Infographics
Powered by SAS®
Data Visualization Techniques for Business Reporting

Travis Murphy
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Chapter 10

Example 1: SAS and Microsoft PowerPoint

Overview

This example provides a worked solution with zero code by using the drag-and-drop interfaces of SAS Visual Analytics and SAS Add-In for Microsoft Office. This worked example uses SAS Visual Analytics dashboards and insights. I will import elements of an existing dashboard and a report into an infographic created in Microsoft PowerPoint. Business analysts are very familiar with Microsoft PowerPoint and will be extending their use of this familiar toolset with content from SAS.
The general premise of designing infographics with SAS is that we are looking to create repeatable and robust infographics that are suitable for business use, compared to those not created in SAS which, while beautiful, may not provide the repeatable and simple access to corporate data.

**Audience**

This example can be skipped if the user is advanced. However, this user might find that the business interfaces and easy drag-and-drop approach are interesting if they know only the coded interface. This example is designed for a business user, a novice SAS user, or an intermediate SAS user.

**Sample Files**

Completed SAS Visual Analytics report examples and templates in PPTX format and completed infographics in PPTX format are provided for reference along with the data and image files needed to reproduce these examples.

All files are provided for download here: [http://support.sas.com/murphy](http://support.sas.com/murphy)

**Getting Started with SAS and Microsoft Office**

For this example you will want some of your infographic content to be entered as subjective comments, with third-party graphics, and other content imported easily from SAS Visual Analytics. This option enables you to leverage the large investment in data assets in your enterprise, as well as provide the creative freedom that you need to create the narrative required to communicate the insight in the “eight-second window.”

This option uses approachable analytics tools, SAS Visual Analytics and your Microsoft Office tools to make it accessible by any business analyst or report user. This option can unlock big data analytics into the infographics created by business analysts.

**Step Zero: Start with a Mockup Design**

To simplify this example, we will use a template as a starting point. I already know by looking at the template what is required for design and subject matter.

If you want to save time in any infographic creation process, you should start with a whiteboard or piece of paper and get it all out of your head and into the world. This step should provide ideas for topic, context, questions you want to answer or highlight, and design ideas. You will see this message throughout the book, and is guaranteed to provide you with a better infographic and to save you plenty of time. The mockup for Example 1 is shown in Figure 10.1.
Step 1: Open the Template in PowerPoint

Open the example file Example_1_Template.pptx from your sample files to get started with the activity.

Figure 10.2 shows template, which contains a selection of images and clipart that are ready to use in the infographic.
Inside this PowerPoint template are some important elements. There are some clipart-style images and icons, a color palette, some text, and a layout that is already displayed. By using this template, you are not starting from a blank canvas and you get some understanding of the context and design already by using this template.

The template has a custom slide size that is defined in PowerPoint and that allows for enough space to create the infographic with correct ratios. You can create your own slide very quickly by copying this custom slide.

**Step 2: Connecting to SAS Visual Analytics**

To connect to SAS, select the **SAS** tab from the Microsoft PowerPoint ribbon, as seen in Figure 10.3.

**Figure 10.3. SAS Add-In for Microsoft Office ribbon**

From Microsoft PowerPoint, select the **Tools** tab and the **Connections** option to connect to the SAS Visual Analytics server (see Figure 10.4).
The user is presented with a window that includes options to add a new SAS server or to connect to an existing SAS server (Figure 10.5).

Setting up the connections is a one-time task. Connections setup will provide the user with access to the SAS servers from which to access reports, analysis, and functions that will allow content to be included in their Microsoft Office document.
Step 3: Deciding What Content to Leverage from SAS

This example assumes that some SAS Visual Analytics reports and analysis have been created already by someone in your organization. This means you don’t have to leave Microsoft PowerPoint at all. If you do not have the SAS Visual Analytics reports, then this would be an additional step here. Please see other examples in Chapter 12 to see how to create SAS Visual Analytics reports and dashboards.

In this example, you already have two reports created using SAS Visual Analytics. The first report is a dashboard for a sales team, and the second is an ad hoc analysis created by the business analyst in the sales operations team. Both reports add value to your understanding of the sales performance at the Insight Toy Company.

Report 1: The Sales Performance Dashboard

Figure 10.6 shows elements from a report that are interesting and that would enhance the infographic.

Figure 10.6. Sales Performance Dashboard

The infographic could contain a Top 5 performers bar chart, a word cloud of what is being sold, and a treemap (tile chart) of products for sale. A key performance indicator or gauge could also be useful at calling out performance. A geomap can also be a powerful visual from a traditional dashboard and in an infographic style dashboard.

Next, think about which of these elements will help to tell your story about sales performance. Do not include the elements that distract from this message.
Report 2: Ad Hoc Analysis on Sales Performance

Figure 10.7 shows the elements of the ad hoc analysis, which include a correlation matrix, a parallel coordinates plot, a forecast of sales overtime, and a network diagram about the relationship of products to product lines.

Figure 10.7. Ad Hoc Sales Data Exploration

Once again, from these elements, you will select the ones that assist in telling the story that you want to tell in your infographic.

Step 4: Unifying the Content Elements

It is now time to unify these visual elements into the infographic itself. If you are like me, you can spend a long time getting your visual elements just right. Many iterations of design and trial-and-error will probably occur before you have the desired layout and information to tell the narrative that you want from your data.

Figure 10.8 shows how you can navigate to all your SAS Visual Analytics reports and analysis, and insert the desired elements into your infographic.
Adding content from SAS Visual Analytics is very easy, and don't forget that the computation is happening on the SAS platform, not on your computer.

After we select the appropriate content, we will select a report and click the **Open** button.

Repeat the preceding steps to add a second report, which is the ad hoc exploration report. This report has some additional options for use in this infographic. The approachable analytics will make a big impact to your audience.

Once you have selected one or more reports to open in Microsoft PowerPoint, you are presented with a preview window that shows the report contents. This is a live view of the report, and shows you the latest data that is loaded into SAS (see Figure 10.9).
The preceding figure shows the live preview dialog for the SAS report. You can select the report that you want to work with if you have multiple reports open within the same Microsoft Office document. Your selected report shows a preview of all available elements to use in your document.
Step 5: Adding Elements to the Microsoft PowerPoint Document

To add an element to the Microsoft PowerPoint document right-click the element and select **Insert**. The element will now be added to the document.

**From the Sales Dashboard: Report 1 Elements**

Repeat the preceding steps to insert the following elements:

- **Dynamic Text Object** – Dynamic text can be added from the SAS Visual Analytics report to show a dynamic Year to facilitate easier updates in the future.

- **Key Value Object** – **Order Total** can be added as a single number that is aggregated in the infographic.

- **KPI Gauge Object** – **Sales by Product Brand** can be added as a clear measure of performance at a high level for each key product brand.

- **Word Cloud Object** – **Sales by Country for Selected Continent** can be added using a word cloud to show the best sales across the focus region.

- **Bar Graph** – **Top Product Sales by Product Line** can be added to show the bestselling product lines for the selected region.

- **Treemap Object** – The treemap can be added to show loyalty programs for customers in selected region.

Note these objects are filtered by our selections in the SAS Visual Analytics report. In this example, you are filtering on “South America.” You make selections with the report controls dialog and filter selections in the report preview. This context can be saved with the document, and the context can be cleared at any time.

**From the Data Exploration: Report 2 Element**

Repeat the process to insert the second report for **Parallel Coordinates Graph** which can be added to show factors of each product line that is sold for the South America region of our toy company. The parallel coordinates plot can show the pattern of what our customers are buying. As you can see in Figure 10.10, the SAS content has been included in the Microsoft PowerPoint document while maintaining a link to SAS Visual Analytics. The document can be edited for a better fit in the infographic design.

*Note: This short excerpt was taken from a chapter in the published book.*
About This Book

What does this book cover?
A picture is worth a thousand words, but what if there are a billion words? This is where the picture becomes even more important, and this is where infographics step in. Infographics are a representation of information in a graphic format designed to make the data easily understandable, at a glance, without having to have a deep knowledge of the data. Because of the amount of data available today, more business infographics are being created to communicate the information and insight from all available data, both in the boardroom and on social media. This book shows you how to create information graphics that can be printed, shared, and dynamically explored with objects and data from SAS® Visual Analytics. Connect your business infographics to the high-performance analytical engine from SAS® for repeatability, scale, and performance on big data and for ease of use.

You learn how to leverage elements of your corporate dashboards and self-service analytics while communicating subjective information and adding the context that business teams require, in a highly visual format. This book looks at how SAS® Office Analytics enables a Microsoft Office user to create business infographics for all occasions. You will learn a workflow that lets you get the most from your SAS system without having to code anything, unless you want to code, and then this book has something for you also. This book combines the perfect blend of creative freedom and data governance that comes from leveraging the power of SAS and the familiarity of Microsoft Office.

Topics covered in this book include:

- SAS Visual Analytics
- SAS/Graph® (SAS Code Examples)
- Data Visualization with SAS
- Create reports with SAS
- Use reports and graphs from SAS to create business presentations
- Use SAS within Microsoft Office

Is This Book for You?
This book is for all SAS users.

If the reader is an intermediate or advanced SAS user than this book will assist them in understanding the value of information graphics and the possibilities they provide them and engaging their audience.
For a beginner SAS user this book provides the necessary overview to understand information graphics foundations and origins to then progress through the book and use the step by step examples to work along with.

This book is aimed at SAS users who create and design reports and dashboards for their users. Managers can use this book to determine what their teams could create and design with SAS Visual Analytics and SAS® Office Analytics.

All levels of SAS skills are covered in this book: beginners, intermediate and advanced. The beginner learns to use SAS Add-in for Microsoft office, intermediate user gets to extend the office examples, and use SAS Visual Analytics to go a step further, and the advanced user gets to see the power of the SAS code base to achieve this common business goal: the infographic.

**Prerequisites**

You do not have to have any previous experience with SAS tools to read this book. However, if you do have some experience with SAS code and data preparation, then you may find some parts of this book and examples easier.

**Examples: Data, Reports and Code**

There are examples provided in this book including code samples, reports and data. These files can be downloaded and are available at the following location:

http://support.sas.com/murphy

**Software used**

Support Documentation at [http://support.sas.com/documentation/](http://support.sas.com/documentation/)

Here are the specific software versions used in this book:

- Microsoft Office 2016
- SAS Visual Analytics 8.2
- SAS Office Analytics 9.4 M5
- SAS Add-In for Microsoft Office 7.15

Documentation links and further reading are outlined in this book.

**SAS University Edition**

If you are using SAS University Edition to access data and run your programs, then please check the SAS University Edition page to ensure that the software contains the product or products that you need to run the code: [www.sas.com/universityedition](http://www.sas.com/universityedition).

Code examples are designed to run against the sample data provided.
**SAS Visual Analytics Trial**

To access a free trial of SAS Visual Analytics software you can go to: [www.sas.com/va](http://www.sas.com/va)

Samples in this book are designed to work with SAS Visual Analytics version 8.2.

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About the Author

Travis Murphy has worked for more than 15 years in data warehousing, business intelligence, and analytics. At SAS Institute, Travis has held presales, technical account management, business solution management, and marketing roles focused on data visualization tools. Travis is always working to better communicate the value and insight of data using software tools and to get business users and stakeholders more involved in the use of data. Travis has presented at SAS Global Forums, user conferences, and SAS marketing roadshows, where he continues to evangelize the benefits of approachable analytics and data visualization. Your comments and questions are valued and encouraged. For more information and to contact the author please visit: http://support.sas.com/murphy.
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