The how's and why's of survey research

GETTING THE MOST VALUE THROUGH AN EFFECTIVE SURVEY RESEARCH PROCESS

SPSS®

Executive summary

Organizations today rely on survey research to gather much-needed business intelligence. Surveys can help you understand customer preferences about a particular product, gauge employee satisfaction, identify market opportunities and more.

But survey research is much more than simply asking someone a few questions. It's a multiple-step process with a clearly defined protocol at each step. In order to get reliable results from your survey research, you must be able to plan the survey research project, collect data, access and manage the data easily and report the results. And for your survey research project to be a success, you need to share your results with the decision-makers who can act upon them.

In order to be effective, surveys need to be:

- **Clearly defined —** before beginning, you need to be able to state the goals and objectives
- **Easily completed —** the respondents must be able to easily understand and follow your questions
- **Smoothly processed —** before you can begin analysis, the data must be clean and valid
- **Thoroughly analyzed —** to get useful, reliable results, you need to be able to thoroughly analyze your data
- **Timely —** the time between planning and deployment must be short enough to make a difference to your organization

This white paper discusses survey research by breaking it up into a seven-step process — and clearly details how to maximize your efforts every step of the way. At each stage, it also shows how technology can improve your results and make the entire survey research process easier and more effective. The examples provided are commercially oriented, but also apply to the public sector.

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Why survey research is important

Organizations conduct surveys to find out the characteristics, behaviors or opinions of a particular population. They seek to answer specific questions about the surveyed topic related to "why," "who," "where" and "what." Survey research helps you:

- **Gain much-needed business intelligence.** Frequently, the information you need to understand your customers or employees doesn't exist. You can learn more about them through survey research.
- **Create more value.** Consumers are demanding more value for their money. Organizations are becoming more "customer-driven" in order to respond more quickly and accurately to the market's demand. Needs assessment and satisfaction surveys provide this valuable information.
- **Face increased competition.** As more competitors enter the market, organizations look for ways to differentiate themselves. Surveys on consumer perceptions of the market and evaluation of competing products help address this issue.
- **Combat shrinking markets.** More competitors mean a potentially smaller share for each organization. Organizations fight to maintain and grow their market share. Surveys on market needs and customer satisfaction help identify opportunities for future products and services, along with areas at risk of customer attrition.
- **Increase ROI on your data investment.** Most organizations are looking to improve the value and return on their data investment. By merging your survey research data with customer data collected through transactional systems or other data sources, you can extract even more value from the data.
- **Increase profitability**. Businesses are looking for ways to reduce costs, retain customers and minimize employee attrition to increase profitability.

Areas that benefit from survey research:

- Satisfaction measurements
- Customer/employee profile census
- Customer retention
- Complaint tracking
- Product features desired
- Medical errors
- Patient outcomes
- Viewer/readership interests
- Assess program effectiveness
- Customer acquisition

Popular questions that survey research attempts to answer:

- What is most important to customers, employees or patients?
- What do people want or need in terms of programs, products or services?
- Who is our customer?
- How can we compete in the market most effectively?
- Are we providing value to our members or customers?
- What areas need improvement?
- How can we improve our programs, materials, products or services?
- What are the brand's perceived strengths or weaknesses?
- Where should resources be directed?

What exactly is survey research?

Some people think that doing a survey is simply asking questions. It's actually a process. When survey research is done correctly, it gives you information that you can act upon, based on good data.

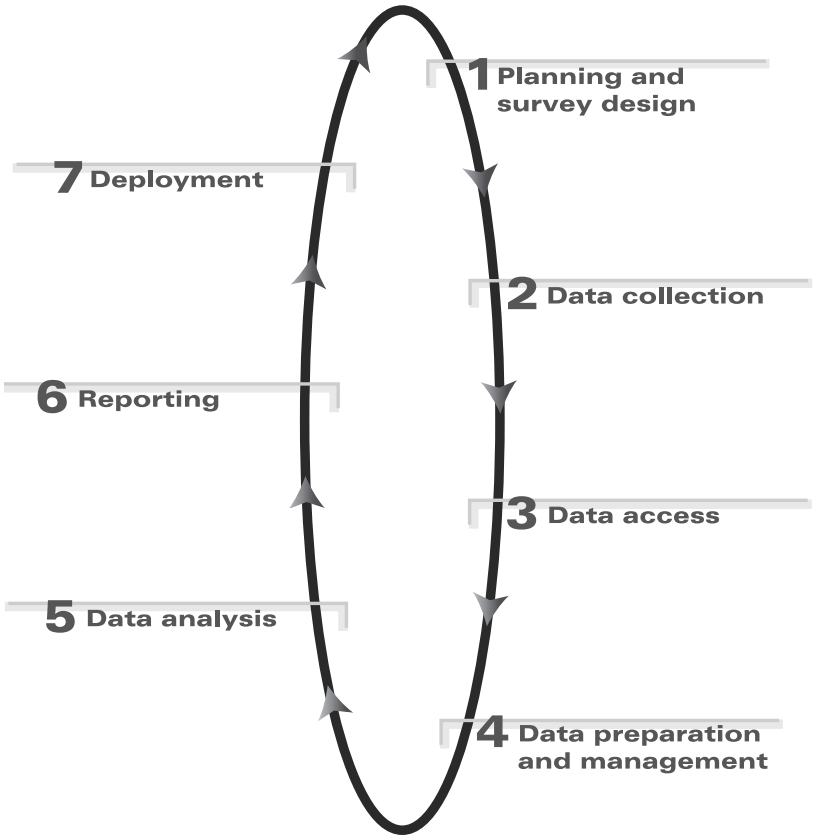
The information you receive from survey research enables you to make better business decisions, so you can manage your business more effectively. It can help you meet your objectives, such as capturing more customers, retaining employees or reducing medical errors.

However, your survey research project can fail if it is implemented badly at any stage. Some of the common mistakes that lead to bad data are poorly asked questions, data that are dirty or entered haphazardly, and a process that takes so long that you can't take action or the data become old.

The seven stages of survey research

Survey research can be divided into seven steps, as shown in the graphic below. In order to be successful, survey research needs to be implemented well at every step. Problems at any step can lead to incorrect results.

- Step 1: Planning and survey design
- Step 2: Data collection
- Step 3: Data access
- Step 4: Data management and prep
- Step 5: Data analysis
- Step 6: Reporting
- Step 7: Deployment



The basics of a survey

Though there are many methods that you can use to collect survey data, such as in person, over the Internet and by phone, the fundamental nature of survey research is the same for all.

As part of the research process, you need to define your population. For example, this could include current members of a medical association or people who have used a credit card to purchase items in a particular store within the past six months. If you were to study every member of that population, your research would be called a census. However, conducting a census is usually prohibitively expensive and time-consuming.

Most survey research efforts involve studying a sample of the population, which is found using probability methods. The sample must be large enough to attain adequate precision — but not too large. As your sample size goes up, you can actually get shrinking returns on precision. At a certain point, you risk wasting resources on too large of a sample for minimal increases in precision.

In addition, when you select your sample, you need to make sure that the people who don't respond are similar to those who do respond. Otherwise, your results will be skewed.

In order to gather information, you use a questionnaire or survey to ask your sample population a set of standardized questions. You can do this through an interview or self-administered surveys. Once you collect and analyze your data, you then report and deploy the results.

One thing to consider is that every survey you conduct is unique, either in goals, target population, questions or how the results will be used. The same questionnaire used on the same population a year later is still different, because it is a year later. The world may have changed quite a bit in that year, or it may not have. However, you won't have a dependable answer until the new survey is completed.

Step 1: Planning and survey design

Define your survey objectives and goals

Before you get started, you need to determine your goals, budget and resources — in terms of money and expertise. No survey project should move very far forward without a clear statement of the purpose and goals of the survey.

If you don't know why you and your organization want to conduct the survey, you may be collecting unnecessary data. Make sure there's a real purpose for this effort. When questioning your organization, if you get an answer such as, "We do it every year," dig for the real motivation.

Once your objective is developed, you can refer to your mission throughout the survey process whenever you face roadblocks. Also, the exact goals may be modified as the survey planning proceeds. For example, if the budget is reduced, less information may be collected, so not every goal can be met.

Always write out explicit and specific goals so you can refer to them and share them with your organization. The objectives should be as clear as possible. A goal such as, "We want to understand why customers of ABC Bank are satisfied" is too vague. Instead, you need to think about the particular issues that you wish to explore and measure. For a bank, these issues might be satisfaction with service, interest rates offered, competitive offers, hours of operation, etc. Once you have clear objectives, you can begin to formulate your questions more easily.

Outline your research
The next step is to develop a plan to implement your mission. Be prepared to know which statistics you'll need to run for your analysis, along with what initial relationships and patterns you expect to find.

Establish a project budget
Mapping an action plan helps you justify your study and budget. It also helps you determine the scope and size of your survey. Before beginning a study, many organizations must prove that the research has a viable chance of producing results. Be sure to ask:

- How much will the survey cost?
- How long will it take to complete the survey and produce results?

Typically, the major costs of a survey are data collection and data entry. Some methods, such as e-mail or Web-based surveys, can have a lesser costs-per-returned-questionnaire.

Plan your schedule
For your first few surveys, assume they will take longer than you expect. If you're creating a new survey from scratch, allow yourself extra time to complete the process. For new survey projects with mail surveys, it often takes months from start to finish. You can reduce the total time dramatically by using existing questionnaires and electronic methods of data collection.

Don't shortchange the time needed for questionnaire development, pretesting and analysis. Also, be sure that you don't shortchange the reporting end of the process, which is often rushed. Try to anticipate what tables and graphics should be constructed to get a head start on the tasks.

Define the population
You need to consider your population before you can develop questions and format your survey. Some things to consider are your population's age, education and attention span. For example, a young child may not understand complex questions, or older respondents may not understand new phrases or jargon. Other respondents may be unable or unwilling to devote much time to a survey.

Estimate the required sample size
If the sample size is too small, you risk not finding any significant results and will have to start over. On the other hand, if the sample size is too big, you will waste money because a smaller sample size would be sufficient. You can use software to determine a reliable sample size for your project.

Select a method of data collection
As you plan a survey, you need to determine which method — or methods — you should use to collect data from respondents. Some options include by telephone, by mailed questionnaire, by face-to-face interview, by e-mail, over the Internet or by using other electronic methods. Sometimes, it takes a combination of methods to get the best results.

The method you use depends on factors such as:

- The type of population to be surveyed
- The method you use to get a representative sample
- The types of questions to be asked and data collected
- The funds and personnel available

Determine how you will use the results

One part of the planning stage is thinking about how you will use the results. Some things to consider include:

- The type of analysis you hope to do
- What reports you will write
- How the information will be used

Often, people want to use the information they collect to change policies, practices, products or procedures to increase their effectiveness. However, if the information you collect can't be used to support potential decision-making, then it probably shouldn't be collected in the first place. Your objective when creating survey questions is to keep the survey as brief as possible.

For example: if you were surveying commuters about their trip to work on public transportation, it only makes sense to ask them about their potential use of a new subway line if your survey is intended to determine potential demand for a new subway line. Otherwise, if you're only asking that question because you're interested, then that question should be dropped.

Write the questions

The key to a successful survey is to ensure that your questions are concise and easy-to-understand. This way, you will get valid and reliable information. No matter how well other features of the survey are designed and executed, poor questions will reduce the value of the data gathered.

Use well-written and tested pre-existing questions as much as possible, especially from surveys done in your specific industry or topic area. You can find well-written questions in question libraries. Some software programs have question libraries built in, which can help guide you through professionally written questions. Keep in mind that no question is usable in every situation — so you have to examine the questions for your particular survey research. Pretesting questions is the best method to determine whether a question is correct for your own survey. If you are going to write questions on your own, you might consider taking a training course to learn proven methods for question writing.

Design the questionnaire

A poorly formatted survey can deter people from responding to your survey. It can also give skewed results. There are two key goals to keep in mind when designing a questionnaire: minimizing measurement error and reducing non-response.

Your questionnaire should be constructed so that:

- Respondents are motivated to complete it
- The questions are all read correctly and thoroughly
- Respondents understand how to respond to each question or how to skip with clear instructions throughout the document
- Returning the questionnaire is an easy and straightforward task

Pretest the questionnaire

A pretest is a formal review of a questionnaire and the associated data collection methodology. It is used to discover potential problems and make improvements, so you get the best possible results. Typically, no more than 75 respondents are needed for a pretest. The pretest population should be similar in characteristics to the population of your actual survey.

By conducting a pretest, you can:

- Find problematic questions and get the opportunity to rewrite them
- Estimate the cost of data collection
- Estimate the response rate — and thus the necessary sample size
- Estimate the distribution of key variables
- Determine the effectiveness of interviewers

Step 2: Data collection

Once you have planned and designed your survey, you can begin collecting the data. In order for this step in the survey research process to be a success, you need to collect clean, unbiased and up-to-date data in an efficient manner.

Methods of data collection

There is no best method of data collection. Each has its strengths and weaknesses. For example, surveys by mail have relatively low costs, but also have typically low response rates without considerable efforts at follow-up. Surveys by e-mail may have an even lower cost, but can't be used for the general population, because you can't assume that everyone has access to e-mail. Face-to-face interviews are often prohibitively expensive, but the lengthiest questionnaires can be used with this method. Electronic methods, in general, can be used to collect data more rapidly.

Failure from non-response

Many surveys fail to collect data from an appreciable fraction of those contacted. This problem is called "non-response." Non-response, by itself, should not be a cause for concern; but when non-respondents differ from respondents in relevant ways, you have to account for the bias. Software can help you analyze missing data patterns and account for these non-response variables.

If you find that respondents are systematically different from the non-respondents, you can weight your results so that the sample matches known population values. Then, you can draw conclusions more carefully due to missing responses.

Failure from item non-response

Another problem you might encounter in the data collection stage is "item non-response." This is when people who do respond, fail to answer an individual item. This can be avoided completely through electronic surveys. You can use software that creates rules that won't allow respondents to continue if they don't answer a question.

Step 3: Data access

The objective of the data access stage is to read the data into analytical software for further processing. Data can come from a variety of sources, including manually entered paper surveys and online surveys. This stage can be very easy, if the software that you were using for data entry is compatible with your analysis software. If your programs aren't compatible, you might have to reenter in your data, which increases the chances for data entry errors.

Step 4: Data preparation and management

The goal of the data preparation and management stage is to get the data ready for analysis. When examining a new data set, perform data verification and cleaning, which helps ensure that your analytical results are accurate. For example, if you have gender data in which "1" is for male and "2" is for female, your data shouldn't have "3" as a response.

Using data collection software during this step can help you save time by streamlining the process. If your respondents are entering in their own data through electronic surveys, you can set up rules that only accept approved responses, such as "1" or "2." Or, if your data is being entered manually, software can detect and fix discrepancies. If you don't have a way of verifying and cleaning your data, you run the risk of analyzing bad data — and getting bad results.

Setting up the "codebook"

During the data preparation and management step, you'll also want to set up "codebook" information, which is any variable definition information. This includes variable names, variable formats and descriptive variable labels (data such as gender or income level) and value labels (numbers assigned to data, such as "1" for male, "2" for female). This information is stored in the data "dictionary."

Setting up multiple-item indices and scales

You'll also want to set up multiple-item indices and scales, which combine multiple indices into a single, multiple-item index for projects such as customer surveys. This provides a more reliable measurement of interest than a single question can.

Other goals of the data preparation and management step include:

- **Transforming your data.** This helps you get your data in a structure and form needed for analysis.
- **Filling in missing data.** By replacing missing data values with estimates, you ensure better summary statistics.

Step 5: Data analysis

Data analysis lets you extract useful information from your collected data so you can make informed decisions. Every piece of your acquired data has intrinsic value. The key is extracting this value. You are able to better understand your audience, whether it's customers, employees or prospects, by analyzing the most intimate details.

Different statistical procedures are appropriate for variables depending on what you want to learn and the level of measurement of the variable. Whether you are running basic analysis, such as frequencies, or more sophisticated analysis, special software can help you get the most value from your data. When choosing an analytical package, look for one that has a breadth of analytics and a "statistics coach" if you want guidance through the analytical process.

During data analysis, you should keep track of the analyses you run. When performing complex analyses, keep a record of the procedures you perform or the way you created new variables. This record will help you reconstruct your analyses if any questions arise when you write your report.

Descriptive data analysis

Before running data through predictive models, you first need to understand the data you're going to process. This is descriptive data analysis. It lets you see what's going on, based on your current data. For example, you can discover the satisfaction level of your average customer.

In descriptive data analysis, you want to understand your data by asking questions such as "What's the distribution of my data?" or, "What does the average person in my survey score?" The data analysis stage can be time-intensive. When choosing an analytical software package, you want a solution that allows to you to perform complete analysis, and gives you the ability to dig deep into data — quickly.

The goals of descriptive data analysis are to:

- Summarize your data
- Get an accurate description of the variables of interest

Inferential data analysis

Many organizations are doing descriptive analysis to learn about the past. You can take this analysis to the next step by learning about the future. Inferential data analysis helps you predict future outcomes, such as customers most likely to be satisfied or employees most likely to leave your organization.

If you're doing descriptive analysis but not inferential data analysis, you've done the most difficult part of survey research — without taking full advantage of your data. To do inferential data analysis, you need to build a prediction model (such as a regression model) for the outcome you're trying to predict, such as customer satisfaction. The model will show which predictors are important and will weigh the predictors by level of importance. For example, if you are trying to predict customer satisfaction, you can determine the importance of factors such as the length of time a person has been a customer, the impact of various promotions, geographic location and more.

Step 6: Reporting

Once you have analyzed your data, you need to report the results. The goal of the reporting stage is to create easy-to-understand results from your data analysis that decision makers can quickly understand and act upon.

It's important to display results that highlight the information you want to emphasize. You want to get your point across clearly with reports that are easy to read and easy to interpret. If your audience doesn't understand the point, then your thorough analysis is wasted.

Reports can be generated as Microsoft® Word documents, presentations, or tables, or through the Web on your organization's intranet. To help your end users make the most of the results — and take less of your survey researcher's time — use software that lets you create interactive, customizable reports. This way, each person can easily interact with the results.

Step 7: Deployment

When deploying your results, you put the reports in the hands of people who can use them to make a difference. This helps you increase the return on your analytic investment. Your reports are most effective when you tailor them for your target audience.

As a reminder, the goal of survey research is better decision making. Don't do the research if you are not going to deploy or take action on the results.

Take action on the results

Let your audience interact with the reports. Reporting software lets you and others view graphs and charts and interact with tables. It gives each viewer the ability to pivot rows, columns and layers and drill down to see results in meaningful ways. This saves time, because you won't have to create a new report each time someone wants a different view of the information. Now, each person can create the view they want on their own, allowing them to draw conclusions and take action on this information received.

Share information easily

With the right software tools, you can easily share information you've gleaned from your survey research with customers, partners and the public over the Internet. With this software, others can easily view your reports using a standard Web browser.

The role technology plays in survey research

You may already be doing survey research informally by talking with customers and noting the answers. Throughout this white paper, you've seen how and where technology can help you get more reliable results, in a more time-efficient manner — for better decision making. By using specially designed survey research tools, you can improve accuracy and get better response rates. These tools also help you find answers that are statistically significant. By using this technology, you can understand what your target audience wants — and stay ahead of the competition.

Technology improves the survey research process at every stage

Step 1: Planning and survey design

- **Determine appropriate sample sizes** objectively
- **Justify your budget** through reports and presentations
- **Find the proper balance** among statistical significance and number of respondents
- **Write questions quickly and easily** with a library for frequently used questions
- **Create surveys easily** with visually driven and customizable tools
- **Build surveys that save you time later in the process** by building your data definitions and creating validation rules

Step 2: Data collection

- **Eliminate manual data entry processes** by automatically collecting data through electronic or Web-based surveys
- **Get a higher response rate** with user-friendly response methods such as web surveys
- **Combine data collected via multiple methods** into a single source easily
- **Speed up the data collection process with data entry software**, so you can get results faster

Step 3: Data access

- **Reduce data access time to seconds** by using data entry software that is compatible with your data analysis program
- **Avoid having to redefine the data** by using compatible data entry software

Step 4: Data preparation and management

- **Provide clean data for immediate analysis** by using validation rules when building your survey. Validation rules help you avoid data entry mistakes.
- **Eliminate redundant data preparation** by setting up variable labels such as "1 is male" and "2 is female" with your survey building software.

Step 5: Data analysis

- **Produce reliable descriptive statistics** to get a clear picture of your data
- **Predict future behavior and satisfaction** with predictive models
- **Determine what analysis to run** with a Statistics Coach
- **Interpret results easily** with a Results Coach

Step 6: Reporting

- **Produce customized report views** to best showcase your results
- **Produce easy-to-understand reports** for a non-analyst audience
- **Create interactive reports** that let people easily get the information they want
- **Easily export your results** to popular software programs

Step 7: Deployment

- **Distribute reports quickly** via a browser to everyone who needs them
- **Efficiently deploy multiple surveys** or iterations of your surveys
- **Produce results** with which you can take action
- **Allow people to easily interact** with your reports
- **Control the security and confidentiality of your results** by determining the level of access for each viewer

About SPSS Inc. survey research products

Whether you need an entire, end-to-end research solution or help for just a single stage, SPSS Inc. has the survey research tools to make surveys more successful.

SPSS Business Intelligence division survey research solutions include:

- **SamplePower®** — ensure cost-effective, reliable research by finding the best sample size for your research
- **SPSS Conjoint™** — get a realistic way to measure how individual product attributes affect customer and citizen preferences
- **SPSS Data Entry™** — survey design and data collection software — helps companies quickly and securely gather the clean, complete data they need through paper, network and Web-based forms and surveys. SPSS Data Entry is available with Web and server capabilities depending on your needs.
  - **SPSS Data Entry Builder™** — the fundamental product of SPSS Data Entry; delivers everything you need for fast, efficient survey and form design, including powerful rules that help you get the data you need from your surveys
  - **SPSS Data Entry Station™** — get faster and more economical data entry in a multiple-user environment by adding entry-only stations to accommodate your entire staff

  - **SPSS Data Entry Enterprise Server™ —** combines traditional data entry methods with Web technology for the total solution to your data entry process; you can create any type of survey (print, phone, Web, interview), then collect and save all your data to a central file that's accessible by your entire data entry staff

- **SPSS Consulting Services —** save time and money by bringing in SPSS survey research experts to help you at any stage of the survey research process
- **SPSS Training Services —** expand your knowledge of the survey research process and related SPSS software through courses held at SPSS locations, on-site training or Web-based and computer-based distance learning. Courses include Survey Methodology and Survey Analysis
- **SPSS® Base —** enterprise-strength statistical analysis software — offers a wealth of proven, scalable statistical techniques for analytical reporting and predictive modeling
- **SPSS Missing Value Analysis™ —** fill in the blanks to draw more valid conclusions — critical tool for anyone concerned about the validity of data, it offers six tailor-made displays for detecting patterns in your missing data
- **SPSS Regression Models™ —** enable you to make better predictions using powerful regression procedures
- **SPSS Advanced Models™ —** provides a powerful set of sophisticated univariate and multivariate analytical techniques for solving real-word problems
- **SPSS Exact Tests™ —** analyze your data more completely by reaching correct conclusions with small samples and rare occurrences in large databases
- **SPSS Tables™ —** effectively communicate results by condensing the results of multiple-response questions into a single table
- **SmartViewer® Web Server —** analytical report deployment solution — enables your organization to securely share interactive analytical reports with decision makers over the Web

About the SPSS Business Intelligence division

The SPSS Business Intelligence division helps people solve business problems using statistics and data mining. This predictive technology enables our customers in the commercial, higher education and public sectors to make better decisions and improve results. SPSS Business Intelligence division software and services are used successfully in a wide range of applications, including customer attraction and retention, cross-selling, survey research, fraud detection, enrollment management, Web site performance, forecasting and scientific research. The SPSS Business Intelligence division's market-leading products include SPSS,® Clementine,® AnswerTree,® DecisionTime® and SigmaPlot.® For more information, visit our Web site at **www.spssbi.com.**