

CASE STUDY: MICROSTRATEGY, TAP AIR PORTUGAL AND STULLER

How to Empower Agile Self-Service Analytics without Sacrificing Governance

Enterprise and Midsize Firms Lead the Way to Fast, Democratized Analysis on Trusted Data Foundations



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AT A GLANCE

Leading organizations want to employ data-driven decision-making wherever possible. A cornerstone of meeting that goal is implementing effective self-service business intelligence and analytics. Self-service empowers business users to access data and quickly do analyses without having to wait for assistance from IT departments. Subject-matter experts at the grassroots level get the benefit of informed, fact-driven decision-making. The problem with many self-service deployments, however, is that they end up creating silos of insight, redundant analyses and inconsistent, conflicting definitions and measures.

TAP Air Portugal (TAP) and jewelry manufacturer Stuller Inc. (Stuller) wanted to support self-service the right way. Recognizing the need for a balance between centralized control

Business Themes



Data to Decisions



Technology Optimization

AT A GLANCE

Problems

- TAP had self-service tied to its existing data warehouse, but adding new data sources required support from IT.
- A self-service initiative at TAP in 2015 saw poor adoption.
- Stuller opened up SQL access to its warehouse to meet rising demands for reports, but data consistency problems ensued.
- Stuller business leaders wanted deeper analysis capabilities.

Solutions

- In 2017, TAP combined MicroStrategy's self-service capabilities with cloud-based sandboxes for data exploration.
- "Super power users" drive TAP's most innovative analyses.
- Stuller deployed MicroStrategy in 2016 in part for its ability to spot ad hoc analyses of potential value to the entire company.
- Stuller's Enterprise Analytics team ensures solid governance.

Benefits

- TAP business units now tap authoritative data from across the business and are driving more-powerful analyses
- TAP's analytics user base will increase from 2,000 to 3,000 by 2019; 50 percent of users will have self-service access, up from 20 percent.
- TAP's new self-service approach is three to five times faster than its old approach to developing new analyses.
- Stuller's approach lets business users create new reports, but the Enterprise Analytics team takes them company-wide.
- Stuller was able to create more than 2,700 new reports within just two months.

and business-user autonomy and freedom, TAP and Stuller both came up with effective self-service approaches that combine technology, people and processes to support fast, flexible analysis across business areas. They also ensured the use of vetted data and development of consistent, authoritative calculations and measures.

TAP and Stuller took slightly different approaches to meet the different goals and dissimilar natures of their organizations. What the companies have in common is the selection of MicroStrategy as the platform for both enterprise and departmental self-service analytics. This case study examines how both companies have maintained a single, authoritative source of truth while enabling fast and flexible analysis by business users.

THE COMPANIES

TAP Air Portugal (TAP) is the well-known national airline of Portugal. It's a sizable enterprise with more than \$2.6 billion in revenue and 11,000 employees. TAP became semiprivatized in 2016 through an investment by the Atlantic Gateway Consortium. TAP's new business administration is very focused on data-driven decision-making and has sought to establish more key performance measures and a deeper understanding of the business.

TAP has a well-established, 12-year-old business intelligence (BI) and analytics practice and a rich data warehouse containing 12 terabytes of historical information dating back a dozen years. Data management, data warehousing, BI and analytics are run by IT, which had an established

Transportes Aéreos Portugueses (TAP Air Portugal)

- **Headquarters:** Lisbon, Portugal
- **2016 Revenue:** €2.242 billion (\$2.5 billion)
- **No. of Employees:** 11,000+
- **Industry:** The national airline of Portugal, semiprivatized in 2016
- **Founded:** 1945

Stuller Inc.

- **Headquarters:** Lafayette, La.
- **Revenue:** Private company (\$500 million per Hoovers' estimate)
- **No. of Employees:** 1,000+
- **Industry:** Jewelry manufacturer and distributor
- **Founded:** 1970

reporting capability, dubbed Silver Service, whereby about 3,000 employees have access to reports and dashboards built in MicroStrategy. About 20 percent of these MicroStrategy users were power users within business units who were able to edit existing reports or create new reports using business views and predefined content created by TAP IT using MicroStrategy and a SQL Server data warehouse.

In 2017, TAP IT, data-management teams and the seven-person BI Competency Center, headed by Rui Monteiro, BI systems manager, received orders to deliver more holistic, cross-functional analyses and more agile self-service capabilities within the business. In all, about 36 people worked on the project.

Stuller Inc. (Stuller) is a midsize jewelry manufacturer and distributor based in Louisiana. Founded in 1970, the company has used several generations of BI and analytics technology. A 2004 deployment of Crystal Reports and Microsoft Reporting Services gave way to the combination of Microsoft SharePoint and Power Pivot in 2012.

By 2015, Stuller had become frustrated by the level of IT support required to generate new reports. There was growing demand for new analyses across business areas including supply chain, finance, sales, marketing, merchandising, human resources and security. Brad Cutrer, now director of enterprise analysis, helped lead a self-service initiative aimed at enabling business users to develop their own new reports while drawing on trusted, vetted data, calculations and measures.

THE CHALLENGES

TAP and Stuller are very different organizations, with one being an enterprise-scale, global airline and the other a highly centralized midsize manufacturer. Yet both companies struggled with the same challenge of meeting rising demands for deeper analyses and new analyses using emerging and unproven data sources.

TAP Air Portugal

TAP had a data warehouse and BI infrastructure and services in place for more than a decade, but with rising demands from management for holistic, cross-enterprise analysis, data-management and BI leaders identified two challenges:

1. The data warehouse offered detailed information on four business areas—Commercial, Customer, Maintenance & Engineering and Operations—but these amounted to silos of information because there was little cross-functional analysis.

“We had all the data in our data warehouse, but it was integrated more from an IT perspective than from a business perspective,” says Rui Monteiro, BI systems manager. “We needed a broader vision because we needed to be able to tell the business story.”

The Customer, Maintenance & Engineering and Operations groups, for example, needed to be able to look beyond their own area and recognize how maintenance issues might affect operations and end up having an impact on customer net promoter scores. This was the sort of cross-functional analysis the new administration craved.

2. To empower business people to drive new analyses—particularly holistic, cross-functional analyses—TAP wanted to introduce better self-service tools. TAP chose new tools from MicroStrategy, even though an earlier, failed self-service initiative was based on a prior generation of tools from the vendor that weren’t so user-friendly, according to Monteiro.

Stuller

Stuller executives and business leaders were not only demanding more reports. They also wanted deeper levels of detail added to existing reports. The four to five people that IT had dedicated to report development couldn’t keep up with the demand to create and revise reports and dashboards. In 2015, Stuller tried to open the bottleneck by giving eight to 10 power users direct SQL access to the Microsoft SQL Server-based data warehouse.

“We had to start giving more people the ability to query, but that introduced new problems because not all users knew the rules on how to join tables or calculate important measures,” says Cutrer, who was a trusted power user at the time. “Our problems grew as we granted SQL access across the company; making decisions with different answers would only lead to trouble.”

Not all aspects of the new approach failed. Where the IT team tended to just respond to requests for new reports, the eight to 10 power users embedded within key business units did more homework to look beyond the initial request. They would ask questions, such as “What do you intend to use this data for so I know more about what I need to develop for you and the rest of the organization?” This took a more business-directed approach, but the problems with bad or incomplete SQL queries and incorrect calculations had to be eliminated.

“Our problems grew as we granted SQL access across the company; making decisions with different answers would only lead to trouble.”

—Brad Cutrer, Director of Enterprise Analysis, Stuller

THE SOLUTIONS

TAP and Stuller both knew from experience that it would take more than technology to broadly enable agile self-service analytics while maintaining solid governance over data and measures. Both companies created new roles for people, developed new processes and deployed new technology in order to do self-service the right way.

The structure and details of the TAP and Stuller self-service programs are different, in part due to the differences in scale and sophistication between the two companies, but the overall approach is much the same. Both companies are now supporting agile self-service report development at the business-unit level, but before new reports, data or measures are elevated to broader interdepartmental or enterprise-wide use, they are vetted and put into production by a centralized, expert team.

TAP Air Portugal

TAP addressed both its data warehouse silo problem and its self-service problems through a new strategy encompassing people, processes and technology. Formulated in 2017, the strategy is meant to help business people feel more comfortable working with data whether it's from their business domain or not. On the front lines of this effort is the BI Competency Center (BICC), a team of seven whose role is to work closely with the business.

“We know what we have in the data warehouse, and working with the business we can help them combine information from two different business areas to address one purpose,” says Monteiro. The idea is to coach them how to find sanctioned data in the warehouse so they can do that for themselves, self-service style, in the future. This interaction between the BICC and business users is also helping to break down the silos in the data warehouse, as it assists with the process of gathering more data, more metadata and greater shared understanding of the interconnections among business units.

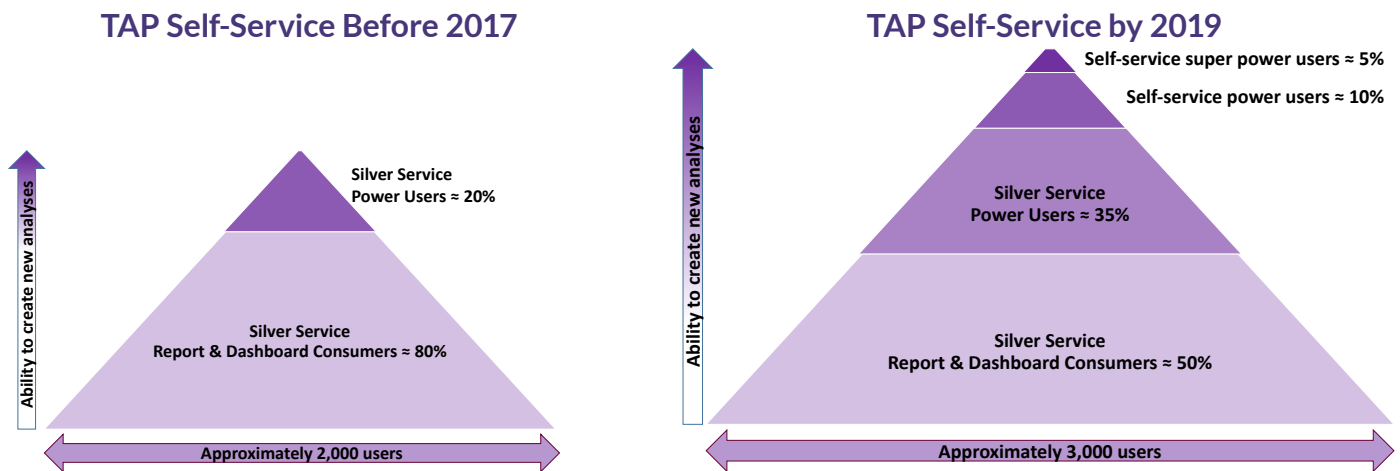
To address the self-service problem, TAP turned once again to MicroStrategy, even though its earlier, failed self-service deployment was based on prior-generation tools from the vendor that were “less user-friendly,” according to Monteiro.

“Starting with the 9.4 version, MicroStrategy really started to understand our needs around self-service, and it was quite a bit better than the previous version,” says Monteiro. “The new self-service platform is much more user-friendly, and the Dossiers [introduced in MicroStrategy 10 in late 2017] are easier to use and understand.”

With MicroStrategy’s latest self-service capabilities in place, the total population of TAP employees exposed to BI and analytics is expected to expand to 3,000 users by 2019, up from about 2,000 before the project (see Figure 1). TAP’s Silver Service power user community is also expanding and is expected to grow from 20 percent of users to 35 percent. With the latest-generation tools, more users previously limited to report and dashboard consumption are getting comfortable with building their own reports, and they’re even drawing on views and content from outside their business areas, says Monteiro.

To enable even greater freedom to explore new data and develop new analyses at the business level, TAP came up with a new class of self-service driven by what Monteiro describes as “super power users” within the major business units. It started with five people within marketing (part of the Customer area), three within network revenue (part of the Commercial business area) and two within Operations. These super power users are, as the name suggests, more skilled than ordinary power users. The marketing super power users, for example, have data science skills and are working with complex modeling processes.

Figure 1. TAP Is Empowering More Business Users to Explore, Blend and Visualize Data without Assistance from IT



Source: Constellation Research

The super power users have also been given access to more data and new tools, including cloud-based sandboxes for each business area. The sandboxes are instances of Microsoft SQL Server hosted on Microsoft Azure. TAP is also developing a high-scale data lake on Azure that will accommodate new data sources, including less-structured information.

Super power users have access to the data they need from the data warehouse as well as from operational data sources, external tables and, in the future, the data lake through their sandbox environments. From there, they can explore, prepare and enrich raw data and then prepare predictive and prescriptive analyses. In the descriptive and diagnostic analytics vein, these super power users, which will ultimately number 15 to 20 people, can also explore, blend and visualize data, using MicroStrategy and other tools, without requiring assistance from IT.

Stuller

Stuller knew that a change in technology was needed to resolve its self-service challenges. Before beginning a selection process, however, project leaders decided to conduct a “pre-mortem” to try to identify wants and needs and anticipate what might go wrong, so it could prepare for those challenges

in advance. Through this exercise, Stuller's team knew it would emphasize ease of use in the tooling, plan for adequate training and ensure extensive involvement of the business throughout the selection and deployment process.

This process also helped the team prepare for the tech selection process by establishing a list of grading criteria, including the following wants:

- The ability for business users to do customized reporting
- The ability for business users to add new data and content to existing reports
- Better governance over data, calculations and attributes

Stuller began the search for a new BI and analytics platform in November 2015, and it quickly dismissed the Oracle Business Intelligence Cloud Service—graded well by IT but not seen as easy to use by the business, according to Cutrer—and Tableau, which got good marks from business users but not IT due to its lack of data-governance controls at that time. The final selection came down to Qlik, Birst and MicroStrategy. Stuller dismissed Qlik due to a shift in offerings and features related to its QlikView and Qlik Sense products. The company also dismissed Birst, Cutrer says, because a standard deployment would require all of its data to be copied into the Birst cloud, something the organization was not prepared to do.

Stuller ultimately chose MicroStrategy in April 2016 in part because of its broad database and data source connection support and its ability to dynamically source data. “We wanted to be able to do things like take customer data out of the data warehouse and out of Salesforce and mash them up in MicroStrategy using queries from its engine,” says Cutrer.

The BI and analytics platform selection was important, but Stuller's project leaders also recognized that the solution would have to go beyond a change in software.

“We were looking at analytics much more holistically and weren't just considering the software ownership,” says Cutrer. “We didn't have the team formalized yet, but we knew we would have to be agile in how we produce reports. It can't be just an IT process or just a business process. It has to be somewhere in the middle.”

The six-member Enterprise Analytics team that was later formalized includes tech-savvy people drawn from IT and the business. This group is now salaried by finance and reports to the CFO, so it's not a part of IT. Nonetheless, the team made a point of including database developers, MicroStrategy systems administrators and report builders as well as business analysts. This mix ensured that the team has skills in pulling data from enterprise systems, creating tables in the data warehouse and introducing attributes into MicroStrategy.

On the horizon, Stuller plans to take advantage of MicroStrategy's mobile and predictive capabilities. These attributes helped cement the platform selection. "We felt we could probably get value out of all the products we were considering right away, but with MicroStrategy it felt like we wouldn't grow out of it within a couple of years."

THE IMPACT

The impact of self-service initiatives is hard to measure in simple terms of return on investment, because they are about time to insight and the ongoing benefit of relying on data-driven analysis in many areas of the business. What is the value of freeing business people across the company to quickly explore data and blend in new data to drive analysis and take action based on facts? What is the value of having trust in the validity of the data and in the consistency of definitions, calculations and measures, so all users are referencing a single source of truth?

The Technologies at TAP

- MicroStrategy
- Microsoft SQL Server data warehouse (on-premises) and sandbox instances on Azure

The Technologies at Stuller

- MicroStrategy
- Microsoft SQL Server data warehouse
- Oracle E-Business Suite & Salesforce

These values are unknowable in concrete financial terms, but there's no doubt that they can be incredibly powerful. Here are a few examples, as seen at TAP and Stuller.

TAP Air Portugal

TAP's combination of improved Silver Service and Self Service analytics is driving new levels of analytical agility and trust. Where previously TAP used a waterfall development approach, with business coming to IT with requests for new data, reports and calculations, the company has unleashed Silver Service and Self Service power users within each business unit to become the cutting edge of analytical innovation.

TAP's business people now have the freedom to help themselves to trusted data, calculations and views from across the organization. Higher-level power users can also blend in new data sources and even do advanced predictive and prescriptive analytics work. If and when a business unit wants to put a new data source, analysis or report into production, the BICC takes a scrum development approach and can bring the new sources into the data warehouse and new reports into the enterprise environment much more quickly.

"It's so much faster than the traditional way because the work is almost done," says Monteiro. "We have the data sources that we need to bring into the data warehouse, we have the layouts of the reports and we have the proof-of-concept prototype built in the self-service environment."

The work that used to be done by IT in a waterfall approach is all done; the only thing left for the BICC to take care of might be defining business rules, cleaning up and enriching the data and refining the report or dashboard layouts.

The business units can consume and interact with new Silver Service and Self Service analyses right away. Just how much faster is the new approach when it comes to sharing these assets enterprise-wide? It depends on the data quantity and complexity, says Monteiro, but on average the turnaround time is three to five times faster than with the old approach. "What used to take one week now takes one or two days to put into production," he says.

Once new data sources are brought into the data warehouse, TAP users across business domains can then bring that authoritative new data into their own analyses. And once they find value, they can work with the BICC to share consistently defined and calculated measures and key performance indicators with the rest of the organization.

Stuller

Like TAP, Stuller has seen benefits in terms of data governance and analytical agility. Once it deployed MicroStrategy, Stuller eliminated direct SQL access to the data warehouse. Previously, 40 people, including the eight to 10 BI power users, had this privilege. This move not only reduced licensing costs (along with the retirement of Excel Power Pivot, Microsoft Reporting Services and Crystal Reports), it also eliminated the problems with bad and incomplete queries, redundant and incorrect calculations and overlapping reports. Stuller succeeded in avoiding the IT bottleneck that made it so difficult to generate new and deeper reports.

Stuller's Enterprise Analytics team is now the keeper of vetted data and calculations, but as is the case at TAP, business users are free to introduce new data attributes and develop their own ad hoc analyses and reports. In fact, within one recent two-month period, Stuller's business users generated more than 2,700 original, ad hoc reports.

Not all ad hoc reports turn into production-grade reports, but when they do it happens in one of two ways. In some cases, business users want to share their new analyses with others, so they work with the Enterprise Analytics team to bring any new data sources into the warehouse and to produce a perfected version of the report or dashboard. The second way new reports end up seeing broader use is when the Enterprise Analytics team notices that a new report is getting to be popular. This happens through the MicroStrategy Enterprise Manager tool, which serves up data on who's subscribing to which reports, thereby highlighting the content that seems to be getting a lot of attention.

In one recent example of an ad hoc report that caught fire, Stuller's Gemstone business unit created a new report tracking sales of jewelry by gem color. The team found inspiration from the influential Pantone company, which declared Ultra Violet, a certain shade of purple, to be its Color of the Year for 2018.

Using MicroStrategy Enterprise Manager, the Enterprise Analytics team saw the Gem Color Report rapidly gain popularity, with four subscribers the first week, 12 the next week and 20 after three weeks. Stuller has 200 MicroStrategy users overall, so seeing 10 percent of users subscribing to a new report caught the team's attention. From there it was a simple matter to take the report enterprise-wide.

"After looking at the report and a few weeks' worth of data in Enterprise Manager, it took me about an hour to build a cube and make the report available by subscription to the rest of the organization," says Cutrer.

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—Rui Monteiro, BI Systems Manager, TAP Air Portugal

Not all ad hoc reports at Stuller can be put into production in as little as an hour, but as the Enterprise Analytics Team found (much like the BICC team at TAP), the work goes much more quickly when the business people are liberated to create reports and visualizations self-service style.

THE TAKEAWAYS

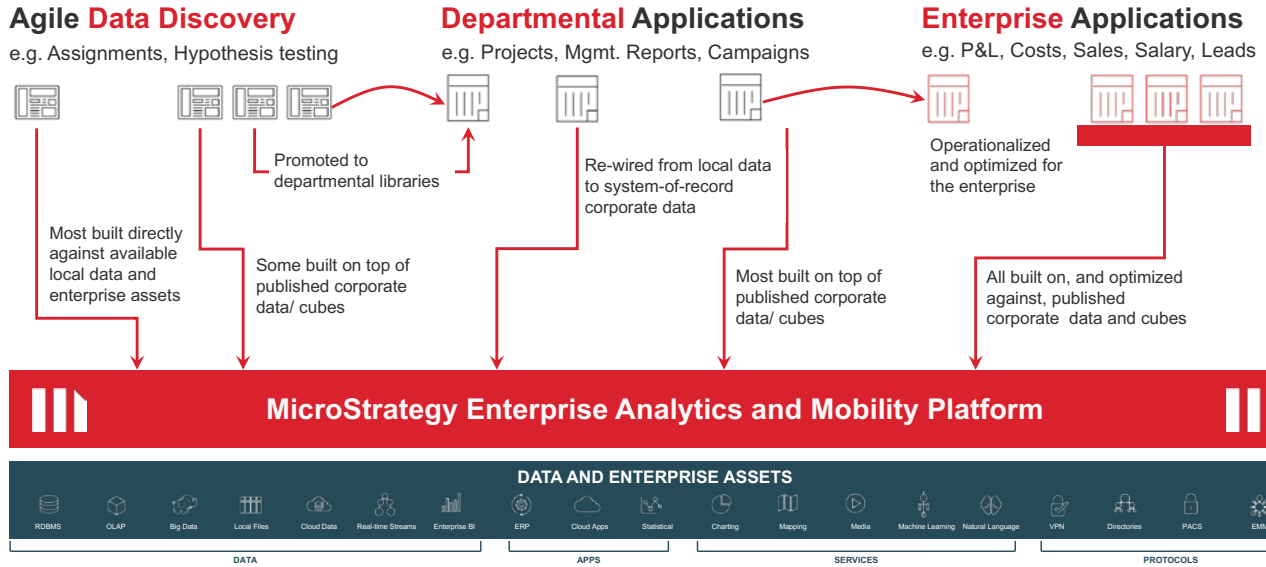
TAP and Stuller both followed MicroStrategy's recommended approach to promoting ad hoc and departmental analyses to wider production use (see Figure 2), but they're also succeeding because they're taking holistic approaches addressing the people, process and technology aspects of self-service and balancing the needs of IT and the business. Here's a closer look:

- **People:** Business and IT cooperation is crucial to self-service success. TAP and Stuller both institutionalized business/IT collaboration by creating centralized, hybrid teams—the BICC at TAP and the Enterprise Analytics team at Stuller—dedicated to BI and analytics excellence. Given the size of TAP and the scale of its data warehouse, the BICC plays more of an intermediary role between IT and the business. Stuller is a smaller organization and the Enterprise Analytics team does more of the work of IT.

Figure 2. TAP and Stuller Follow MicroStrategy's Recommended Approach to Promoting Ad Hoc Analyses for Broader Use



An Analytics and Mobility Platform That Delivers Digital Transformation



Source: MicroStrategy

- Process:** Both companies have a clear process in place for building new reports and analyses and promoting ad hoc, self-service reports to broader departmental or enterprise-wide use. Report creators know to start with vetted data, calculations and views and they have the freedom (with appropriate group and user access and security controls) to explore and drag these assets into their report development tools. More advanced power users have greater latitude (and at TAP, more tools) to bring novel data sources into their analyses. The BICC, Enterprise Analytics and IT teams have known procedures for putting new data sources, reports and dashboards into production.
- Technology:** Both companies sought a balance between centralized control and freedom for business users to explore, blend and visualize data without assistance from IT. They chose MicroStrategy first for its ability to govern data, data definitions, calculations and views. In fact, MicroStrategy supports customers that use other ad hoc

tools, including Microsoft PowerBI, Qlik View/Sense and Tableau, but these customers still rely on MicroStrategy as their source for trusted data, definitions and measures. TAP and Stuller both chose MicroStrategy Desktop and Dossier, the vendor's latest-generation tools, which end users found easy to use. No matter which tools are used, ad hoc reports developed self-service style are treated as starting points for reports that are put into production.

THE RECOMMENDATIONS

Constellation has talked to and worked with many companies employing so-called self-service analytics products, but if there's one thing you should learn from TAP and Stuller it's that an effective self-service deployment with good governance requires a holistic approach. "It's not about the software," says Cutrer. "In order to make data-driven decisions you will need a team who can both source and interpret the business data."

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—Brad Cutrer, Director of Enterprise Analysis, Stuller

With this overall approach in mind, here are four concrete recommendations on how to succeed with self service:

- **Let business users lead the way.** Allow the analyst and users who are close to the business lead the way by enabling them to create their own reports. In doing so make sure they're using trusted data, definitions and calculations as a starting point, but also give them the latitude, depending on their ability, to explore and experiment with new data. The professionals can then use these ad hoc reports as a starting point for bringing new data into the data warehouse and new reports into production.

- **Create a centralized, hybrid BICC or analytics team.** Centers of excellence, competency centers or other forms of centralized oversight and best-practice teams help to coordinate BI and analytics across the enterprise and ensure the use of trusted data, consistent definitions and vetted calculations and measures. These organizations should be a cross-disciplinary hybrid of people with IT and business backgrounds so they can handle technical challenges while staying close to the business. Stuller's Enterprise Analytics team meets with every business unit every two weeks to discuss new and existing reports and analyses, and it reports progress to the CFO, who oversees the team, once per month.
- **Use analytics about analytics.** IT and BICC or analytics team leaders need intelligence about who's using what data and which reports. This helps with data warehousing, data sourcing and analytics optimization and data hygiene. Insight also guides efforts to make new data sources and ad hoc analyses available to a broader audience. MicroStrategy specifically offers its Enterprise Manager tool for this insight.
- **Create a trusted data foundation.** Rely on the combination of people and process best practices and available tools within the BI and analytics platform to ensure certified collections of data with clear definitions and known data lineage. Look for semantic layers within the BI and analytics platform that let you define and reuse objects that are described in business terms. Semantic layers abstract the complexities of the underlying data and speed development of new reports and analyses built on pre-existing content and vetted data.

ANALYST BIO

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Vice President and Principal Analyst

Doug Henschen is Vice President and Principal Analyst at Constellation Research, Inc., focusing on data-driven decision making. His Data-to-Decisions research examines how organizations employ data analysis to reimagine their business models and gain a deeper understanding of their customers. Data insights also figure into tech optimization and innovation in human-to-machine and machine-to-machine business processes in manufacturing, retailing and services industries.

Henschen's research acknowledges the fact that innovative applications of data analysis require a multi-disciplinary approach, starting with information and orchestration technologies, continuing through business intelligence, data visualization, and analytics, and moving into NoSQL and big data analysis, third-party data enrichment, and decision management technologies. Insight-driven business models and innovations are of interest to the entire C-suite.

Previously, Henschen led analytics, big data, business intelligence, optimization, and smart applications research and news coverage at *InformationWeek*. His experiences include leadership in analytics, business intelligence, database, data warehousing, and decision-support research and analysis for *Intelligent Enterprise*. Further, Henschen led business process management and enterprise content management research and analysis at *Transform* magazine. At *DM News*, he led the coverage of database marketing and digital marketing trends and news.

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