Ideas for improving data gathering and reporting

In previous articles I have talked about collecting data for various uses, like gathering Voice of Customer data and process performance data. After you have collected the information, you have to be able to present it in a way that people can understand and use in decision-making. In this article, I will provide you with some ideas that will help to make your data gathering and reporting a much easier process. It will also improve the consistency, accuracy, and usability of reported information that you handle.

Reporting process

It is important to have a consistent process for handling reporting requests, gathering and processing requested information; and then reporting it in a way that is clear, understandable, and useful to the recipient. Creating and using a single set of standards across any organization will ensure that everyone is handling data and reporting results in the same way, and will reduce confusion.

- Have one or two qualified people serve as the organization’s source of any official reporting or information dissemination. This will help to ensure that all data collection, analyses, and reporting used in making business decisions will be handled and presented in a consistent manner.
- Create a simple process for requesting a report from the reporting staff. This will ensure that the volume and type of requests will be visible and documented, and will provide a method for determining reporting need and priority, specifying what information and criteria should be included in the report, and defining what the output should look like.
- Restrict the abilities of general users to change reporting systems and query structures. This ensures that reports remain accurate and consistent over time. Failure to do so means that anyone could change a report in a way that is subtle and goes unnoticed (changing a filter criteria for example), and which could negatively impact official reporting results.
**Accuracy**

Providing accurate information is absolutely critical in reporting. Any errors, even small ones, can cause disastrous results in decision making and cast doubt on the quality of all of the information being provided. Every measure should be taken to ensure that the data that is collected is accurate, error free, and unbiased.

- Ensure that your data source contains, and is capable of accurately providing the information that you need for your analysis and reporting.
- Ensure that the data from your source was gathered and input accurately, and is not prone to errors. Periodically check to ensure that your source remains accurate over time and that any variation in your data is due to random variation only.
- Eliminate the human element from data collection and retrieval whenever possible to avoid ‘human error’ mistakes or bias.
- If you are receiving your data from another person or organization, do not hesitate to ask (and confirm) that they:
  - Gather the data in a valid and consistent manner
  - Check the accuracy and validity of their data before sending it to you
  - Provide you with the information in a format that you can readily use without a lot of manipulating or reformatting the data
  - Update the data if anything changes

This will save you hours of work when you receive the data.

Once you have pulled the data and are ready to begin working with it, take the time to look at the data set and graph it to see what the data looks like and how it distributes. Line, bar, and column graphs work well for this quick pass at the data. What you are looking for is anything unusual or unexpected in the data set, such as extremely large or small values (outliers), inconsistent information, typos, or missing data points. If you encounter any of these things, you should try to find out why they occurred, fix errors, fill in missing data, and adjust / transform your data to account for the anomalies. Any changes or adjustments to the data should be noted in your reporting, so that the readers are aware of anything that could have an impact on the results they see.

**Charts and Graphs**
The vast majority of human learning is done visually. For this reason, when reporting information the use of charts and graphs is a powerful way of communicating with your audience. If fact, as noted before, it is recommended that you graph data to see what it looks like and how it distributes before doing any detailed analysis. With the proliferation of new graphical software packages on the market, people tend to try and make their charts and graphs too fancy in an effort to impress their audience. The problem with this is that the fancier and more complex you make your charts and graphs, the harder they are to read. Remember, with data reporting the point is to make the information understandable and useful to your audience, not to try and create fancy or overly flashy charts.

Avoid using pie charts whenever possible. They can easily be replaced with horizontal bar charts which tell the story in a much easier to understand format. For example, take a look at the following charts in Figure 1. Both charts show the same data; however, take a look at the Good Customer Service and Low Price slices of the pie chart. Without any further information presented, these two slices look like they represent the same percentage of the data. The same goes for the Item in Stock and Convenient Location slices. But, when you see the same data presented in the horizontal bar graph, the reader can instantly see that the information in these seemingly similar categories is in fact different.

Avoid using 3D charts unless the added dimension communicates information of some sort. Look at the charts in Figure 2. Both charts show the same information; however, the 3D chart looks more cluttered and is harder to read. The added dimension does not add to the information being communicated to the reader, is confusing, and is therefore not needed.
Avoid using a lot of different colors in a chart unless the colors are needed to communicate additional information to the reader. Look at the charts in Figure 3. Both charts show the same information; however, the multi-color chart looks more cluttered and confuses the reader by overwhelming them with a bunch of colors. The use of bring (high intensity) colors should only be used to highlight information or draw the reader’s attention to something specific. In the multicolor chart in Figure 3, the reader is left wondering what, if anything, the colors are supposed to mean. The added color dimension does not add to the information being communicated to the reader and is not needed.

Avoid the use of extraneous lines, numbers, graphic images, etc. that distract the reader’s eye and clutter the graph. Graphs should only contain information that adds to the reader’s understanding, and only the information they are designed to convey. The chart on the left in Figure 4 is very distracting to the reader. The image in the background draws the eye away from the information being presented and makes it hard to read the text surrounding the chart. In this case, including the legend actually clutters the image further and does not tell us anything that we cannot already learn.
from reading the title or labels. The legend is also taking up space and is forcing the chart to compress itself to the left. The line of the chart is too thick and blocky, giving the chart a cluttered appearance. The multiple grid lines in the chart itself make the graph very busy and distracting; and they should be minimized or removed from the chart. A better version appears on the right side of Figure 4.

**Figure 4**

![Patients In Waiting Room](chart1.png)  ![Patients In Waiting Room](chart2.png)

**About the author:**

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