slows insights and decisions, putting the company at a disadvantage. Business decision makers feel a loss of control waiting for the already overburdened IT department to generate critical reports.

Savvy companies are moving beyond static graphs, spreadsheets, and reports by harnessing the power of business visualization to transform how they see, discover, and share insights hidden in their data. Because business visualization spans a broad range of options, from static to dynamic and interactive, it serves a variety of needs within organizations. As a result, those companies adopting business visualization are able to extract maximum value from the information captured throughout their environments.

What is Business Visualization?

The goal of business visualization is to distill meaningful and usable insights from masses of data – and to get those insights to the right people at the right time to support better decisions to achieve desired outcomes.

This paper explores the failings of traditional reporting tools, and explains how the adoption of advanced business visualization can dramatically improve everyday processes and results.

Shortcomings of Traditional Reporting

To date, organizations have been hampered by the traditional ways of visualizing and reporting on data. Traditional tools generate static graphs and charts that provide limited insight, users are hampered by static views of data to derive additional insights, and any ad-hoc analysis work either needs support from the IT organization or is reliant on the skills of modelers. The overall result is a high degree of IT dependence on data exploration and analysis limited to only those specialized pockets of organization that have advanced analytical skills.

Leaving it to the Specialists

To derive insights from data, users must often be capable of developing analytical models and building dashboards or portals to display the results of analyses. Driven by IT, this process can take weeks, leaving decision makers at a standstill. In addition, these dashboards are expected to be used as-is for several years, managed by specialists and simply viewed by everyone else in the organization. Employees needing additional information must depend on the IT group to produce reports. Once again, business decision makers are left at the mercy of specialists for insights into their data.

Relying on Static Data in a Dynamic World

Static grids and graphics ó the hallmarks of traditional reporting ó convey information, but with limitations. First, users often have to wade through text-heavy tabular reports to discern key points. When viewing hundreds or thousands of rows of data, it's hard to know which ones to hone in on or what the relationships are between various data points.

Compounding matters is the fact that the data sources behind these reports are rarely integrated or synchronized, leading to mismatched results if the data sources are not in agreement. Moreover, this view into a moment in time may be stale should newer data be available by the time the report is generated. Just as frustrating is the fact that users are

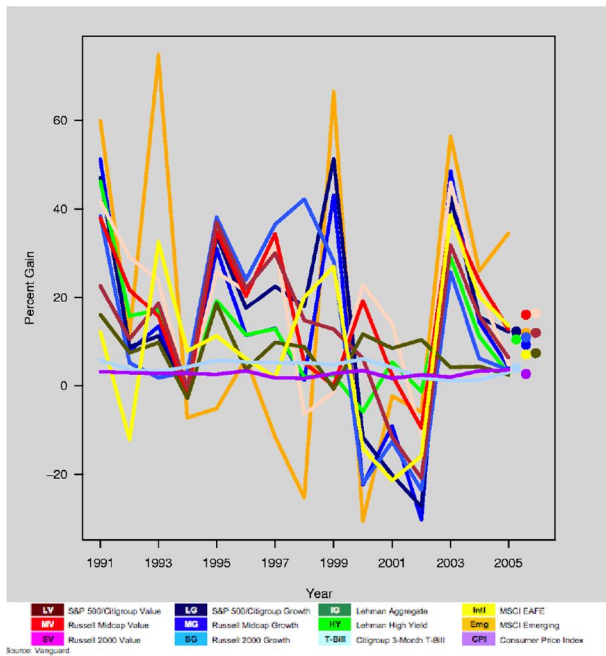


Figure 1: Static graphs can cause confusion when used to convey certain types of information.

limited to viewing data instead of interacting with it. Because of this, they're unable to explore the data in ways that lead to meaningful conclusions.

Struggling to Make Sense of Data

Static graphs can be hard to read unless one is familiar with the data, making it difficult for users to grasp the meaning of what they're seeing. Moreover, static graphs are not always the best option for conveying certain types of information. As a result, they often quickly become cluttered by large amounts of information added to aid in understanding and decision-making.

Trickling Data Instead of Streams

Limited IT resources and lack of analytical talent in business units prevents many organizations from taking complete advantage of their data. To keep things manageable, organizations cherry pick projects for data analysis and reporting. Result: while one or a few areas of the business are empowered

to make fact-based decisions, the others continue relying on intuition and knee-jerk reactions, leading to sub-optimal results.

Advantages of Interactive Data Visualization

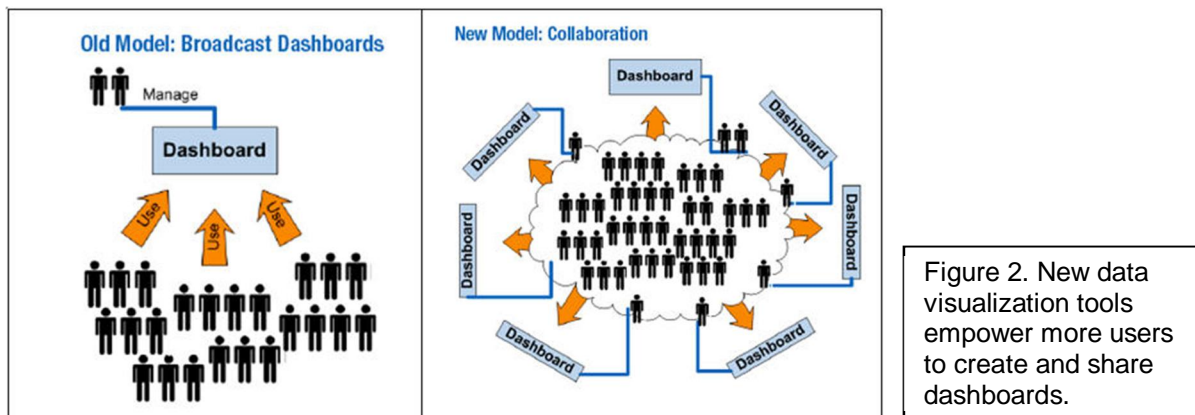
Fortunately, the practice of presenting data visually has matured from static graphs and dashboard widgets to interactive multi-dimensional graphics that can be visually explored and queried. With these, users can visually examine large amounts of data, detect trends and patterns, and discover important and unexpected relationships and insights.

Today's tools can automatically generate presentation-quality graphics and visuals, empowering even non-statisticians in the organization to quickly produce reports that convey important information easily. Users can also easily annotate and modify generated reports to add relevant details. Advanced visualization enables business users to hone in on the right data, spot the most important information, and easily uncover hidden connections. With links between data, graphs, and tables, it's easy to notice patterns and drill down to further explore areas of interest. As a result, organizations are able to better understand their data, predict potential outcomes, and decide with confidence.

Empower Employees and Free IT Resources

With advanced visualization tools, dashboards can be made quickly, on an as needed basis. These tools empower even novice analysts with limited modeling experience to interactively build dashboards via a "what you see is what you get" interface. Calling upon relevant data sources, users simply drag and drop graphics (including bar charts, pie charts, trend lines, gauges, scattergrams, and vector plots) or choose options from menus, and click and drag to resize and align the layout. Instead of developing complex data queries in SQL or a prompter, users merely drag across points in a graph or click subsets in a mosaic plot.

Since querying is easy, fast, and dynamic, users can visually ask and answer questions to gain additional insights from information, without requiring assistance from IT. And with no need to engage IT staff in supporting data-to-day business tasks, organizations can free them to focus on more strategic initiatives.



Take Advantage of Dynamic Data

By interacting with data, users can further explore it, isolating, reorganizing, and filtering information as necessary to better understand trends and anomalies that yield insights. Moreover, synthesizing and processing data and graphically visualizing results lead to faster insights and better decisions that are easily shared across the organization. For example, by segmenting data based on similar results over time or by varying a number of inputs that contribute to a desired output to predict potential outcomes, users can gain better grasp of cause-and-effect relationships. This understanding can facilitate decisions that are more likely to achieve desired results.

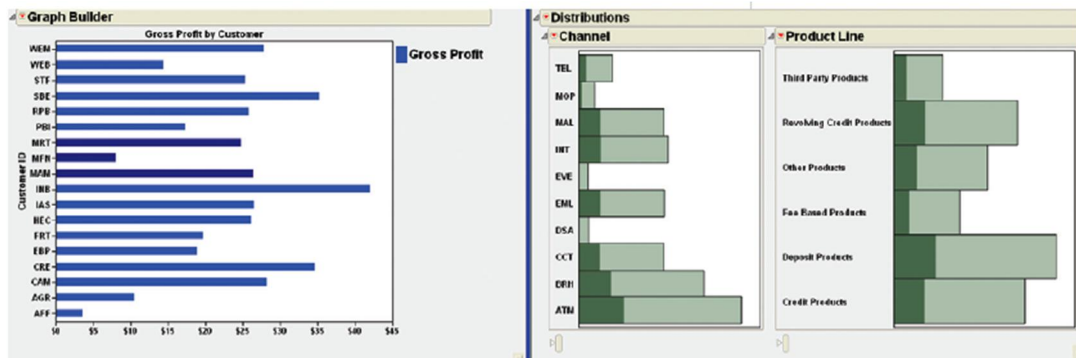


Figure 3. Users can easily view data in multiple ways using interactive graphs.

Unlock Your Information

Today's data visualization tools make information more pervasive. Because these tools are easy to use and understand, anyone in the organization can take advantage of them. As a result, all employees have actionable information at their fingertips, and the ability to create ad-hoc reports at any time. Different levels of data access can be granted based on roles and levels of seniority. Organizations can even publish dashboards to e-mail or mobile devices, enabling users to quickly react to information, and stay in touch and collaborate with colleagues.

Gain New Insights, Make Informed Decisions, and Drive Better Results

Organizations can reap a number of benefits from advanced data visualization tools. Since the tools are intuitive and easy to use, even novice analysts can uncover complex relationships and understand where to focus their attention to derive insights. Businesses can also reduce dependence on IT staff by making employees self-sufficient when it comes to data analysis and reporting. Plus, when information is made pervasive throughout the organization, the entire company can take advantage of it to gain strategic insights, make informed decisions, and drive better business results.

Real-world Examples: Faster Data Insights Lead to Better Business Results

Not convinced of the value of data visualization? Read on to see how these companies improved their business with SAS®.

ACCION Texas-Louisiana is the largest microlender in the United States and is a non-profit organization that lends money to small-business owners who wouldn't qualify for loans through traditional lending institutions. Because ACCION lends to people who fall well below most banks' acceptable thresholds for FICO credit scores, it evaluates 35 separate criteria to find business owners capable of repaying loans.

To keep its underwriting staff lean and to free up loan officers, the organization needed to quickly score applicants on its unique criteria. With that in mind, it sought a solution that could be managed by a team with little or no programming experience.

With SAS, ACCION created a scorecard that enabled it to reduce the number of loan applications that must be reviewed by underwriters by 50 percent. It also decreased the time it takes loan officers to prepare one application from four hours to 30 minutes, and reduced loan approval time from two weeks to three days.

The scorecard is so successful that ACCION dropped the percentage of loans needing restructuring from 7 to 2.5 percent, and decreased its delinquency rate from 20 to 5 percent. Just as important, it was able to market and sell its underwriting capabilities to 14 other microfinance organizations. Moreover, it gained the respect and partnership of Citigroup Inc., which currently holds millions of dollars' worth of loans from ACCION.

“The scorecard gives us the information needed to manage risk, increase our efficiency, and provide faster turnaround times for our customers.”
- Janie Barrera, ACCION Texas-Louisiana President and CEO

Palo Alto Medical Foundation Research Institute is The Santa Clara, California-based Department of Health Policy Research conducts studies in the areas of cardiovascular disease and epidemiology. Focused on 660,000 active patients throughout the San Francisco Bay area, the team's research is aimed at identifying disease trends among the Asian population in particular. Findings shape internal policies that lead to improvements in patient care.

The health care organization required an integrated data management and analytics solution to consolidate electronic health records and perform disease trend analysis. Using SAS, they were able to analyze medical data from the local Asian-American population and often with lifesaving results. SAS also helped support implementation of proactive medical intervention practices and policies throughout the health network.

"I like the visualizations, especially the statistical graphics. Being able to visualize the information and present it to decision makers, while looking for and discovering trends, is very important."

- Eric Wong, Senior Statistician in the Department of Health Policy Research

Take Your Business to the Next Level with Business Visualization

Every organization relies on its data to drive timely, strategic decisions. Yet most companies are hampered by spreadsheets and static charts that make it difficult ó if not impossible ó to take advantage of the information within their reach.

With advanced business visualization tools, organizations can free themselves from these constraints and make it possible for everyday business users to tap into the power of information. Dynamic business visualization enables business users to:

- Explore data to identify the variables most critical to analysis
- Analyze data to identify hidden trends or to determine the root causes behind an issue
- Present data in an easy-to-understand manner

Companies taking advantage of business visualization are able to extract maximum value from their data and take their businesses to new heights. Plus, they can focus their IT resources on strategic initiatives that yield higher payoffs, rather than on mundane support for daily business processes.

Tap Into the Power of Information

With dynamic business visualization, business users can:

- *Pinpoint data anomalies and unearth hidden connections*
- *Identify trends, investigate patterns, and uncover facts*
- *Present results in clear, concise ways*

SAS

SAS is the leader in business analytics software and services and the largest independent vendor in the business intelligence market. SAS helps companies of all sizes improve performance and deliver value by making better decisions faster. SAS has helped organizations across all industries realize the full potential of their greatest asset: data. Simply put, SAS allows you to transform data about customers, performance, financials and more into information and predictive insight that lays the groundwork for solid and coherent decisions. Since 1976 SAS has been giving customers around the world THE POWER TO KNOW®. For more information, visit www.sas.com.

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Stephanie Tilton is a content-marketing consultant who helps B2B companies craft content that engages prospects and customers, nurtures leads, and advances the buying cycle. She has produced hundreds of white papers, case studies, and eBooks for a range of organizations, including some of the world's leading technology companies. She contributed to chapter 10 of *Content Rules* by Ann Handley and C.C. Chapman, which appears on the Inc. Business Book Bestseller List.

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