

› White Paper



Self-Service Business Intelligence and Analytics: The New Competitive Advantage for Midsize Businesses

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Analytics is more important to success than ever before, and it's a business practice that has momentum. Fifty-eight percent of the respondents in a recent survey published in the MIT Sloan Management Review stated that the use of analytics gave their companies a competitive advantage, up from 37 percent the prior year. Enterprise-scale companies report dramatic successes with analytics, including:

- Iconic retailer Macy's reduced its email subscription churn rate by 20 percent, allowing it to more effectively measure and understand the impact of its online marketing initiatives on store sales.
- Scotiabank is adding between 80,000 and 100,000 extra new accounts with more targeted campaigns and improved customer service.

Successes like these are now available to midsize companies as well. The breakthrough that makes this possible is a new approach to data analysis: self-service analytics. Until now, many midsize companies have resisted getting involved in analytics, in spite of the rapidly changing nature of today's business environment and the obvious need to make better, faster decisions based on accurate data. Most do not have the funds to hire highly specialized and sophisticated analytical talent, and are also concerned about cost, complexity and time to ROI.

This paper examines the barriers to adoption of analytics from an IT and end-user perspective, and shows how self-service analytics in general - and SAS® Visual Analytics in particular - can eliminate these barriers. Self-service analytics empowers users to truly exploit the wealth of data available to them, while ensuring that the IT organization maintains governance and control over that data.

Forward-Looking Decision Support

Because the term "analytics" can have multiple meanings, a brief clarification is in order. In this paper, analytics refers to a data-centric approach to decision support that has emerged to supplement more conventional business intelligence (BI). By and large, BI looks *backward*, telling users what has happened based on historical data contained in data warehouses, which is then presented in predetermined reports. In contrast, analytics looks *forward*, telling users what may possibly happen in the future and taking into account data that changes daily to explore what-if scenarios, predict outcomes, and solve specific business problems in an interactive, iterative manner. The following chart summarizes the key differences.

	BI	ANALYTICS
PURPOSE:	information gathering	problem solving
ORIENTATION:	historical, backward-looking	predictive, forward-looking
DATA:	aggregated	detailed
PRESENTATION:	passive	interactive, iterative

Table 1

The specific goal of self-service analytics is to put the power of analytics in the hands of actual decision makers with a technology that allows them to rapidly explore problems and solutions. Self-service analytics also requires no advanced statistical training, no analytical specialists and only minimal IT involvement.

Self-Service Analytics in Action

Here's an example of how self-service analytics can work in the retail sector. Retailers are constantly asking themselves why certain SKUs sell better than others. A large number of factors can influence an SKU's sales: Does its success result from the attributes of the item itself? Placement on the shelves? Price point vis-à-vis competitive offerings? New packaging? An advertising campaign? A special promotion? Social media activity? The weather?

A novice analyst could easily be intimidated by the array of possibilities provided by today's rich data sources. A sophisticated self-service approach addresses this issue by first helping the user figure out *where* to begin. This can be accomplished with a correlation matrix that gives the user an easy way to select variables and then quickly learn which of them are strongly correlated, weakly correlated, or not correlated at all. This first step in itself not only helps nonspecialists get started, but also eliminates a huge amount of guesswork and wasted time.

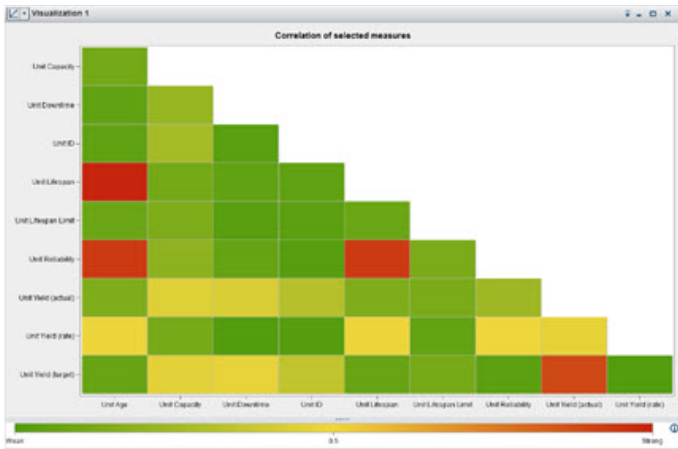


Figure 1: A correlation matrix indicates which pairs of variables have an important relationship (orange to red) and which have almost none at all (green).

Determining which variables account for a particular SKU's success could lead in many directions. Do the correlations hold up globally, or are there regional variations? Can the correlations be used to anticipate demand and avoid out-of-stock problems? What happens when variables related to customers enter the picture? At this stage, SAS Visual Analytics helps self-service users in two ways.

- **Speed.** Because of its in-memory technology, it provides answers fast enough so that the user can efficiently explore a problem without having to wait hours and hours for each iteration. More fundamentally, it eliminates the previously necessary back-and-forth between the user and the IT department that is the cause of so much misunderstanding.
- **Clarity.** SAS Visual Analytics includes an intelligent autocharting feature that will suggest the best way to display information.

The benefits of self-service analytics are by no means limited to sales and marketing. Engineering groups can use it for faster, more accurate root cause analysis of quality problems. Financial groups can identify new approaches to determining creditworthiness. Transportation companies and manufacturing organizations can gain better control over maintenance and parts replacement scheduling. The list goes on and on.

Barriers to Self-Service: The IT Perspective

Seemingly, a self-service decision support system that gives managers access to changing data so they could make better decisions would be a proverbial no-brainer. However, from the IT department's perspective, there are several barriers to the self-service analytics approach.

- **Complexity.** For many IT professionals, the term "analytics" is synonymous with OLAP cubes. While valuable, these cubes can present problems to a busy IT department. They are often complex, which means that their creation can be time consuming. Once created, there is no guarantee that they will meet the needs of the intended end user. This can happen due to miscommunication between IT and the requesting business unit, or because of the fundamentally iterative nature of analytics. One answer more often than not gives rise to a new question, which in turn means more work for IT. Also, given the complexity of the tools used to create OLAP cubes, many line managers conclude that they simply don't have the time - much less the skills - to attempt self-service analytics.
- **Multiple disparate data sources.** Conventional BI approaches to creating reports that involve data from multiple databases typically require that the data go through an ETL process. Converting that data for compatibility in real or near-real time appears to be an impossible task using conventional means.
- **Big data.** Many IT professionals also associate analytics with big data. If they're not dealing with big data, they may feel that implementing analytics is simply not worth the effort - although in fact analytics can reveal insights that are hidden within a company's existing data.
- **Performance.** Many companies already produce standard reports that require hours of computer time. On the surface, it would seem that analytics would be even more demanding. It's easy to imagine end users' computers being essentially locked up for hours while performing complex calculations.
- **Mobile requirements.** To gain acceptance among end users in today's world, web and mobile capabilities are a requirement, and these capabilities add yet another layer of difficulty to implementing self-service analytics. Furthermore, users expect not only to access data wherever they may be, but to interact with it as well.

Barriers to Self-Service: End-User Perspective

Business unit managers in midsize companies also have concerns about analytics.

The learning curve. For many senior executives, the idea that analytic functions can be shifted to actual users is difficult to accept. Most managers (unless they're engineers) have little or no experience with statistical models and predictive algorithms. Given the pace of business in the 21st century, it's unrealistic that they should be expected to engage in complex mathematics in order to get to fact-based decision making. They need tools that are genuinely simple-to-use outputs that are clear and easy to grasp.

Lack of timely results. A fact-based approach to solving business problems is typically iterative. If every analytical iteration takes hours – as is the case with most solutions – the process of arriving at a useful answer takes too long, is too frustrating, and may not produce results until it's too late.

Beyond the Barriers

SAS Visual Analytics addresses issues of complexity and timeliness, effectively removing the barriers to analytics that have previously prevented midsize businesses from obtaining the benefits of data-driven decisions.

- **Complexity.** SAS Visual Analytics handles the general issue of complexity for both end users and IT in several ways. For end users, it provides an interface specifically designed for nonspecialists. For example, users can easily create hierarchies (e.g., year/quarter/month/day or state/county/ZIP code) and drag and drop variables they want to explore. They do not need to create OLAP cubes to get the results they need, meaning no support from the IT department.

For IT, complexity results from the problems created by disparate data sources and big data in general, as big data typically includes data from multiple sources. SAS Visual Analytics addresses the problems arising from these disparate sources via a metadata approach. Put simply, this approach makes all the data look the same to the analytical engine, with no need for complex conversions.

- **Big data.** Besides more complexity, big data adds the issue of scalability and processing power, and SAS Visual Analytics addresses this with in-memory architecture, which dramatically speeds processing. In fact, it reduces the processing of jobs that would take hours in a traditional configuration to literally one or two seconds.
- **Mobility.** Obviously, the results of analysis need to be displayed in order to have value, and this need complicates the challenge of enabling mobile devices, which come in a variety of shapes and sizes – not a trivial problem when visual displays are involved. Fortunately, in addition to web access, SAS Visual Analytics includes built-in native iOS and Android functionality, so IT departments don't have to devote extra time and energy to mobility issues.
- **Sharing.** While the issue of how the results of analytics will be shared isn't often perceived as a barrier to adoption, it is an important consideration. As IT departments have learned by long experience, users tend to cling to what's familiar. SAS Visual Analytics is compatible with a wide variety of commonly used business tools, including Microsoft Office and SharePoint.
- **Flexible deployment.** SAS Visual Analytics is available in multiple deployment modes: on-site, distributed and in the cloud. This means that companies can match their hardware capacity to their needs, and also easily scale over time.
- **Sophisticated tools.** For more advanced users like data scientists, sophisticated tools are included in SAS Visual Analytics to ensure that companies will have all the analytical power they need moving into the future, with no need to upgrade.

Case in Point: DirectPay Improves Risk Management With SAS® Visual Analytics

DirectPay is a Netherlands-based debt and credit management company that finances its customers' growth by taking over and improving their debt collection process and through factoring – the actual purchase of a company's receivables.

DirectPay had a vast amount of data about payment behavior, but couldn't effectively put it to use. Only the IT department could access the data warehouse system, a process characterized as “a huge hassle” by Olin Nugteren, DirectPay Manager of Operations.

“Our figures are based on many debtors, and you can view that data in many ways, so it was quite a challenge to be able to visualize this,” said Nugteren. “Since not many people can read trends from an Excel spreadsheet, we needed software to visualize current information and then offer comprehensive predictions.”

The company evaluated several data visualization solutions, and determined that self-service with SAS Visual Analytics was the best approach.

Now, DirectPay can take full advantage of its data. One result is accuracy, and the ability to make more precise, individualized decisions about customers' creditworthiness and the value of their receivables. Another equally important result is speed. Sales and customer relations personnel can simply pull out tablets during a meeting to access data and answer questions.

According to Nugteren, putting data to use was a top priority. “It helps us optimize our efforts and manage our risks better than our competitors, so we can be more profitable and thrive.”

The Barriers Have Fallen

For midsize businesses, the days of ask-and-wait business intelligence are gone, and the traditional BI tools and spreadsheets are fast becoming a thing of the past. Business is moving too fast, and having to wait even two or three days for results isn't good enough. Self-service analytics closes the gap, enables better decision making, and delivers a strong competitive advantage.

About the Author

Michael Stevens has over twenty years of experience in business and technology writing, having worked as both a journalist and marketing consultant. His client list includes well-known global enterprises as well as numerous start-ups. Stevens is a Phi Beta Kappa graduate of the University of California at Berkeley.

Learn More

For more information and to test-drive SAS Visual Analytics, visit sas.com/vademo.

To contact your local SAS office, please visit: sas.com/offices

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