How to Set a Baseline Measure

Purpose of a baseline measure: To measure the resulting change that is caused by or linked to some intervention that you have implemented.

Baseline data sources
- **Existing data** - Data you are already keeping on customers, employees or processes.

- **Create a database** – You may have to start keeping track of data that is not currently being tracked. For example, counting the number of phone calls, or measuring the time steps in a process take.

- **Combination of the above** – You may be able to utilize existing data by keeping track of some new component.

- **Survey data** – Use surveys for the data you cannot obtain in any other way, such as opinions or customer satisfaction. Survey data is generally not as accurate as other data, so use it only when nothing more appropriate is available. Survey data can be used in combination with other data.

Make sure you have sufficient data.
The more complicated the data, the more data you will need.

- ## Comparing Baseline with Post-baseline data

- **The challenge of baseline/post baseline comparison:** hold everything constant in your data except the effect you want to measure. In other words, you do not want any trends, noise or effect of anything in your data except your baseline plus the effect of the change that you are trying to measure.

- Make sure that what you are measuring in the post baseline data is the same as what was measured in the baseline data collection process. Specifically:

- Make sure your populations are the same. If your population has changed for some reason beyond your control, you should try to adjust it. For example, if your population age distribution changes and what you are measuring depends on age distribution, you can stratify and re-weight it to match your baseline data.

- *You need to anticipate this when you collect baseline data so that you can collect enough detail. In the case of population distribution, you would need to collect detail on age.*

- For survey data, ask the same questions before and after. Survey responses are very sensitive to working. Slight word-smithing can change responses. Slight factors like the location of questions within a survey can change responses.

- If there is a time trend or other things going on to affect your data between baseline and post baseline collection, regression analysis may be necessary to isolate the effect of the change you want to measure.

MOST IMPORTANT: Think carefully while you are setting up your baseline. Plan exactly how you will calculate the effect of the change you are trying to measure to make sure you are measuring everything you need. It is usually too late to go back and correct things if you have left something out

Tips to Better Data

♦ **Understand Variation.** There is variation in everything. It's dangerous, if not irresponsible to make changes based on a single observation. Also, be careful about assigning meaning to rankings. There will always be a top and bottom and those above and below average.

♦ **Begin with the end.** Whether you're doing a customer survey or using a checksheet to track errors, determine in advance how you will use the information. This enables you to make good choices in what data to collect (don't waste time collecting data you won't use). Also, knowing what message you want to communicate helps you select the right tool.

♦ **Choose the right communication mode.** Choose the right graph to communicate your desired message. Run charts, pie charts and bar charts are all good modes of communication, but rarely interchangeable. Just because your software lets you make certain graphs from data, it doesn't mean it's the right graph. Don't use a graph when words will do the job better.

♦ **Keep it simple.** Avoid redundant and not-data ink on graphs. Don't get overcome with all the "gee whiz" software options. If the data isn't interesting by itself, ask yourself if you've got the right data. Statistics guru Edward Tufte calls this "Chartjunk".

♦ **Tell the truth.** It's easy to alter perceptions of results by changing scales on a graph. You can make tiny difference look huge by adjusting the scales. Also, be sure to compare apples to apples. Can you say that state employees have above average salaries by comparing their salaries to those of workers in fast food restaurants?

♦ **Implement sound collection methods.** If you need a random, representative sample, make sure it's truly random and representative. Processes that allow self-selection by respondents aren't random samples and often aren't representative of the target population.

♦ **Be consistent.** When collecting data, use consistent methods and processes. For example, let's suppose you established a baseline of the number of state employees who go out to lunch by counting them on June 10, 11, & 12 from 11:00 – 1:00 in from of Anthony's. Then, when you wanted to see if the number of lunch goers had changed you counted them on July 21, 22, & 23 from 11:30 to 2:00 at McDonald's, you would have a flawed, inconsistent process.

Expose the "Ugly". Data collection never goes perfectly. Say what went wrong or where you have concerns. For example, suppose in the lunch goers example, you were consistent with your process, but had to change a date of collection because there was a state employee conference in town. Be sure to communicate these kinds of situations. The same goes for questions, that despite pre-testing, turn out to be flawed. Lastly, double check the data. If data you're observing makes you say, "can this be right?", check it out. It's not difficult to have errors in data collection or recording.

Creating Baseline Measures

Sample baseline measurement

Ideas that save dollars

The majority of the lights in an office building cannot be turned off at nights and weekends. In the financial office alone there are 286 fixtures that have no switches to turn the bulbs off.   The employee suggests switches be installed so that the lights could be turned off during the evenings and weekends.

Good questions to ask:
♦ How much does it cost today to have the lights on 24 hours?
♦ Who might know that information?
   ♦ Financial office or building or facilities coordinator
♦ How could we calculate the potential savings?
♦ How many fixtures would be turned off?
♦ How many hours would the fixtures be turned off during the year?
♦ What is the cost per minute or hour to have one fixture on?
♦ # of fixtures times the cost per minute/hour times the (# of hours the fixtures would be off per year)
♦ 286 fixtures X \$.06/hour X ((13 hours X 5 days) + (24 hours X 2 days)) X 52 weeks

Assignment
Ideas that save dollars

Scenario 1: We currently provide employees and customers with several publications in paper format.   Today 1300 copies of The Journal are printed 4 times a year and each copy costs \$.08. We also print the Gazette monthly. Propose using the Intranet/Internet/Email for distribution of publications. We think we could reduce the number of copies of both publications by 50%. Some publications are already on the intra/internet or could easily be added. Employees can be sent an email message with a link to the information. Customers could access the publications on our website. Printed materials can still be produced, but in limited quantities with a more centralized distribution/posting point (i.e. several copies at reception desks, bulletin boards, etc.) Offices with limited computer access for employees can still use paper distribution to ensure employees are receiving needed information.

Help this team document at baseline measure for dollar savings.

Scenario 2: To save energy which translates to dollar savings, turn off PC monitors when they are not in use. The agency has 350 PCs and think savings would add up quickly. Most monitors are turned off at night so we would be looking at savings during the work day hours only.

Help this team document a baseline measure for dollar savings.

Ideas that save time

Scenario 3: Recommend changing the (P-5) attendance report to an electronic form. This would save time. The timekeeper at this time manually inputs the employee's time and calculates the totals. With an electronic form mistakes would be eliminated with formulas and would improve accuracy.

Help this team document a baseline measure for staff time savings.

Hints:
♦ How many people are involved today?
♦ How much time does each person spend on this task?