

Success Takes Balance: Don't Fall Over with Your SAS® Visual Analytics Implementation

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ABSTRACT

With deploying SAS® Visual Analytics, companies want to set up a system that will be effective in supporting their organization. When it comes to building anything, it is key to set a solid foundation on the most important areas. In a SAS® Visual Analytics implementation, those are technology, people, culture, and process. In this paper, you will learn how to structure those areas so that you can put your system in a position to succeed.

INTRODUCTION

SAS Visual Analytics is an incredibly flexible analytics tool that can be used by businesses large and small in a variety of different fields. With that breadth and flexibility, it can often times be difficult to build something that is relevant, functional, and sustainable within your organization. Users ask what are some best practices for deploying SAS Visual Analytics? How should we set up the system to most effectively support our organization? What are some things we can do to get the most out of our technology? This paper walks through the main considerations for implementing SAS Visual Analytics at your site.

OVERVIEW

For some organizations, introducing an application is three simple steps: install it, create user accounts, and send an email. Unless users must use the application for a job task, for instance, to track project hours or expense reports, the event might go largely unnoticed. In worst cases, the organization removes it a year later because no one was interested in that cool time-saving application the vendor promised!

Before you start an implementation, you need to plan how the organization will adopt the application. It doesn't matter if your organization is small or large, each one has a different challenge with applications. To assist with the introduction process, you can divide it into four general areas: technology, people, culture, and process. The remainder of this paper discusses how each of these influence adoption.

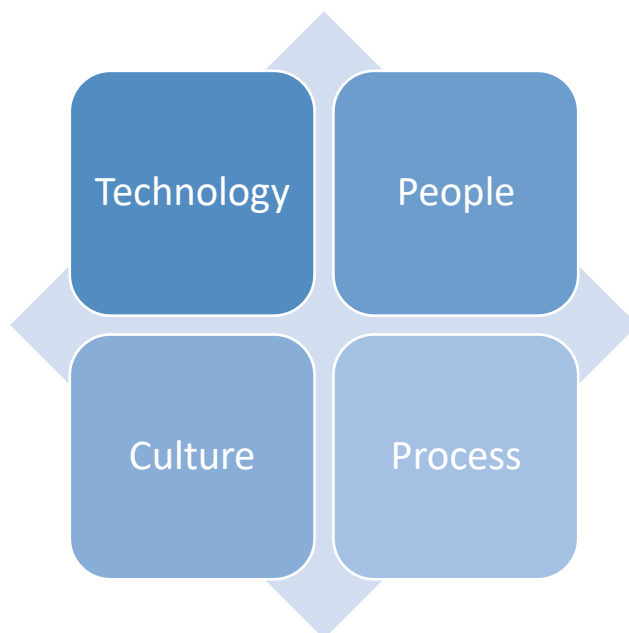


Figure 1 Pillars of successful implementation

STRUCTURE YOUR TECHNOLOGY

Ideally, any new application provides the organization with increased functionality, such as easier or faster ways to accomplish a task. With SAS Visual Analytics the idea is that users can analyze data quicker and create web-based reports that can be accessed from anywhere.

Managing Your Data

Before you can get helpful data analysis from any analytics software, you must have good data. Smaller organizations may not realize how much data preparation is required. Certainly, SAS Visual Analytics can import data from flat files or spreadsheets, but the data does require some cleansing and classification. This pre-analysis step may require additional software, such as SAS Studio, and some programming knowledge. If an organization is using spreadsheets to organize data, they should consider if a database might better organize and maintain the data.

Larger organizations may struggle with having too much data in too many places. When using SAS Visual Analytics, the data must come to a central point so it can be loaded into the LASR Analytic Server. This process may introduce some data wrangling to ensure the data is available. The organization may need multiple SAS Access packages to ensure data from the various systems can be imported. Large or small, the organization must establish formal plans for maintaining their data.

Questions to Consider:

- How will data be stored, maintained, cleansed?
- Which data belongs in SAS Visual Analytics?
- How will we structure the data to minimize the LASR Analytics Server memory?

Planning Your Environment

As organizations mature, they become more reliant on the data to make decisions. If a report or dashboard is unavailable for several days, then it may impair the organization as well. However, applications require care and feeding. It is a best practice to have two systems: development and production. The production environment is available to report consumers as a reliable portal for information and to report builders for ad hoc work. The development environment is used by the report developers to create new reports or makes changes to production reports without affecting the business users. The development server can also be a backup to the production server in case there is a software issue.

An alternate approach, with more risk and less cost, is to create two main folders in the metadata. One is the development area and the other is for production. The organization would develop a process for determining when a report can be migrated to production and who can do such tasks. This works better in organizations where they can tolerate an outage or server issues.

Questions to Consider:

- Should we consider a cloud deployment? Which version of SAS Visual Analytics do we need now? Where do we want to be a year from now?
- Will a short-term outage impair daily operations?
- How will we handle upgrades and hot-fixes? Who is responsible for maintaining the application lifecycle?

Installation and Maintenance of SAS Visual Analytics

Your data systems are only as reliable as the technology that runs them. Having a good administration team is critical to the success of any implementation. Some smaller organizations are installing SAS Visual Analytics and expecting the SAS programmers to maintain it. SAS programming and SAS administration require different knowledge bases and background knowledge. It is a fundamental mistake.

If the organization has no background with the SAS 9 Platform changes or is migrating from individual copies of PC SAS, they should strongly consider hiring a SAS administrator or working with a firm that offers the service. A reliable admin team allows you to build structure around your data and environment. This team can help provide clear guidance on how to scale and grow your data. Additionally they can address a variety of security issues. With SAS Visual Analytics, this is critically important because you are pushing more functionality to your business users.

Questions to Consider:

- Do we want to manage the system administrator internally?
- Are we able to install and configure SAS Visual Analytics?
- Who is responsible for creating the security model?

STRUCTURE YOUR USERS

Creating structure for your users can be the most difficult exercise in any new technology deployment. It is often difficult to balance the need for access with more centralized concerns like data security and administration.

Supporting Developers and Consumers

It is shocking how some organizations introduce sophisticated applications and never offer any user training. In some cases, there is a misguided belief that web sites, such as YouTube or StackExchange, should have all required answers. When an application is easy to learn like SAS Visual Analytics, the problem seems even more prevalent. The worst part is that this method takes more than twice as long and often results in users creating code or reports that cannot be maintained because it was created so awkwardly.

One of the best aspects of SAS Visual Analytics is the control and ease of use that it puts into the business user's hands. When just starting out, users can easily find their way around to load a local data source, put some objects into the report, and then select the data that they want to see. The user interface contains these tools and features in the application is that easy to learn.

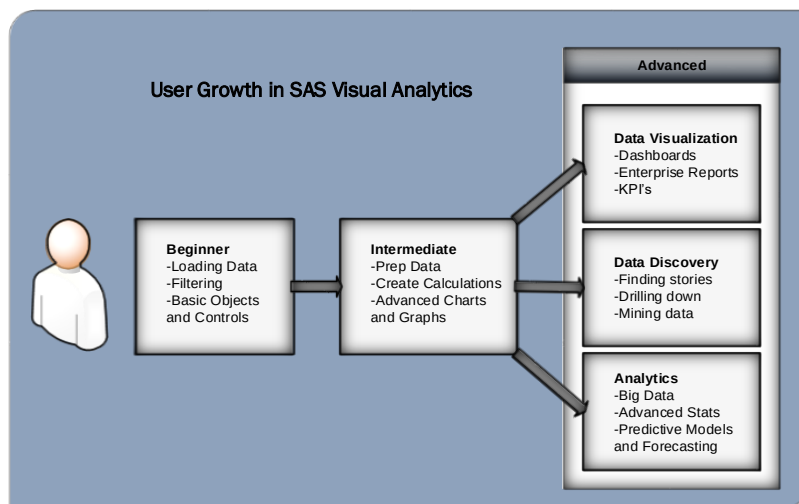


Figure 2 User growth cycle in SAS Visual Analytics

However, depending on the level of the user, the next steps are more difficult to achieve. You can see in Figure 2, that after the Beginner stage, users start doing some data prep and creating calculations on their own as well as getting into objects with a much heavier emphasis on data analysis. This is where many users can hit a road block if they do not have the support and training. Even if these users are fluent in MS Excel or other data tools, these concepts can still be hard to grasp since the application handles data differently.

If organizations want to get advanced data analysis out of their users, then they have to support them on all levels. Doing any kind of data visualization, data discovery, or data

analytics requires someone who not only knows the data but can also navigate the application to build it as well. This is something that organizations can forget about after they have invested so much into the application and initial training.

Consumers Require Training Also

Report consumers require a system introduction as well. They need information about how the reports are stored, how to interact with the tool, and how to request new reports. This training can be supplemented with the product videos from SAS. Those short videos explain how the Hub and the Viewer work. [5]

Because SAS Visual Analytics can be accessed multiple ways, consumers may need assistance setting up their mobile device. If the application is being deployed with other products, then the users may need assistance understanding how to access reports from SAS Office Analytics or a stored process.

Questions to Consider:

- How much does our organization know about advanced analytics and data visualization?
- What is our plan for training the users and consumers?
- How will we improve the knowledge as we move forward?

Land and Expand Methodology

Having worked with numerous deployments in the past, it is preferable to start with a small and targeted user group for the initial deployment. This process allows you time to build and test important features while still providing content and value to your business. It is always going to be easier to increase permissions and access for your users, rather than to roll it back or to fix problems they might have caused with too much access. Remember to start small, and to have a plan of how you are going to grow your system.

Questions to Consider:

- Who are the users within the organization that could become power users and train others?
- Are there areas of the company that could benefit the most or have data that could easily be transferred?

STRUCTURE YOUR PROCESS

You need a plan for how the consumers and developers are expected to operate in the environment.

Organizing Your Data and Reports

There are many ways to organize the data, reports, and explorations generated by SAS Visual Analytics. There are two main things that need to be organized: data and reports/explorations. SAS provides an excellent discussion of this topic in the System Administration guide.[2] They offer some guidelines for setting up the custom folder structure based on your organizations' information management, data sharing, and security requirements.

Within these folder structures, you must have a way to differentiate between data available to the SAS Visual Analytics Data Builder and data loaded into the LASR Analytic Server. You also want to ensure the users have an area where they can store reports and explorations.

A simple setup can be a good starting point, but it is important to remember that your data structure needs to conform to the needs of your business and not the other way around. The most common problem with customers is ineffective structure around their technology and data.

Questions to Consider:

- Who needs access to what information? How do we plan to secure these folder structures?
- Do we need information stored by functional area or project-based area?
- Who can plan a security model that allows growth?

Managing Production Reports

In almost any development, there are four main stages of activity (requirements, development, testing, and documentation), the same should be true for your SAS Visual Analytics and BI reporting development. As your system expands and the demands from your business increase, there needs to be a process defined for building and sustaining your reports as well.



Figure 3 Report development process

Documentation: Requirements and Design

This is such a critical piece of any environment but it is so often overlooked because it doesn't feel like you are adding value when you do it. This couldn't be further from the truth. Effective documentation and definition requires a little time up front but will save you hours upon hours in the future. It doesn't require much, just a template that everyone can access and use and the discipline to be an organization that creates and maintains it.

While not all reports require an accompanying dissertation, there should be some discipline around how the data is gathered, counted, and presented. When designing reports and dashboards that are used on a regular basis, it is smarter to have the requirements documented. The design process goes quicker when the requirements are understood.

Build It

SAS Visual Analytics makes building reports easy. Based on the requirements gathering and data planning, it is much easier to create the report. The developer understands what data is required and what information the stakeholders need.

The developers should be aware of good data visualization practices. Unlike past tools, SAS Visual Analytics makes a poor design or misunderstanding of good practices more evident. The developer should also be concerned with having a report that is easy to maintain and uses the smallest data footprint available.

Validate Results

Testing is a task that can be a victim of urgency. When you have a large number of requests and stakeholders it is one of the easy places to save time by reducing the amount of time spent testing your systems and validating your data. The problem with this is that it doesn't take many mistakes to damage credibility. The trust bank takes only small deposits and large withdrawals. Having a defined set of testing and validation standards and holding your people accountable for following them will benefit you in the long run.

Publishing the Report

Once the report is available to the consumers, the organization needs a way to make consumers aware of new or changed reports.

Questions to Answer:

- How much does our organization know about advanced analytics and data visualization?
- What is our plan for maintaining the reports?
- How will we improve the knowledge as we move forward?

STRUCTURE YOUR CULTURE

Company culture is an extremely broad concept and something unique to every company. Companies with effective data-driven organizations have some common culture traits. First, they take terminology seriously, they define certain concepts and metrics and use them consistently across the organization. There is rarely confusion about what someone is actually asking for because everyone is speaking the same standardized language.

Second, they prioritize, sometimes till it hurts. An organization with a strong data-driven culture is going to an almost insurmountable number of questions to help drive the business. Rather than attempting to answer all of them, they will have a prioritization process led by the business management to guide the efforts of the business to the most important questions. They will never let the *urgent* crowd out the *important*.

Determine Your Maturity Step

In Figure 4, the Gartner BI Maturity Model [4] shows the stages that organizations go through when adopting a data-driven culture. The SAS products are shown above the model to indicate where customers typically add the product during the maturing process. However, customers may have multiple products from different vendors.

The five stages in the Gartner model do a good job of getting organizations to think about where they land at a maturity level. Let's go through an example of how a company starts from beginning to end.

In the Unaware stage, this is where you are not doing anything with your data and just realize that there is actual value in collecting and analyzing information about the company.

Then you start accumulating data and figuring out issues (such as sales drop, production targets missed, and so on) happening in the organization. It's at this point that a spark is lit within your organization and some people start to buy into the idea of listening to the data. This is the tactical stage, and at these lower levels is where all you need is basic tools like SAS Studio for this investigation.

From figuring what things are occurring to then understanding why they occurred is when you move into the focused stage. Usually in this section is where managers and executives of the company take notice and start to buy in as well. In this stage, usually a more powerful tool is needed to combine data sources and then drill down into them. This is where a tool such as SAS BI Server or SAS Visual Analytics becomes useful because it assists with sharing the data across the enterprise.

When you move to the strategic stage, you start to use your data help you not just figure out what happened but what is going to happen next. This is where an analytical tool like SAS Visual Analytics is needed. It provides business users with a way to apply analytics to their job.

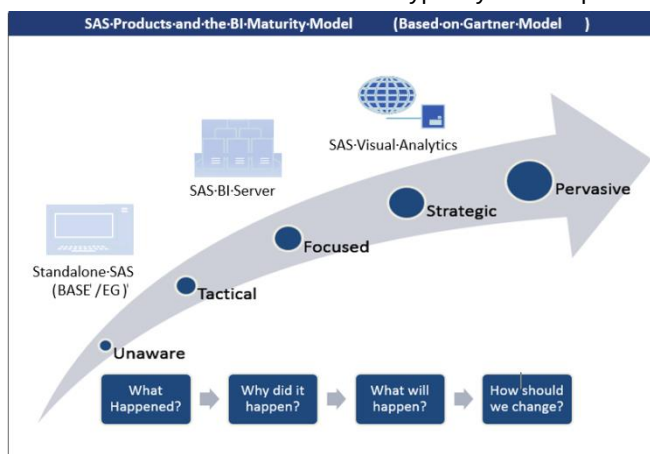


Figure 4 Data Driven Organization Maturity Model

If you get to the pervasive stage, then the whole company is on board with letting data drive your decisions. You have buy-in from everyone and you are trying to understand how you need to change as a company to keep competitive advantages in your industry.

Questions to Consider:

- Where would we place ourselves in the maturity model?
- What is our plan to move to the next stage?
- How will we improve the knowledge as we move forward?

Change Management

If the change is not introduced correctly, the application may never be adopted properly. Users may not always appreciate a new application. They may be entrenched in another product and not see any benefit to the change. Your plan must be sensitive to what functionality may be reduced as well as what functionality is introduced. The management team must support the change to ensure organizational adoption.

There are many excellence books written on the topic of managing the change. The process should be understood before implementing the application.

Questions to Consider:

- Do we have entrenched tools?
- Does this application offer additional functionality we don't currently have?
- How are users solving this problem now?
- Does management support this change?

CONCLUSION

The last and possibly most important advice is that the vision you have and the structure you build should always be viewed as a template for growth rather than a blood pact. The SAS Visual Analytics technology you are using is going to continue to evolve giving you a new application to use. The needs of the business will change giving the organization different problems to solve. What you design and envision on day one is almost assuredly not where you will be in the years to come.

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