DATA PLAYBOOK

CHARLES AND LYNN SCHUSTERMAN FAMILY FOUNDATION

A Measured Approach.

For purpose-driven organizations, data means more than just numbers and graphs–it is about understanding what more you can do to change lives and strengthen communities. The Data Playbook provides the building blocks you need to put data to work for your mission.

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Introduction

Consider the role data plays in for-purpose work and preview what the Data Playbook has to offer.

Data Playbook: A Measured Approach to Understanding and Telling Stories of Impact

Repair the World has one goal: to make service a defining element of American Jewish life. To achieve its mission, Repair relies on its programming to engage thousands of young adults every year in meaningful service opportunities. But the real magic of their work comes when they are able to inspire someone to go from one-time participant to serial volunteer.

So how do they accelerate this process? In a word: data.

Using a series of surveys and evaluations, Repair learned that once an individual participates in two volunteer opportunities, they are more likely to continue engaging in service regularly. Repair now has the knowledge it needs to direct its resources with confidence, make progress toward its mission and share this data for the benefit of the field in which it works.

Many purpose-driven organizations, like Repair the World, are committing more brainpower, time and money to gathering data, and nonprofit and foundation professionals alike are recognizing data as requisite to becoming stronger stewards of their missions and resources.

As Jake Porway, the Founder and Executive Director of Datakind, says: “In the 21st century, the social impact organizations that embrace data and technology to amplify their impact, learn about their work, and adjust in real time, will do far more for their work and their issues than we may have ever seen before.”

And yet, there is a difference between having data and using data. Recent surveys found that most nonprofit professionals (94 percent) did not feel that they were using the data at their disposal effectively, and most foundation professional (75 percent) did not feel that evaluations provided any meaningful insights.

It is in this spirit that our Foundation developed a new interactive resource to help more organizations harness the power of data to make smarter decisions, gain new insights and accelerate progress for the collective good of our communities.

The Data Playbook is designed to help you make sense of the data you already have and to build upon it. In it, you will learn about what data you need; how best to collect it; how to analyze it to meet your needs; how to present it; and how to use it to inform your work and tell your story. Whether you are looking for guidance on how to build a post-program survey, initiate conversations about metrics at staff meetings, make charts in your reports more compelling or hire a data expert, this resource has something to offer.

We developed the Data Playbook because we know firsthand that using data is easier said than done. Grounding organizational decision-making in data means changes to systems and work flows, to individual mindsets and organizational cultures. It is a shift that takes time, money and commitment from grantees, community stakeholders and funders who need to invest in building data capacity. It takes a willingness to pull back the veil and be honest about what is working and where we may be missing the mark.

Even more, in many social change fields, our work is all the more challenging because we may be trying to measure things that are not immediately quantifiable. Our Foundation, for example, supports and creates initiatives designed to strengthen the Jewish identities and leadership capacities of young adults, which are difficult to gauge in real time and take significant resources to measure over long periods of time.

Over the last few years, we have made a commitment to and investment in pushing forward on our data journey. We have developed a Jewish Leadership Index to help measure changes in Jewish identity and leadership over time, are investing in surveys measuring the impact of our programs, are working closely with our grantees to develop their data capacity and are partnering with others to support field-wide research.

We know the challenges are real and there is more work to be done, but we have learned that the value of working with data—particularly the right data—transcends them all. At its heart, data tells a human story. Behind every metric and every survey response is a real person who is looking to us to make a real difference in their life. Indeed, data illuminates the gaps we could not see before and challenges us to work collaboratively to fill them.

By turning to data, Repair the World was able to strengthen their programmatic work and take an important step toward ensuring more young Jewish adults are out creating a legacy of civic and social engagement. We are all capable of gathering similar insights, and we owe it to our participants and the communities we serve to do so.

After all, our work is critically important for shaping lives and strengthening communities. We are investing in the social and economic fabric of our neighborhoods, helping those in need at home and overseas, championing inclusion and diversity, and securing a more equitable future for our children and grandchildren.

Now is the time for all of us in the purpose-driven sector to commit to using the data at our fingertips to advance the broad range of fields in which we work, from education to health care, leadership development to social justice work and much more.

We hope that the Data Playbook will serve as a field-wide resource for organizations and foundations of all sizes, whether you are just getting started on your data journey or are looking to refine your approach. We hope you will use it to inspire discussion about, experiment with and ultimately leverage the power of data to more effectively tell the story and impact of your work. And we hope we can serve as partners in learning and that you will share any thoughts, challenges and successes as you use the Playbook.

We are in this together. Let's get started.

Rella Kaplowitz

Rella Kaplowitz is the Program Officer, Evaluation and Learning at the Charles and Lynn Schusterman Family Foundation and the author of the Data Playbook.

What Data To Collect

Determine your purpose for collecting data with help from your organization's strategic goals.

Step 1: Define Key Questions

Before you start collecting data, it is important to clarify what information you hope your data will provide and how you will use that data. The best way to do this is to identify specific questions about your work that will guide you throughout your data collection process. To help identify what your guiding questions should be, turn to your organization's strategic plan or your program logic model.

- **Use your strategic plan.** Your strategic plan outlines the goals of your organization and offers tactical strategies for achieving those goals.
  - Goals define "what" you are seeking to achieve
  - Strategies define "how" you will do it

In order to identify the guiding questions that will best serve you, make sure that your goals and strategies are as **SMART** and **CLEAR** as possible.

SMART Goals are:

- **Specific** – clearly defined
- **Measurable** – easily recorded, scaled and compared
- **Attainable** – not only possible but reasonable
- **Relevant** – reflect your organizational mission
- **Time-bound** – able to be achieved in a fixed timeframe

CLEAR Goals are:

- **Collaborative** – achieved in partnership with others
- **Limited** – possess a defined scope and duration
- **Emotional** – harness the energy and passion of the team working to achieve them
- **Appreciable** – smaller goals contribute to a bigger objective
- **Refinable** – adapt to rapidly changing environments

Once you have defined **SMART**, **CLEAR** goals, you can move on to identifying your guiding questions.

Example

From Goals to Guiding Questions

Goal ("what"): Increase the number of young adults who take a gap year between high school and college to volunteer.

Strategy ("how"): Engage rising high school juniors and seniors in summer volunteer programs.

Guiding Questions:

- Have participants' feelings about the importance of service changed as a result of these programs?
- Are participants more likely to take a gap year to volunteer in between high school and college?

DON'T HAVE A STRATEGIC PLAN?

Here are some resources to get you started:

- Explore your theory of change
- Facilitate a strategic planning conversation
- Develop a strategic plan
- Learn some tips for successful strategic planning

DATA AT WORK: CREATE YOUR DREAMS

While a logic model is frequently seen as a dry, institutional program-planning tool, it can also be used as a storytelling device. Create Your Dreams uses its logic model to visually describe how it nurtures the talents and aspirations of students living in underserved areas in Atlanta, how the organization views success and how it is measuring its progress along the way.

DATA AT WORK: HILLEL INTERNATIONAL

Hillel International works to inspire every student to make an enduring commitment to Jewish life, learning and Israel. Based on its strategic goal of excellence in student engagement, Hillel asked a key question: What is the "science" of Jewish student engagement and how can campus Hillels have the greatest impact on students? Guided by this question, Hillel launched its Measuring Excellence project in 2014 with 18 participating Hillels.

Hillel developed standard metrics and outcomes against which campuses could measure their impact and a centralized system for collecting and storing the information. Through collecting and analyzing the data, Hillel has been able to identify the best practices for maximizing Hillel's desired outcomes among college students. For example, results showed that participating in even one Hillel activity relates to better outcomes. Measuring Excellence now has 82 Hillels across its global network participating in ongoing measurement of engagement on campus.

Use your logic model. A logic model is a framework for considering how your different projects, initiatives and programs contribute to your organization's goals and how you can track your progress along the way. Here are some questions to ask yourself as you build your logic model:

- **Impact:** What measurable change are you seeking to achieve in the long term?
- **Outcomes:** What measurable change are you seeking to achieve in the short to intermediate term? What would indicate that you are on your way to accomplishing your long-term goals?
- **Outputs:** What tangibles can you measure immediately following the program?
- **Activities:** What are the high-level steps that you need to take to successfully run the program?
- **Inputs:** What resources (money, staff, technology) do you need to invest in the program for it to be successful?

Note: Typically, you build a logic model in reverse order, beginning with impact and ending with inputs.

Example

The goal of your organization is to increase the number of young people who take a gap year between high school and college to volunteer. You believe that by engaging rising high school juniors and seniors in short-term service programs, you will see more teens go on to participate in a year-long service program after graduating high school.

One of your signature programs provides teens the opportunity to volunteer at summer camps for low-income families. Volunteers commit to 2 or 4 weeks to help run the camp—coordinate activities, oversee meals, run field trips to local museums and provide afternoon tutoring for students who need extra summer reading support.

To build the logic model for this program, start with the impact column, then move to outcomes, outputs, activities and, finally, inputs.

Logic model example:

Inputs	Activities	Outputs	Outcomes	Impact
1 staff person	Recruit program participants Register participants Place participants in summer volunteer programs	150 local teens volunteer for a 2-week period 150 local teens volunteer for a 4-week period	Teens have more exposure to the positive effects of service and volunteerism Young adults feel there is value in engaging in service and volunteerism Young people are more likely to make a commitment to service and volunteerism	Increase the number of individuals who make a commitment to service by taking a gap year between high school and college

Example continued next page »

Example continued

Once you have developed your logic model, look at the output, outcome and impact columns to help formulate your strategic questions:

Guiding Questions:

- Have participants' feelings about the importance of service changed as a result of these programs?
- Are participants more likely to choose a gap year for service in between high school and college?

A note about logic models: You can find many templates for logic models online, and while they all use very similar language, there are some small differences in how the terms are defined and the components that should be included. Choose the template that best fits your needs and the way you think about your work.

Step 2: Define the Measurement Purpose

Once you know what guiding questions you are trying to answer, you need to solidify your **purpose** in collecting and analyzing your data. Drilling down to a specific purpose is important because it will help you determine what data you collect, how you collect it, how you analyze it and how you make the results meaningful in supporting your decision-making.

- **What is the Need?** Your guiding questions will likely indicate the type of need you have for collecting data. Some options include:
  - **Refining models and methods:** e.g., I have several different program models that work to achieve the same outcomes, and I want to know which is most effective.
  - **Making programming decisions:** e.g., I am budgeting for next year and I need to decide how much to allocate to each of my programs, and I want to base this on evidence of success.
  - **Establishing a baseline:** e.g., I want to establish a baseline so I can understand how my programs are impacting individuals over time.

Example

What is the Need?

As part of a strategy to increase the number of high school students taking a gap year before college to volunteer, a signature program gives teens the opportunity to volunteer at a summer camp for low-income families. Teens can choose one of two program models: a 2-week or 4-week volunteer position. To assess these options, your purpose would be to determine if one program model is more effective and why. This would fall under the category of **refining models and methods.**

- **Management or Strategy?** Another consideration as you define what data to collect is whether you are measuring for management or for strategy:

"Think of the question, 'What would you do differently if you have that data?'… Purpose is about how you intend to use the information you gain from measurement to do something differently or effect some change."

JODI NELSON

then the Director of Strategy, Measurement, and Evaluation at the Bill and Melinda Gates Foundation, Stanford Social Innovation Review

EXAMPLE: WHAT IS THE NEED?

- **Refining models and methods:** Students can volunteer for either 2 weeks or 4 weeks. Does volunteering longer have a greater impact on volunteer attitudes about the importance of service?
- **Making programming decisions:** It takes a lot of time to recruit and place volunteers. Are my programs having the intended effect or should I think about reducing the size of the volunteer program?
- **Establishing a baseline:** We make little changes to the volunteer programs each summer. Are we getting better at changing attitudes about service?

- **Measuring for management** focuses on process, efficiency and program or initiative execution. Data to support management decisions is typically output data (e.g., number of participants, number of email clicks) and collected and analyzed more frequently (e.g., monthly). This type of measurement might be referred to as "monitoring."

- **Measuring for strategy** focuses on medium to long-term effects and information needed to support planning for the future. Data to support strategic decisions is typically outcome and impact data (e.g., effects of programs on participant behaviors) and collected and analyzed less frequently (e.g., semi-annually). This type of measurement might be referred to as "evaluation."

For more on the distinction between monitoring and evaluation, check out this primer from Knowhow Nonprofit.

Example

Management or Strategy?

As part of a strategy to increase the number of high school students taking a gap year before college to volunteer, a signature program gives teens the opportunity to volunteer at a summer camp for low-income families. To understand whether the program is successful at influencing teens' decisions about volunteering, the purpose would be to focus on **measuring for strategy.**

- **Qualitative or Quantitative?** A final consideration is what type of data to collect—quantitative (raw numbers, like how many times a day someone brushes their teeth) or qualitative (narratives, like why someone chooses to brush their teeth twice a day). While quantitative data is important for simple calculations and statistical analysis, qualitative data provides important context to help turn your data into a story—in fact, during early stages of a program or initiative, personal stories may be all that is available to collect.

As your programs aim to change **attitudes** about volunteering and also **increase** the likelihood that high school juniors and seniors go on to participate in a gap year volunteering program, you will need to collect **quantitative** data about attitudes and feelings toward volunteering. Because you want to understand the nuance of the efficacy of one program model over another, it would be helpful to collect some **qualitative** data about the experience of participants.

For more on the differences between qualitative and quantitative data (and a tutorial on how to make qualitative data more quantitative), check out The Qualitative Debate from Research Methods Knowledge Base.

DATA AT WORK: ONETABLE

OneTable helps people in their 20s and 30s find, enjoy and share Shabbat dinners together. OneTable relies on both quantitative and qualitative data to support planning and measurement activities.

OneTable uses a unique method of data analysis to inform their growth strategy and focus on their target population—qualitative analysis. OneTable works with a market research consultant to analyze qualitative data from surveys, observations and interviews. This method allows OneTable to understand the needs and values of Jewish young adults in North America, demonstrated by their actions. Learn more about OneTable and their data-driven strategy.

Step 3: Define What to Measure

Once you understand your guiding questions and the purpose for collecting data, the next step is to define what you need to measure in order to answer your guiding questions. If the information is available, it can be helpful to explore what metrics other organizations are using to assess similar programs. If there are no programs to compare and contrast, you can develop your own measures. Regardless, if you have your logic model in hand, look at your output, outcome and impact columns to help you get started.

Use or Modify Existing Measures. At a high level, many programs work to achieve the same goals—for instance, increasing knowledge, changing attitudes or changing behaviors. Using or modifying existing measures can save you the time of developing your own measures and may give you access to benchmark, baseline or comparative data.

There are many resources for finding existing measures. The easiest way to find what is publically available is to search online using keywords like "standard," "metrics," "measures" and "outcomes" with your specific programmatic theme (e.g., volunteer, health, education, advocacy or policy).

In 2016, Guidestar developed the Common Results Catalog, a comprehensive list of all measures in the Guidestar database. If you are struggling with what measures to track, take a look at what similar organizations are using to track progress and results.

Using our logic model, some Common Results Catalog measures that could be useful include:

- Number of young adults who volunteer/participate in community service
- Number of young adults who demonstrate that they have developed positive attitudes toward service

Other helpful sources for metrics include:

- Marketing metrics
- Fundraising metrics
- Impact investing metrics
- Human resources metrics
- Nonprofit management metrics

Develop New Measures. In some cases, it may not be useful or possible to use or modify existing measures and you will need to develop your own. As with existing measures, the best place to start developing your own measures is with your logic model.

Review the outputs, outcomes and impact columns:

- Outputs: What tangible numbers can I count?
- Outcomes and Impact: What exactly is the change I am seeking? How can I measure it?

Pay attention to the language that you use:

- Are you interested in an increase, decrease or simply a change?
- Do you need to measure one indicator or multiple indicators to know if you are achieving your goals?

WHEN MEASURES AREN'T PERFECT

Measurement can be daunting, especially in the beginning. When you develop measures it is easy to get bogged down in process, politics, culture and lack of resources. Understand that your measures may be imperfect. They will likely only tell part of the story or provide limited insight.

When you combine each measurement, however, you will have a more holistic understanding of your work as supported by multiple sources of data. A learning organization builds the collection and use of data for decisions into the very fabric of its operation, which takes time. Learn more about how organizations are still able to use "imperfect measures" to support their work.

- Do your measurements reflect those implied by your guiding questions?

- What other external factors that may not be mentioned in your logic model do you need to consider in order to correctly interpret your measures?

In the case of our example, to determine the success of the program based on the outputs and outcomes defined, you would need to collect data like:

- Number of individuals who register for a 2-week summer program
- Number of individuals who participate in a 4-week summer program
- Attitudes about service before the program
- Attitudes about service after the program
- How likely students are to choose to take a gap year

Key Performance Indicators (KPIs). KPIs are critical measures that help you understand your current level of performance relative to your goal. They are mile markers you can use on your journey to achieving your goals. By defining and consistently employing KPIs, you can make any necessary course corrections if you underperform, rather than waiting until the end of the program to judge your success.

Sometimes KPIs are simply your goals examined in smaller increments. For example, if your goal is to raise the average final grade of a class of students at the end of the school year, you may want to look at grade averages each quarter to see if any progress is being made.

If your goals are not immediately measurable, KPIs can help you track your progress until higher-level measurements become more clear. For example, if you want high school students to be excited about taking a gap year between high school and college to volunteer, you may want to periodically check in with the students to get a thumbs up/thumbs down on how they are feeling about volunteering in general. If mid-way through the summer, no student feels strongly about taking a gap year, you may need to think about a course correction.

You can develop your own KPIs, or there are several repositories of standard KPIs for different industries to guide your decision-making:

- The Ultimate Glossary of Performance Metrics
- KPI Library
- Advanced Performance Indicators

DATA AT WORK: URBAN TEACHERS

Urban Teachers is a teacher training program that believes "good teachers are made, not born." Urban Teachers provides educators with the skills necessary to gather and assess a broad range of student learning data and effectively tailor instruction to every student's needs—and relies heavily on their own data to make it happen.

Urban Teachers has clearly defined outcomes at every stage of their program. To make best use of their data, the staff meets three times a year to review survey results and field observations of program participants to determine what, if any, curricular changes are needed. Read more about Urban Teachers and their data-driven program.

How to Collect Data

Develop a plan, and identify the tools and resources you need to put it into action.

Step 1: Identify Resources

The first decision to make about collecting data is whether you want to use internal resources (e.g., use existing or hire new staff), external resources (e.g., a consultant) or a combination of both.

- **Internal v. External Resources.** There is great value in building and using internal resources to support ongoing data collection and analysis—having data and analysis expertise at your fingertips can help you make informed decisions in real time. However, all organizations need to determine what works best for their unique needs when it comes to deciding how to allocate resources for data collection, analysis and evaluation.

  - **Capacity:** Do you have, or do you want to create, the internal capacity to support this project?

  - **Expertise:** Does your staff have the expertise to effectively support this project? If not, is it worthwhile to build that expertise?

The table below outlines several considerations when deciding between internal and external resources:

Internal Resources	External Resources
Less expensive	Cost-effective, if extra capacity is needed for only a short time
Potential for faster completion of project (no need to wait for consultants who may be working on other projects)	Impartial perspective on the program or work being assessed
Potential to build in-house capacity for data analysis, learning and evaluation	Contract with consultant can include training to build internal capacity
Better understanding of organization and program culture and nuance	Fresh eyes can provide important insight and lead to new ideas and interpretation of results

- **Building Internal Capacity.** You can build internal capacity in two ways: reallocate existing staff or hire new staff. What type of skills and experience will help someone be successful in a role that focuses on data and analysis?

  - **Being "data-minded":** Someone who currently has or can build skills for creating charts, graphs, pivot tables and Excel formulas; someone who is interested in building surveys, exploring data and helping to make meaning out of numbers.

  - **Facilitation skills:** Someone who can work with others to define needs and questions, collect data, translate the results and then work with different individuals or teams to use it.

  - **Communication and storytelling skills:** Someone who understands the many audiences of your organization, both internal and external, and who can help you craft the right messaging and stories with your data.

Start Inside

When deciding how to build internal capacity for data and analysis, first consider whether you are able to reallocate existing staff.

- Who in the workplace has the skills you need or the aptitude to learn?

- Who has the capacity to accept some additional responsibility?

- Who may be eager for a new challenge?

DATA AT WORK: YMCA AUSTIN

In 2015, the YMCA of Austin asked an important strategic question: **How can we increase our membership?** As they did not have, nor did they want to build, the internal capacity, they worked with an external partner who took their member data and created "member profiles," segmenting their constituents by demographics (e.g. gender, age) and which programmatic offerings most interest each group (e.g. family events, sports). Using this information, they targeted potential new members with customized ads based on which member profile they most closely matched. In the first month alone, membership increased by 15% (their goal had been a 5% increase).

SOURCE: UMBEL

If you think you can identify one or several individuals internally, consider how you would shift their current responsibilities to make time for new duties. In addition, understand there will likely be a learning curve for new activities related to data and analysis.

Source New Staff

If you do not have the right people to do this work internally, consider recruiting a full-time or part-time employee. The person you are looking for does not need a degree in data science—perhaps they studied economics, statistics, finance, accounting, business or psychology. You might be looking for someone who can crunch numbers and put together charts and graphs; depending on the level of sophistication for evaluation, you might be more interested in a person who can both understand the data and also interpret it for key stakeholders and other people in the organization.

Do some research on job descriptions others are using to source "data-minded" staff. Look for a variety of backgrounds and experiences. An ideal candidate may indicate experience using keywords like "metrics," "evaluation," "data," "analyst" or "measurement."

When you are ready to interview candidates, here are a few example questions that you can customize to your specific job search:

- "You're going to be running a program and need to develop a post-program survey. What steps would you take?"
- "We just finished collecting a post-program survey. Now that we have all the data, what would you do to make that data useable for us?"
- "Let's say I have data for this (insert a real example), how would you go about presenting it to the board?"

The more real the scenarios, the better you will be able to understand the candidate's thought process and approach to working with data.

- **Choosing an External Partner.** If you are planning to use external resources, it is important to choose the right partner—one who will not only support you in your efforts to answer your strategic questions, but who will also challenge you to think in new and different ways about your questions and your answers.

Developing a Request for Proposals (RFP)

In order to secure the right partner, it is important to write an RFP that effectively conveys your need and what you are hoping to gain from those submitting proposals. We recommend including the following sections:

- **Background:** What contextual information is important for the respondent to know?
- **Need:** Why are you looking for an external consultant?
- **Scope:** What specifically are you looking for a consultant to do for you?
- **Timeline:** When are you expecting the project to begin and end? Are there important dates (e.g., board meetings, staff retreats) where you would like to see interim deliverables?

BUILD YOUR EXCEL SKILLS

Sometimes all it takes to build internal capacity is giving a new opportunity to someone with a data mindset and an aptitude to learn. Microsoft Excel is the best resource for learning and expanding the use of data in your organization.

There are many free tutorials to help build or enhance Excel skills:

- Excel is Fun
- Data Analysis
- Excel for Evaluation
- Analyzing and Visualizing Data with Excel

- **Deliverables:** What exactly do you want this consultant to provide for you? Paper or electronic presentations? A project plan and timeline? Interim and final reports?

- **Estimated Budget:** How much would you like to spend? This could be a budget range or a maximum.

- **RFP Timeline:** When are proposals due? When do you expect to hold interviews? When do you expect to make a decision about who to hire?

Here are a few tips for developing an RFP that will yield strong and clear responses:

- **Clarify:** Be as specific as possible about your objectives and why you are seeking an external partner. The more clarity, the better responses you will receive.

- **Budget:** If in reading the list above, you hesitated about including the budget, strongly consider including at least a range or ceiling. It can be frustrating for both you and the respondent to receive a great proposal that is outside your price range.

- **Review criteria:** Be transparent about how you will be evaluating the proposals so the respondents will speak directly to them. This minimizes the need for follow-up questions and potential partners can decide not to submit if they are not able to meet the criteria.

- **Assumptions and constraints:** Communicate any parameters or constraints, especially with regard to technology tools and services. For example, if you need to import data into Salesforce upon the completion of the project, tell them upfront so that they can ensure their deliverables are compatible.

Reviewing Proposals

It is helpful to put together a set of questions to guide reviewing proposals, particularly if you have multiple reviewers. You can use these questions in a group discussion when reviewing proposals or put the questions into a checklist or chart and ask each reviewer to score each proposal.

Experience

- Have they done this type of work before?

- Do they have the subject matter expertise needed?

- Within the firm or agency, who specifically will be working on the project?

- What do previous clients say about working with them?

Process

- Will they challenge assumptions to ensure delivery of the best results?

- Will they help you understand and effectively communicate the results?

- Have they demonstrated a firm understanding of the questions and goals?

- Do they have a good "vibe"? Will they work well with the internal project staff?

Budget and Timeline

- Is their budget reasonable and affordable?

- Can they deliver what I need within the necessary timeframe?

WHAT TO DO WHEN IT'S JUST YOU

You may have many ideas about collecting and using data to make better decisions, but you lack the staff capacity to implement those ideas. Here are some options:

Find a volunteer. You have volunteer fundraisers and marketers—why not enlist a volunteer data analyst?

Find partners in the same boat. You likely have colleagues or partners who feel the same way, and it may be possible to leverage your collective need to fund a part-time consultant to support your data analysis needs.

Find some pro bono support. There are several organizations that provide pro bono support for nonprofits. Here are a few:

- DataKind
- Taproot Foundation
- VolunteerMatch

Step 2: Develop a Data Collection Plan

There are many ways to collect data, including surveys, interviews, focus groups and searching through data that is publically available. To determine which method is best, consider how you will obtain each of your data points, as well as resources such as money and staff time that you can dedicate to collecting data.

How Best to Collect the Data. Let's look back at the measures we developed to decide how best to collect the data.

The goal of your organization is to increase the number of young people who take a gap year between high school and college to volunteer. By engaging rising high school juniors and seniors in short-term service programs, you will see more teens go on to participate in a year-long service program after graduating high school.

Some data can be collected by **internal staff:**

- Number of individuals who register for a program
- Number of individuals who participate in a program

Some data can be collected through a **pre- and/or post-program survey, focus group or interview:**

- How participants feel about service before and after the program
- How many participants already engage in service regularly

Some data can be collected through a **follow-up survey, focus group or interview:**

- Percentage of high school students who choose to take a gap year for service before college
- Percentage of college students who choose professional or volunteer roles in service graduation

Some contextual data may be **publicly available:**

- In the US, how many high school students take a service gap year?
- In the US, how many young adults have a volunteer role outside of their job?

Deciding between surveys, interviews and focus groups. Interviews and focus groups take a lot of time, but if you are looking for qualitative stories or you are interested in a lot of detail (more than a respondent would be willing to offer in a simple survey), focus groups and interviews can provide invaluable insight.

DATA AT WORK: ACUMEN AND ROOT CAPITAL

Acumen and Root Capital conducted an experiment collecting data through mobile technologies. The pilot found that if you can obtain cell phone numbers, you can collect essential information through mobile surveys and SMS. The quick-and-easy format forces organizations to streamline their survey questions and determine which pieces of information are most important in achieving their goals, a concept Acumen and Root Capital call "Lean Data." Read more about their data collection efforts.

	Survey	Focus Group	Interview
Level of detail: Amount of detail desired is significant		X	X
Timeframe: Quick results are necessary	X	X	
Budget: Limited resources are available to collect data	X		
Sensitivity of data: Individuals may feel uncomfortable with others knowing the information requested	X		X

In the case of a teen volunteer program, if it is a one-time program, you can collect data just once at the close of the program with a short post-program survey. You can ask about change in attitudes and behaviors using a pre-then-post survey, where you ask questions at the end of the program to assess both how individuals feel now, and how that compares to how they felt when they started. If it is a longer program, you might consider collecting data twice, both before the program and after the program, using a pre-test survey before the start of the first session and a post-test survey at the end of the last session.

Step 3: Building Surveys

Once you determine how you want to collect data, the next step is to develop the tools you will use to do it. This section describes how to develop surveys, the most common method for collecting data. Make sure you develop all tools before you start collecting any data, especially if your plan includes both pre- and post-program data collection activities.

- **Choosing a Survey Tool.** There are many survey tools that help you collect—and even analyze—your data. If you are planning to collect large amounts of data in regular intervals, it may be wise to invest in a paid tool, which usually offers more functionality than free options. Consider these questions:
  - How much money do you have to invest in a tool?
  - How often will you collect data?
  - How many people will receive your surveys over time?
  - Do you need data storage capabilities?
  - What kind of analytical capabilities do you need?

TYPES OF DATA

The type of data you collect determines, in part, the type of analysis you can run. There are four major categories of data:

- **Nominal:** Nominal data is qualitative; there is no inherent scale or value attached to the data, much like your hair color or the brand of coffee you like to drink.
- **Ordinal:** Data that has a natural order, like a Likert scale where 1 means "hate it!" and 5 means "love it!" Just remember that the difference between ordinals (e.g., between 1 and 2 or between 3 and 4) is not necessarily equal. Often the distance between extreme like and dislike is greater than between feeling neutral or slightly positive or negative.
- **Interval:** Data that has a natural order and the distance between each value is equal, like temperature. The distance between 1 and 2 degrees is the same as 70 and 71 degrees.
- **Ratio:** Data that has a natural order, equal distance between values and a natural zero point. For instance, weight is ratio data: 100 lbs is the double of 50 lbs, and 40 lbs is the double of 20 lbs. The ratio (2:1) is the same, even though the values are at different parts of the scale.

Learn more about these types of data and to understand more about your own data.

Most surveys will be simple enough for free or moderately priced survey tools. Free versions typically impose limitations on the number of questions and responses, as well as survey functionality. Most survey tools provide only basic reporting, so always make sure the tool you choose allows you to export all of your data in an easy-to-use format. Many survey tools, like the ones listed below, also integrate with database and contact relationship management (CRM) systems.

- Google Forms
- PollDaddy
- Survey Gizmo
- Survey Monkey
- Survey Nuts
- Zoho
- Zoomerang

For more advanced survey functionality, you may need to invest in a premium version of one of the tools above or in a tool like Qualtrics Research Suite.

Many tools offer discounts for nonprofits, so make sure to talk to a representative before purchasing!

Developing Your Survey. Once you have selected your tool, you should:

- Define your questions
- Choose the question type
- Choose the measurement scale
- Review and refine the survey

(1) Define your questions

The first step is to decide which questions to ask. All of your survey questions should help you to answer your organization's guiding questions. For example, if you are interested in how satisfaction with a program varies depending on an age cohort, you should make sure to ask survey respondents to input their ages.

You can create your own questions from scratch or you can start with questions that have been developed by others:

- Survey Monkey Question Bank
- Jewish Questions Survey Bank

Take a look at this survey-design guide, which includes a comprehensive glossary of terms.

(2) Choose the question type

For most organizations, a good survey has a mix of open- and closed-ended questions to obtain both quantitative and qualitative data.

- **Closed-Ended Questions**
  This type of question requires the individual to select a finite set of responses, such as yes/no or a 1 to 5 scale. Closed-ended questions provide you with quantitative data to which you can apply simple and complex quantitative analysis.

- **Open-Ended Questions**
  Also called free response, these questions ask individuals to respond in their own words. These questions provide qualitative data—the stories and context you need to get a well-rounded view of your programming. However, there are many ways to analyze qualitative data by transforming the responses into quantitative data through rubrics and other formats. For example, you could count the number of times people used positive (awesome!), neutral (ok) and negative (awful) descriptions of an experience to measure satisfaction.

While quantitative data is easier to analyze, qualitative data provides important context for your organization's story. Storytelling with data is about marrying the quantitative and qualitative to form a complete picture of the impact your organization's work is making in the lives of others.

SAMPLE SIZE

An important consideration when conducting a survey is sample size. How many individuals need to respond to a survey for the results to be valid? There is no right answer. Sample size depends on how you plan to analyze the data and the decisions you hope to make as a result. Here are two tools to help you decide how big your sample should be:

Determining Sample Size
Sample Size Calculator

DATA AT WORK: SCHUSTERMAN FOUNDATION

One way to use qualitative data is as a complement to a survey. Working with evaluation consultants, the Schusterman Foundation conducted two surveys with members of the ROI Community and alumni from our REALITY trips to Israel. Once the surveys were completed and the data analyzed, the consultants developed a set of focus group questions that would collect qualitative data to both add context to the findings and clarify some outstanding questions that arose after reviewing the survey results.

VALIDATING SURVEY TOOLS

If you are developing a survey tool that you wish to validate through statistical methods, it is a best practice to use a 7-point Likert scale to ensure a level of granularity necessary for factor analysis, cluster analysis or however you are choosing to validate the tool.

The Schusterman Foundation developed a Jewish Leadership Identity Index to help the Foundation better understand the impact of its programs on four major facets of Jewish leadership: leadership, values, networks and Jewish identity. We went through two rounds of testing and survey question validation to make sure that the questions in the survey accurately measured what we wanted to measure.

Learn more about measurement scales and how to develop a validated assessment tool.

(3) Choose the measurement scale

When collecting quantitative data, you need to choose a measurement scale. Ideally, you use the same measurement scale throughout your survey and over time so you can compare results within and between groups.

The most common type of measurement scale is a Likert scale. Characteristics of a Likert scale include:

- An ordered continuum of responses (e.g., strongly disagree to strongly agree)
- A balanced number of positive and negative response options
- Numeric values assigned to each response (although those numeric values may or may not appear to respondents)

If you have taken a survey before, you may have noticed that some scales include an odd number of choices, while others include an even number of choices. The original Likert scale used 5 response options, including a neutral option (e.g., neither agree nor disagree). There is much debate in the research world about whether a Likert scale with a neutral option is better or yields more valid results than one without, but there are clear advantages to both.

Even Scale (no neutral option)	Odd Scale (neutral option)
With no neutral option, individuals are likely to be more thoughtful about their responses, as there is no "easy out"	With a perceived "easy out," individuals may be less likely to skip a question, especially if the topic is sensitive

If you are concerned that you will not receive accurate information if individuals perceive they must make a positive or negative selection—when in reality they have no opinion or feel neutral—use an odd scale. If you think your respondents can be thoughtful and deliberate in choosing positive or negative answers, use an even scale.

Likert scales are particularly useful if you have a set of statements that individuals can respond to using the same scale. A matrix approach makes good use of survey real estate.

View an example of a matrix survey question

Example

How did you feel about each of the following program elements?

	1 Extremely Dissatisfied	2 Somewhat Dissatisfied	3 Neither Satisfied nor Dissatisfied	4 Somewhat Satisfied	5 Extremely Satisfied
Food	○	○	○	○	○
Location	○	○	○	○	○
Duration	○	○	○	○	○
Staff	○	○	○	○	○

Tips for creating an easy user experience:

- Use the same rating scale for as many of your questions as you can
- Try and keep language (e.g., tense) consistent. If you are asking about past, present and future experiences or attitudes, arrange the survey in chronological order
- Use simple language. The harder it is for a user to understand the question, the more likely they will fail to complete the survey
- Test your survey with a small focus group to make sure your questions are being interpreted the way you intend

(4) Test and refine

Once you have developed your survey, review it using these questions to make sure the survey will achieve your goals:

- Will my questions give me the data I need?
- Are my questions clear and easy to understand?
- Does my survey flow in a logical order?
- Is the time to complete the survey appropriate for the audience?

Step 4: Interview and Focus Group Guides

This section describes how to develop guides for conducting interviews or focus groups, two of the most common methods of collecting qualitative data.

- When conducting interviews and focus groups, all respondents must answer the same questions—and that is why it is a good idea to develop a guide for your interview or focus group facilitator(s). You can develop a guide in just four steps:
  - **Identify the purpose of your interview or focus group:** What are you hoping to gain from speaking with the participating individuals?
  - **Identify your target population:** Who do you need to speak with to obtain the data you need?
  - **Create your script:** How will the facilitator guide the conversation? What questions do you want the group to answer?
  - **Test and refine the script:** Will the questions solicit the types of information you are looking for?

Whether all your data comes from interviews or focus groups, or you decide to supplement your results with a survey, your questions should:

- Be probing but not leading
  - Probing: "How do you feel this program affected you?"
  - Leading: "How much did this program change your mind?"
- Use language participants would use
- Be clear, short and easy to understand
- Include directions for how individuals should present their answers
- Include follow-up questions for the facilitator if individuals do not respond
- Focus on one dimension at a time
  - E.g., If your program sought to change both attitudes and behaviors, ask about attitudes first and then behaviors, but not both at the same time.

Learn more focus groups tips and tricks.

USING FOCUS GROUPS

Focus groups can be a good complement to surveys. You can use a focus group to help develop and refine questions, test the survey to ensure that the questions make sense and also help you refine and reduce the number of questions. For example, the Schusterman Foundation uses focus groups to help develop and test surveys used with our network members, like ROI Community members and REALITY alumni.

You can also use a focus group after you have conducted a survey to better understand the nuance of the survey results and clarify survey findings with additional probing questions. For example, if a survey showed that only 25% of individuals were satisfied with your program, a focus group could help you understand what parts of the program were a problem and why.

DATA AT WORK: CHALLAH FOR HUNGER

Challah for Hunger invests in the next generation of entrepreneurs, social activists and philanthropists by bringing college students together to bake and sell challah to raise money and awareness for social justice. In preparation for an extensive strategy planning process, Challah for Hunger developed a common set of questions to use while traveling to different campuses to conduct site visits. Staff members used these questions to help them understand the unique needs of different campuses and students, and the responses were used to inform their strategic plan.

Step 5: Obtaining Baseline Data

When you launch a new program or initiative, it is important to record your baseline measurements so that you can track change over time. You should try to collect baseline data before a participant has experienced your program, but that may not always be possible. Here are some strategies for obtaining baseline data both before and after a participant takes part in your program.

Prospective: Collecting baseline data before a participant has taken part in your program. If you are collecting baseline data before a participant takes part in your offerings, make sure you provide enough time for them to respond before the start of your program. Use your logic model as a basis for defining the purpose and content of your survey questions, and use your planning period to prepare your survey. Remember: you need to use the same questions for the post-program survey to ensure that you can accurately measure the change in participants' responses. In order to analyze pre- and post-test data, you will need to use a specific statistical method called a paired-t test. Learn more.

Retrospective: Collecting baseline data after your program is completed. Sometimes collecting baseline data prior to the start of your program is too time-consuming, expensive or presents logistical challenges. Luckily, there are two methods you can use to obtain baseline data after participants take part in your program.

- **Post-then-pre collection:** Once your program has ended, you can deploy a survey with questions about participants' attitudes, behaviors and feelings both before and after the program.

	Rarely	Sometimes	Often	Never
Before your participation	○	○	○	○
After your participation	○	○	○	○

- **Post collection:** Once your program has ended, you can include questions in your post-program evaluation that illuminate the attitudinal or behavioral changes, if any, that have resulted from the program.

Example

To what extent do you feel your participation in this program has changed your opinion about volunteering?

To a great extent To some extent To a small extent Not at all

Compared to before the program, how has your opinion on the importance of volunteering changed?

Very much Somewhat A little Not at all

If you plan to use retrospective baseline data to inform your programmatic decisions, there are important bias considerations to keep in mind as you analyze your data. Survey research has shown that respondents tend to underestimate change in their attitudes or behaviors when they are responding to a question after a recent experience—and, additionally, participants may feel the need to answer questions the way they hope the survey creators desire, rather than how they truly feel.

Retrospective baseline data can be a useful, convenient tool in measuring change over time, so long as you provide the appropriate context for how insights were derived when presenting your findings.

Step 6: Additional Methods of Acquiring Data

While we have primarily discussed surveys, interviews and focus groups, there are several additional methods of collecting data you can use to paint a more complete picture of your progress. In this section, we will focus on two additional methods: open data and program evaluation.

Open Data. There are many data sets available to the public that you can use to help answer your guiding questions or that you can use to help make meaning of your data.

The easiest way to find what data is publicly available is to search online using keywords like "open data set" and the topic of data you are looking for (e.g., "open data set volunteers in the United States").

Example

The U.S. Census Bureau conducts a national survey to obtain information about the number of individuals in the U.S. involved in unpaid volunteer activities and to measure the frequency with which individuals volunteer. The survey also identifies the types of organizations that facilitate volunteerism and the types of activities in which volunteers participate. The survey includes household members that are age 15 or older. It is a self-response survey that only takes proxy responses as a last resort.

You might be able to use this data to understand how individuals in your community compare to other respondents in different counties and states, as well as nationally. Access the data set.

Some data sets require you to download and analyze them yourself. For these kinds of sets, you may need a consultant to help you with the analysis.

- Awesome Public Datasets
- Public Data Sets

Some data sets have built-in tools to help you pull relevant data.

- Data.gov
- Census Data
- Health Stats

Program Evaluation. One of the most common methods of data collection is through a formal program evaluation designed to answer key strategic questions: "What is the result of my program? Did it have the intended effect?" There are many good resources to help you create an effective evaluation:

- Grosvenor Program Evaluation
- McCormick Foundation's Program Evaluation Guide
- Gates Foundation's Guide to Actionable Measurement

Budgeting for a program evaluation

Whether you plan to use internal or external resources for answering your guiding questions, there will be associated costs. You might require a full-time evaluation consultant to work with you for a year, a part-time staff member to manage the data collection process or a data consultant to help you visualize the data when you have your results. As a rule of thumb, evaluations often comprise about 5-10 percent of the total program cost.

ONE SIZE DOESN'T FIT ALL

The world of data is vast and you may not have found a method of data collection discussed here that works for you. Maybe there are limitations on how you are able to collect data or none of the methods described fit the type of decisions you want to make. There are many ways to collect data outside of those we have discussed. Learn more about some additional approaches to consider.

- **Staffing:** Who will be supporting this project? How much time will be needed?
  - Be sure to include overhead costs if you are using internal staff time and to estimate the number of hours you think the staff will need to spend to complete the project. It may be helpful to break the project up into sections or phases (planning, data collection, analysis, etc.).

- **Materials:** Will you need to host an event to collect data or release the results? Will you be publishing the results?

- **Technology:** Do you need to purchase a data collection tool? Data storage capacity?
  Travel: Will staff need to travel? How often? How many staff members?

- **Travel:** Will staff need to travel? How often? How many staff members?

Making Meaning

Compare different methods for analyzing your data and choose the approach that fits your needs.

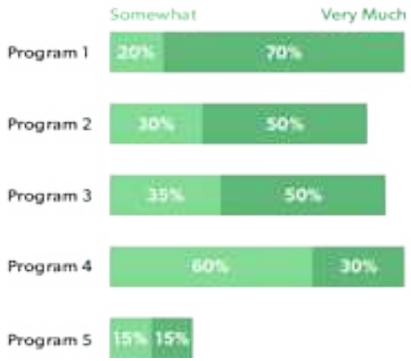
Step 1: Considerations in Analysis

Once you have collected your data, the next step is to analyze it, draw conclusions and find answers to your guiding questions.

Each of your key guiding questions might require a different type of analysis. In this section, you will find several methods of data analysis—but the world of data is vast, and our examples may or may not reflect the type of analysis you need. For a more in-depth look at choosing the right analysis tactics for your data, take a look at this helpful resource.

Analyzing your data should be empowering. After all, even very small sets of data can improve your ability to make better decisions. However, it is all too easy to make mistakes interpreting your results—and make bad decisions because of it.

The majority of individuals said participation somewhat or very much changed their opinion about the importance of engaging in service, except for Program 5.



For example, let us assume that we ran five summer service programs for rising high school juniors and seniors, with 50 participants in each program. In all of the programs, the majority of participants indicated that participation in the program significantly changed their mind about the importance of service, except for Program 5. From this comparison, you might decide that Program 5 was ineffective and that you should not run a similar program next year.

In this example, you are making the assumption that your results were a product of inadequate programming, when in fact, Program 5 failed to alter opinions because that group of participants *already possessed* a keen understanding of the importance of service. Instead of canceling Program 5, you may, instead, need to refine your recruitment strategy to target participants who do not already feel as strongly.

Another consideration to keep in mind when analyzing your data is **confirmation bias**, which is the tendency to interpret new evidence through the lens of existing beliefs or theories, rather than approaching new evidence at face value and without preconceived notions. Whenever you embark on an analytical journey, keep an open mind and understand that the data may or may not confirm your hypothesis, and it may not always tell you what you want to hear.

"Increasing the depth and clarity of nonprofit data increases the quality of decisions in the nonprofit sector. More accessible and relevant data therefore strengthens trust in the nonprofit sector. This combination of improved trust and quality is critical in effecting more and better giving."

JACOB HAROLD

President and Chief Executive Officer, Guidestar

CLEAN YOUR DATA

The best way to help ensure you make good decisions with data is to start with good data as inaccurate or incomplete data can lead to skewed results and yield misguided decisions. Make sure you are working with a complete and accurate data set before you begin, like removing duplicate entries (whoops that person submitted their survey three times!). Here is a great tutorial on how to clean your data.

NEED SOME HELP?

Need help finding pro bono or more affordable analytical support for your organization? Check out these organizations:
Data Kind
Taproot Foundation
Volunteer Match

Step 2: Find the Patterns – Facts

Your raw data likely reflects the outputs referenced in your logic model. Analyzing raw data will help you measure and resolve issues related to **management**, or the way in which your program is run. For example, raw data can show you the number of individuals who registered for the program and the number of individuals who completed the program.

To answer your **strategic** guiding questions and gain a deeper understanding of your program's impact, you will need to take your raw data and transform it using a combination of basic arithmetic and descriptive statistics to reveal **patterns**—both those that you expect to see and those that may be surprising.

A helpful tool in statistical analysis is the "facts-stats-trends" framework:

- **Facts:** Counts, or sums, of numbers
- **Stats:** Basic descriptive statistics (mean, median, mode, distribution)
- **Trends:** Looking at data over time (e.g., percent change, percent difference)
  - Within the same group at different points in time
  - Between groups at the same time or at different points in time

Facts provide a high level summary of your raw data. Results provide "nice to know" information and help you familiarize yourself with your data set.

- 50 participants
- $10,000 raised
- 100 email clicks

You can also express your raw data in **ratios** (usually a percentage or fraction) to provide more context. This may require some division:

- 50 participants out of 100 registered = 50% participation rate
- $10,000 raised compared to $5,000 last year = double the money raised
- 100 clicks out of 1,000 email recipients = 10% click-through rate

If you previously set goals or benchmarks for the data you collected, compare them to your results:

- 50 participants, 50% of goal (100 participants)
- $10,000 dollars raised, 100% of goal ($10,000)
- 100 email clicks, 25% of goal (400 clicks)

ANALYTICAL TOOLS

When it comes to data analysis, Microsoft Excel is your greatest resource. All of the analysis described in this section can be conducted using the basic Excel package and a free analysis add-on, ToolPak.

There are also plenty of free tutorials to help you build or enhance your Excel skills:
Excel Is Easy
Excel Is Fun
Ann K. Emery
Analyzing Visual Data

Other tools:
Tableau Public
Lumira
Power BI

NORMAL DISTRIBUTION

Much of the data collected by nonprofit organizations is either nominal (qualitative) or ordinal (quantitative). For these types of data, it is assumed that the data you have would fall into a normal distribution. It is important to confirm this before running any statistical analysis. Learn more about normal distribution.

Step 3: Find the Patterns – Stats

To answer your strategic questions and gain a deeper understanding of your program's impact, you will need to take your raw data and transform it using a combination of basic arithmetic and descriptive statistics to reveal **patterns**—both those that you expect to see and those that may be surprising.

Stats transform your data into high-level summaries of your variables, typically in a table or simple chart. These summaries will help you better visualize any patterns that may be present in your data. We will focus here on data collected to measure change in attitudes about service.

In this section we will discuss two types of stats: measures of central tendency and distribution.

Measures of central tendency

By using measures of central tendency, you can look at the mean (average), median (middle data point) and mode (most frequently occurring data point) of your data. The first step is to create a table with all of your data, then use formulas to help calculate the mean, median and mode. Microsoft Excel can help you to do this.

Example

How much did this program change your opinion about the importance of service?

Not at all	A Little	Somewhat	Very Much
1	2	3	4

Pattern spotted: Overall, it looks like your program successfully influenced attitudes about service. On average, individuals who participated in the program said the program at least somewhat changed their opinion about the importance of service.

	Answer
Mean	3.75
Median	4.00
Mode	4.00

The mean is slightly lower than the median. Given that the median and mode are the same, this could mean there are a few low scores (outliers) pulling the mean down. The easiest way to look for outliers is to use a scatter plot, described in more detail in the distribution section below.

Just because your data has outliers does not mean you need to discard anything, it simply provides a platform for asking more questions. Where did the outliers come from? Were there some individuals for whom the program did not change their opinion at all? Why did they feel that way?

Learn more about central tendency.

Distribution. Exploring distribution involves understanding how each of your data points relates to the data set as a whole. This can be done most easily with a chart or visualization. Visualizations that display your data points' distribution can be useful but also overwhelming. If you try a couple of charts and cannot make any sense of it, try summarizing your data into groups and then creating a visualization.

FACTS, STATS AND TRENDS

A helpful tool in statistical analysis is the **"facts-stats-trends"** framework:

- **Facts:** Counts, or sums, of numbers
- **Stats:** Basic descriptive statistics (mean, median, mode, distribution)
- **Trends:** Looking at data over time (e.g., percent change, percent difference)
  - –Within the same group at different points in time
  - –Between groups at the same time or at different points in time

TIPS FOR WORKING WITH DATA

When working with large data sets, patterns are frequently easier to spot in chart form. Not sure what kind of chart to use? For descriptive statistics, the most commonly used charts are bar, column, pie and scatter plot. See our section on data visualization for more on selecting the right chart for your data.

Example

How much did this program change your opinion about the importance of service?

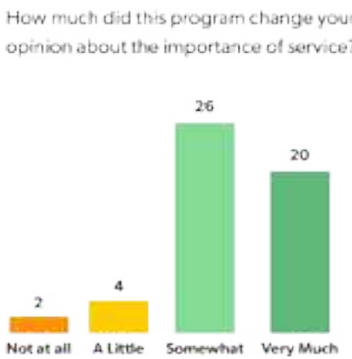
Not at all	A Little	Somewhat	Very Much
1	2	3	4

Here is an example of a scatter plot. This gives you a sense that more people selected 3s and 4s, with a few outliers who selected 1, but you would have to count the dots individually to really find meaning in the data.

When you organize the data in groupings like this, you can easily see that most individuals felt the program somewhat or very much changed their opinion about the importance of service.

It may be more useful to look at your data by summarizing all of your data points into a table, grouping by question and response. You can organize this data into a table and also a bar chart.

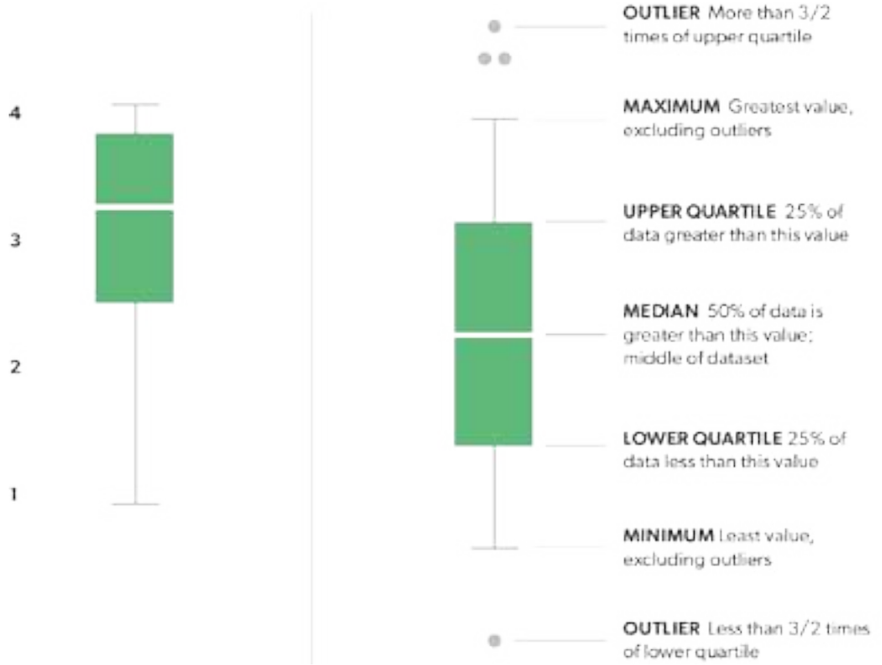
	Number of Responses
4 - Very much	20
3	26
2	4
1 - Not at all	2



Combining Central Tendency and Distribution. Another way to explore central tendency and distribution is by creating a box plot (also called a box-and-whisker plot). A box plot combines measures of central tendency and distribution. It shows a summary of your data using mean, median and mode (central tendency) and how each of your data points relates to the data set as a whole using quartiles as the grouping (distribution).

This is an example of a box plot for the post-program survey question outlined above. As you can see, the lower quartile (the bottom 25% of scores) begins at between 2 ("A little") and 3 ("Somewhat"). This means that the rest of your respondents, 75% of individuals, recorded that the program affected their opinion about the importance of service.

This type of chart is standard in Excel 2016 and available as a free add-on in other Excel packages.



Step 4: Find the Patterns – Trends

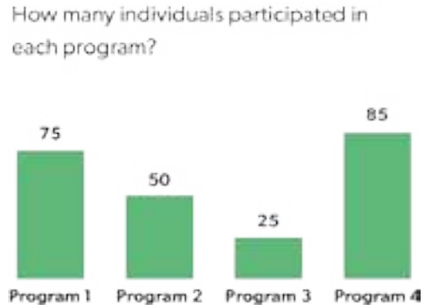
To answer your strategic questions and gain a deeper understanding of your program's impact, you will need to take your raw data and transform it using a combination of basic arithmetic and descriptive statistics to reveal **patterns**—both those that you expect to see and those that may be surprising.

- **Trends** combine your facts and stats to reveal more sophisticated patterns. You can explore the difference within a group (e.g., change in knowledge before and after an intervention) or between groups (e.g., level of satisfaction between two different programs).

- **Trends using facts:** Take a collection of facts, like the count of program participants, and put those counts from several programs together in one table or chart.

Program Name	# Participants
Program 1	75
Program 2	50
Program 3	25
Program 4	85

How many individuals participated in each program?



Pattern spotted: Program 3 had the smallest number of participants.

- **Trends using stats:** Take a collection of stats, like a collection of means or distributions, and look at them together in a table or chart.

  - **Trends using averages:** Calculate the average level of satisfaction with each of the program sessions, where 1 is very unsatisfied and 5 is very satisfied. Put those averages into a table and if you like, also create a bar chart to compare them.

Session Title	Mean Satisfaction (1-5)
Session 1	4.5
Session 2	1.5
Session 3	4.5
Session 4	5.0

How would you rate your level of satisfaction with this program?

- **Trends using distribution:** You can look at distribution trends to see changes, like if satisfaction with a program changes from year to year. For each year of the program, calculate the percentage of people who responded that the program exceeded, met or did not meet expectations. Create a table with those percentages, and a stacked bar graph to look at the difference visually.

Response	Year 1	Year 2
Exceeded	40%	55%
Met	45%	32%
Did Not Meet	15%	13%

How did you feel about this program with regard to your expectations?

Pattern spotted: The vast majority of respondents felt the program at least met their expectations, and satisfaction was higher in Year 2 than in Year 1.

- **Differences between groups.** One common method of looking for trends is by examining differences between groups: For example, are teens who attend a private high school more likely to choose a service gap year than teens who attend a public high school?

  - **Change Over Time Within a Group**

    Looking at change over time within a group can again be accomplished by analyzing your data for both central tendency and distribution.

Central tendency: Compare average scores on pre- and post-tests.

Response	Test 1	Test 2
Mean	85	92
Median	80	82
Mode	82	82

Did your program increase knowledge about gap year service programs, and is that change measurable? Let us assume that you gave a pre- and post-test to your program participants testing how much they know about what gap year service programs are out there for them to consider. Looking at this chart, the average score is higher on the second test than on the first, meaning knowledge increased after the program.

Distribution: You can also look at your pre- and post-test scores using distribution statistics. Here are all of your test scores, divided into pre- and post-test scores, in a scatter plot.

It may be a bit difficult to draw anything definitive from this scatter plot, although it does appear that there are more gray dots (pre-test scores) in the lower half of the chart and more green dots (post-test scores) in the upper half of the chart. This indicates that scores on post-tests were higher than on pre-tests.

It may be easier to see this result by looking at the distribution in a table. This table shows that more people scored 80 or above on the post-test.

Score	Test 1	Test 2
90-100	20%	36%
80-89	28%	42%
70-79	46%	20%
60-69	4%	2%
Under 60	2%	0%

You could even further summarize the distribution depending on the goal of the program. For example, if the goal was to increase knowledge above a score of 80,
you could use this chart:

Pattern spotted: Scores on post-tests are higher than those on pre-tests.

	Test 1	Test 2	Change
80-100	48%	78%	↑
Under 80	52%	22%	↓

Advanced: You could run an advanced statistical test on this data to calculate whether the difference in test scores is statistically significant,meaning it is statistically likely that the change you are seeing is not the result of chance, and the change in scores can be (at least in part) attributed to the class. The statistical test is called a Paired t-test, and you can find out how to run the test in Excel using this tutorial.

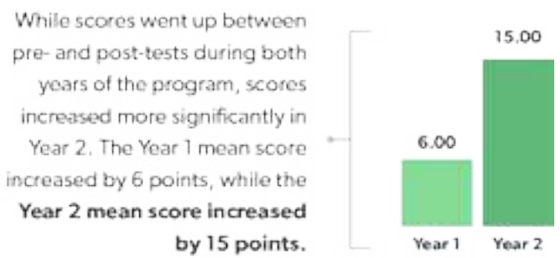
Change Over Time Between Groups

Looking at change over time between groups can be as easy as using simple arithmetic (e.g., counting the number of program participants).

	Program
Year 1	500
Year 2	400
Year 3	275
Year 4	150

Pattern spotted: Program participation is declining

You can also look at change over time between groups using central tendency and distribution. For example, we could explore changes in knowledge between many different groups, instead of just one group as we explored above.



Pattern spotted: Year 2 saw a more significant increase between pre- and post-test scores than Year 1.

Relationships Between Variables

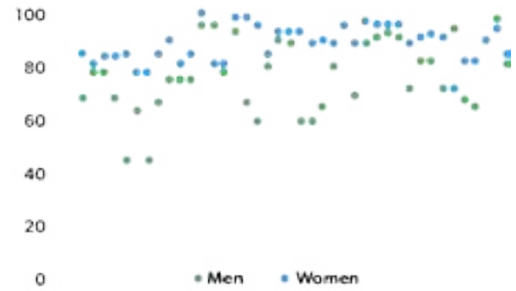
Sometimes you will discover relationships between variables (e.g., individuals age 20-25 are more likely to be highly satisfied with your program than individuals older than 25).

How do you look for these kinds of relationships?

- Make a list of demographic and other characteristics you think might be interesting to explore
- Recalculate your facts and stats by different groups (e.g., men and women) to see what the data shows you. You can do this in tables or charts.

Let's look at an example of test scores (variable 1) vs. gender (variable 2). Again, it may be a bit difficult to draw anything definitive from a scatter plot, although it does appear that women scored higher than men. This is easier to discern in a table, where we can see the average score for women was higher than for men.

	Men	Women
Mean	85	92
Median	80	82
Mode	82	82



Advanced analysis: You could run a statistical test that measures the strength of the relationship, or the correlation, between test scores and gender.

Advanced Analytics

If you have large data sets and the organizational capacity for more complex analysis, you can begin to look at regression and prediction to help you tailor programming to meet your audience's needs. For example, finding the right mix of experiences for a college student that will maximize the chance they choose to work in the nonprofit sector. Here is a tutorial on running regression and multiple regression analysis in Excel. Be aware that Excel has some shortcomings with more complex analysis because it was not originally developed to support it. Instead, it has been adapted for more complex analysis with add-ons.

Step 5: Benchmarks and Big Data

Benchmarking is the practice of comparing performance to similar programs or organizations to determine where you are excelling and where there may be room for improvement.

- **Using Benchmarks to Find Meaning in Your Data.** You can use benchmarks to help you understand how you stack up against other organizations doing similar work. For example, M+R releases an annual report on how nonprofits are doing in online fundraising, advocacy and organizing. You can look at your own communication metrics to understand how you are doing compared to your peers.

  If there is no benchmark data available externally, you can also benchmark internally by setting goals, tracking metrics and reviewing them over time.

- **Using Big Data to Find Meaning in Your Small Data.** Most of us work with small or medium data. But the good news is that we can harness the power of big data to help us find meaning in the data we have, no matter the size.

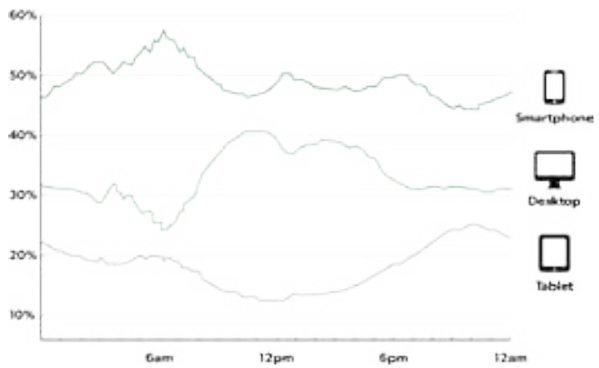
Let's take a common strategic question as an example: *Am I effectively engaging my constituents with my email communication?*

Your purpose is to better understand how you can adapt your communication strategy to meet the needs of your constituents.

You collect some data and find some high-level patterns:

- Email open and click-through rates have steadily declined over the last 6 months
- The majority of your emails are sent around 9 AM Eastern Time
- The majority of your readers use their smartphone to read your emails (you know this from a recent constituent survey)

If you look at analysis of big data on email reading behavior, you will notice that there is a significant peak in reading email on smartphones around 6 AM. You may need to consider changing when you send out your emails.



Source

Of course, you may try out this new strategy and find no change in your email rates. In this case, maybe the decline is about content, look or uninspiring subject lines. The bottom line is that you can harness the power of existing big data to find meaning in your small data and to inform your decisions.

Chances are that your constituents are very similar in behavior to the general population—and you can take advantage of this in many ways by tapping into research that applies to your focal area. For example, a national study of teens' social media activity could easily help you better understand and reach the small group of teens you serve.

DATA AT WORK: LEADING EDGE

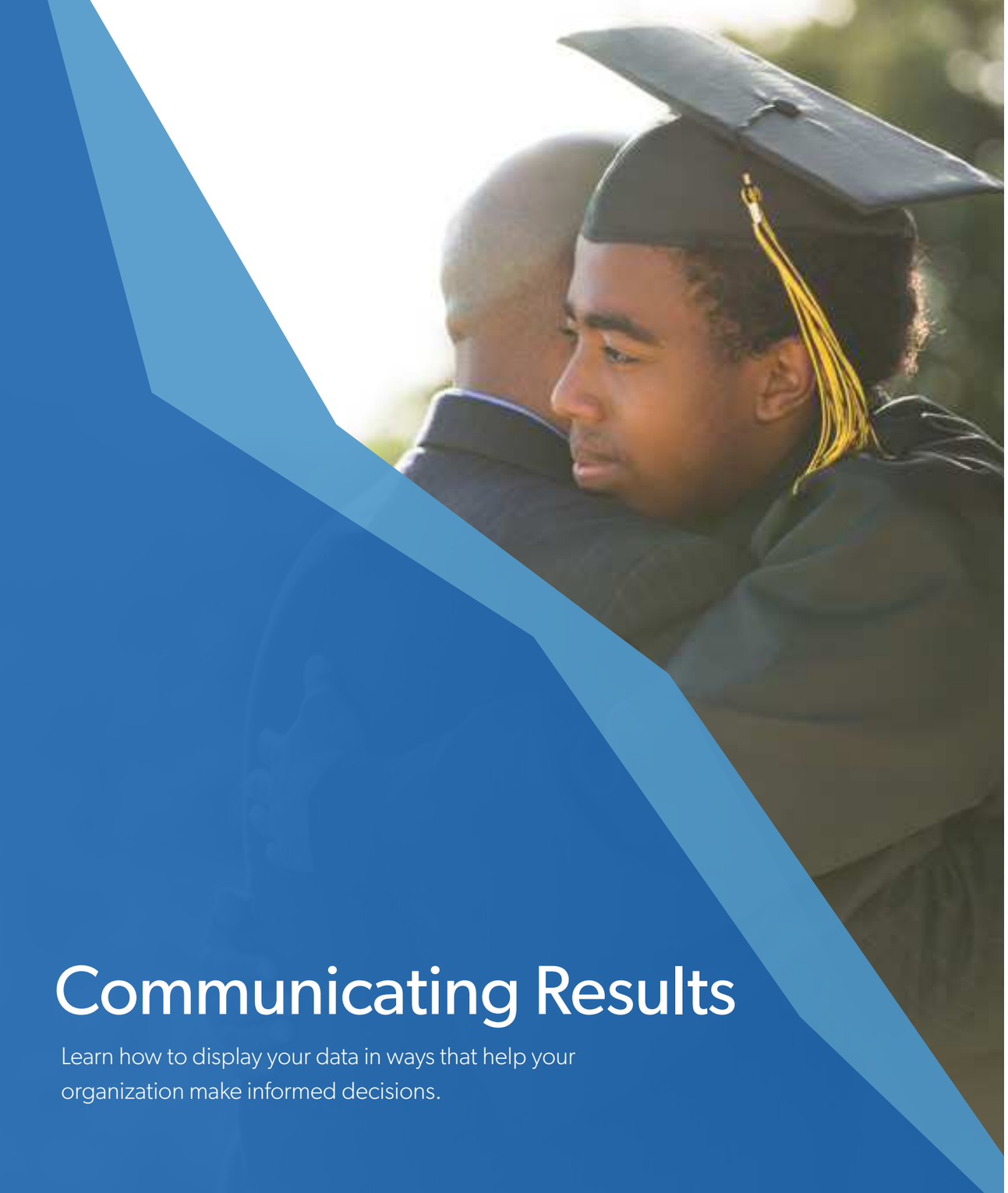
Leading Edge works to lay the groundwork for recruiting talented professionals to work in Jewish nonprofits. To identify the strengths and opportunities of the Jewish nonprofit sector concerning workplace culture and employee engagement, Leading Edge partnered with Korn Ferry Hay Group to conduct a groundbreaking employee engagement survey.

Each organization that participated in the survey was able to see their own results, as well compare their results to two important benchmarks: nonprofit and general industry. Organizations are now using results to develop and implement plans to magnify strengths and address areas of opportunity.

DATA AT WORK: ISRAEL & CO.

Israel & Co. focuses on bringing present and future leaders to Israel in a way that is not only scalable and repeatable, but also customizes content to the interests of participants—ensuring that they gain personally relevant insight into Israel's unique contributions and complexities. In order to track programmatic impact, Israel & Co. uses Survey Monkey to administer pre- and post-trip surveys. The pre-trip data is used as a baseline to measure how much trips change participant knowledge of and attitudes about Israel.

Where does all of this big data live, and how can you find it? There are many public data sets available from international organizations like the World Bank and USAID, as well as U.S. government agencies like the U.S. Department of Health and Human Services. Googling the type of data you need, like "data on high school dropout rates" will usually unearth at least one publicly available data set. For more on finding publicly available data, see our section on open data.



Communicating Results

Learn how to display your data in ways that help your organization make informed decisions.

Step 1: Considerations in Communicating Results

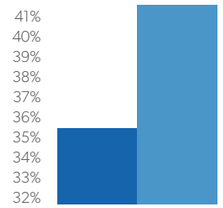
Any time you use data to convey something, you are using it to tell a story. It might be:

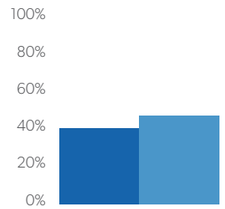
- In a conversation with your colleagues
- In a quarterly presentation for your board
- In a formal program evaluation report
- In an annual report to constituents
- In a status report to funders

Storytelling with data is powerful, and it comes with an ethical imperative. Data can be easily manipulated to tell a story that is not there, or to minimize a story that is. It is important to start with the data and let it tell you the story, instead of crafting your story ahead of time and only selecting the data that supports it. For example, if you present a summary of a program evaluation that only highlights the successes and aspects of your programming that people liked, and does not include the components that came up short and revealed areas for improvement, you are not telling the full story.

Charts can be deceptive. It is important to convey your data in formats that are accurate and to a reasonable scale. The two charts below use the same data. The chart on the left looks like there is a significant difference between two data sets, while the chart on the right looks like there is a small difference.

What sets these two charts apart? The scale. By changing the scale, the left chart has overemphasized a difference that is not really there.





"To be a high performing learning organization you consistently need three ingredients: data, time for reflection and a willingness to change."

FAYE TWERSKY

Director of the Effective Philanthropy Group, William and Flora Hewlett Foundation

CONTEXT

Your data will not always show what you want, so it is important to include the right context to explain why the data may or may not match the story you are telling. For example, if you failed to meet a goal due to an unexpected barrier, be sure to include this information—especially if you have since formulated a plan to mitigate this obstacle in the future. For results that were different than you expected, share how you plan to learn and move forward.

Step 2: Craft Your Story

Like any good story, storytelling with data requires a beginning, middle and end. There may be conflict, change and celebration. Here are some tips to help you tell an effective story:

Storytelling Tips.

- Start with the end: what message do you want your audience to walk away with?
- Make it personal: how can you connect your audience emotionally?
- Storyboard: whether it is a short executive summary or a 40-page presentation, storyboarding can be helpful in deciding what to convey and in what order.
- Make sure to include qualitative data, stories, anecdotes and comments that add color and context to your quantitative data.
- Find the right balance between visualization and narrative—digital content should be heavier on the visualization, while a formal print evaluation report should be heavier on narrative. You want your visualizations and narrative to support each other without being duplicative.

You have to decide how to best take advantage of your data to tell your story. To do this, think about three things: audience, medium and purpose.

Identify the audience. Deciding what data to present may be different depending on your audience and the specific action (if any) you want them to take as a result of the story you are telling. Your audience could include one or more of the following:

- Internal staff members
- Board members
- Partner organizations
- Funders
- Constituents
- The broader nonprofit sector

Identify the medium. There are many different modes for communicating your data: Internal staff meetings, evaluation reports, board books, op-eds, informal conversations, conference presentations, blog posts and web content. You may choose to share your data using several different methods that fall into the following categories:

- Digital (web, email)
- Formal print (evaluation report, conference one-pager, PowerPoint)
- Informal print (staff meeting, board book)
- Video

Define the purpose. What is the purpose of telling your story? You may have a different purpose depending on the audience and the medium.

There are generally two major purposes for conveying information:

- Informational: Conveying "nice to know" information
- Decisional: Conveying information that contributes to a specific decision or action

INFOGRAPHICS

Infographics are a specific method of storytelling with data, and have become very popular for distilling large amounts of information into one compelling visual display. There are many free tools for creating infographics:

- Venngage
- Pikto Chart
- Canva

CREATING AUDIENCE PROFILES

If you have many different audiences, it may be helpful to create audience profiles. Audience profiles are fictional audience members that have names, pictures and demographic details to help paint a clear picture of who you are trying to reach. An audience profile helps you think about a specific person you are telling your story too rather than an amorphous group. Learn more on how to create audience profiles.

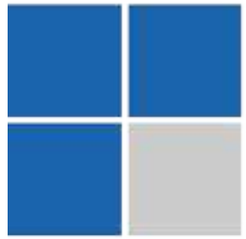
LEARN FROM OTHERS

Many nonprofits are good storytellers, so get ideas from other organizations you feel are doing a good job telling their story and turning those stories into action.

- **Share our Strength** shares not only numbers but the "amazing true stories" of the children who are provided for through their No Kid Hungry campaign.
- **charity:water** makes its storytelling personal - you can see the real individuals who will have access to clean, drinkable water because of your donation.

Depending on your purpose, you may want to highlight different aspects of your data.

INFORMATIONAL:

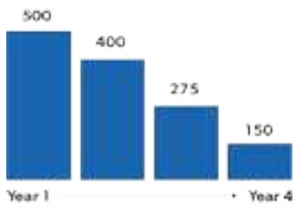


We met our program satisfaction goal: three out of four participants say our program **met or exceeded expectations.**

DECISIONAL:

As 25% of participants say our program **failed to meet expectations**, we recommend **conducting focus groups to inform changing the program.**

INFORMATIONAL:



Participation in our 2-week summer volunteer program has been decreasing.

DECISIONAL:

Enrollment in our 2-week summer volunteer program has decreased while enrollment in our 4-week program has increased.

Decisional graphics are only effective in helping you make better choices when they contain both information and an actionable recommendation based on that information.

Step 3: Design your Visualization

You may not get the perfect design on your first try, or even your second! Thinking like a designer takes time and effort. You will build your skills over time. As you refine your data presentations, you will also learn more about your audience's preferences, especially your internal audience: who prefers tables over charts, who prefers color to grayscale. Over time, you will not only build up your data storytelling skills, but those of your colleagues, as well.

» To design and refine your visualization, you will:

- Select the right visualization
- Create your visual
- Focus your audience
- Craft your headline
- Refine your story and your visual

» **Select the right visualization.** The right visualization can make or break your story, whether you are presenting an internal PowerPoint presentation on your budget or designing an evaluation report for mass printing. Choosing the visualization that best displays your data and tells your story can be challenging. We are most familiar with bar, column pie and scatter plot charts, but there many varieties you can use depending on the message you want to convey.

If you are struggling with this decision, a great resource for finding the right visualization is The Data Visualisation Catalogue, a repository of every chart under the sun with a built-in tool that allows you to search by function. You can find the best charts for comparing data, which will be different than those that demonstrate proportion, relationships or parts of a whole.

Create your visual. Your visual can be an Excel bar graph, a scatter plot or a Visio graphic. If you are using Excel, the basic charts it delivers are not always pretty—and that is okay! The rest of this process will help you refine your chart to better tell your story in a visually appealing way.

Focus your audience. It is important to focus your audience on your story and lead them through the chart visually, without a lot of explanation required. You can do this in two ways: De-cluttering and emphasizing. There are some great print resources that expound on this, check out the data visualization books we have recommended in our toolkit.

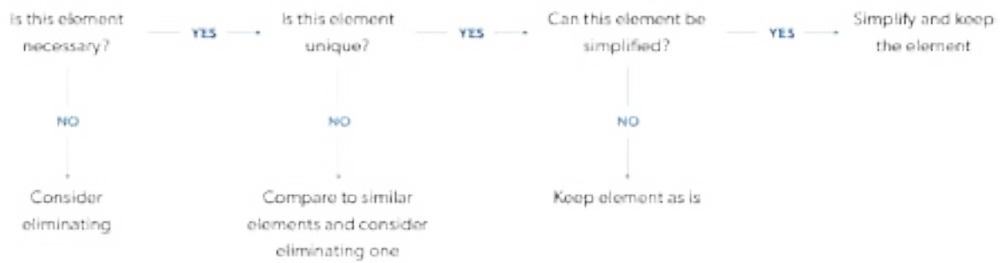
De-cluttering

If there are too many visual elements in a chart, it can be hard to interpret it quickly. In her book Storytelling with Data, Cole Nussbaumer Knaflic recommends the following to maximize the comprehension of your audience:

- Removing the chart border, gridlines, background and data markers
- Simplifying axis labels (e.g. shortening January to Jan)
- Labeling data directly instead of including a legend
- Using consistent color between your data and your labels

You can also use this decision tree from Good Charts by Scott Berinato.

Decision Tree for Refining a Visualization



Emphasizing

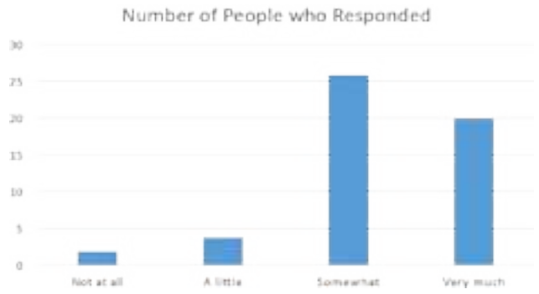
You want to draw your audience's eyes to the right places on the chart, in the right order, by emphasizing certain items while de-emphasizing others. Here are some methods of emphasizing to focus your audience:

- Color
- Size
- Outline, underline or other enclosure
- Bold or italics
- White space
- Alignment

When creating a chart from this table:

	Number of Responses
4 - Very much	20
3	26
2	4
1 - Not at all	2

Excel will provide you with this column chart:



DATA AT WORK: REPAIR THE WORLD

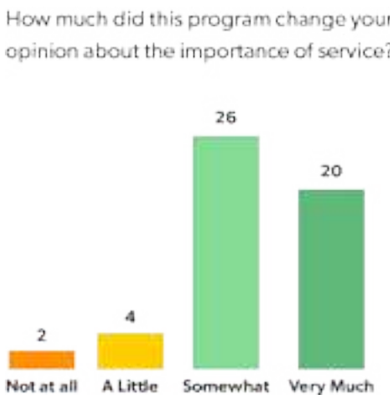
For Repair the World's Building Jewish Community Through Service, a summary report on the independent evaluation of its Communities program, de-cluttering was essential to producing an easily digestible final product. Repair took a very dense and lengthy Word document written by evaluators and translated those findings into a visually engaging, graphically-designed report that highlighted the most important evaluation takeaways and clearly conveyed the success of its Communities program.

The text, the overall design, and the individual graphic and infographic elements in the report all went through multiple iterations to "get it right." One of the primary goals during the editing process was ensuring that the narrative and visualizations were not overly duplicative. However, in the final report, some visual elements do duplicate the information in the narrative—but even this repetition served a purpose. Repair determined that the data would be most effective if readers absorbed it both ways.

ACCESSIBLE STORYTELLING

When designing your visualization, it is important to make sure that your charts are accessible to everyone, including someone who may be color blind. You can use a color blindness simulator to upload your image and see what it looks like to someone that is color blind.

After:



What steps led to the final visualization?

De-cluttering:

- Removed the chart grid, border, background and vertical axis
- Directly labeled each column with its value
- Removed the line from the horizontal axis

Emphasizing

- Changed the colors to reflect a continuum (and they pass the color blindness test!)
- Reduced the white space between each of the columns
- Added active and descriptive text, highlight some text with appropriate colors
- Used bold in the chart description to draw attention
- Left aligned the chart description

» **Craft your headline.** Once you have the visualization set, you need to add your narrative. The most important narrative for your visualization is the chart title.

Writing a chart title is like writing a headline. You want your audience to understand both the story you are trying to convey and what you want them to do with the information. Here are some tips for writing effective chart titles:

» Use active language

- This program was a success! The majority of participants indicated that the program very much or somewhat changed their opinion about the importance of service.

» Convey the story and the action, if there is one

- Only 25% of individuals were satisfied with our program. We need to understand what went wrong and put together a plan to address the issues.

» Keep it simple, the title is a headline and the chart is the content

- Too much information: This program was a success! When we asked participants, "How much did this program change your opinion about the importance of service," 20 people said very much, 26 said somewhat, 4 said a little and 2 said not at all.

- Better: This program was a success! All but 6 participants said this program at least somewhat changed their opinion about the importance of service.

CHART DESIGN TIPS

Build your chart design skills by understanding the thought process of a designer.
Do not have time or the capacity to create your own charts? There are many free and inexpensive online tools you can use:

Google Charts
Datawrapper
ChartBlocks
Infogr.am

Refine your story and your visual

It is always important to involve individuals who are not as immersed in the data as you are. Find a few folks who are willing to look at your presentation or report and give you honest feedback.

When you think you are done, take one last look at your visualization and ask:

- Have I removed all of the extraneous chart elements?
- Have I effectively emphasized the salient points?
- Do the title, data labels and other textual elements effectively convey my point?

Thinking like a designer takes time and effort. Try not to be discouraged if developing stellar data visualizations requires some trial and error.

Toolkit

Explore our list of resources for collecting, analyzing and communicating your data!

Resources and Reading

Articles

- Data As a Means, Not an End
- Measuring What Matters
- Why “Big Data” Means Nothing Without “Little Data”
- Three Things Great Data Storytellers Do Differently
- Who Will Pay for Data?
- Actionable Measurement at the Gates Foundation

Books

- Storytelling with Data: A Data Visualization Guide for Business Professionals
- Good Charts: The HBR Guide to Making Smarter, More Persuasive Data Visualizations
- Data Visualisation: A Handbook for Data Driven Design
- The Visual Display of Quantitative Information
- Effective Data Visualization: The Right Chart for the Right Data
- Cool Infographics: Effective Communication with Data Visualization and Design

Surveys, Interviews and Focus Groups

- Survey Monkey Question Bank
- Jewish Questions Survey Bank
- Survey Design Guide
- Determining Sample Size
- Sample Size Calculator
- Focus Group Tips

Data and Statistics

- Cleaning Data
- Measures of Central Tendency
- Correlation
- Paired T-Test
- Normal Distribution
- Regression Analysis in Excel
- Understanding Multiple Regression In Excel

Excel Tutorials

- Excel is Fun
- Excel for Evaluation
- Data Analysis
- Analyzing and Visualizing Data with Excel

Research and Evaluation

- Monitoring and Evaluation
- Qualitative Research
- Using Imperfect Measures
- Approaches to Evaluation
- Grosvenor Program Evaluation Guide
- McCormick Foundation's Program Evaluation Guide
- Gates Foundation's Guide to Actionable Measurement

Metrics and Benchmarks

- Guidestar Common Results Catalog
- Marketing Metrics
- Fundraising Metrics
- Impact Investing Metrics
- Human Resources Metrics
- Nonprofit Management Metrics
- Nonprofit Marketing Benchmarks

Featured Organizations

- Hillel International
- Create Your Dreams
- OneTable
- Urban Teachers
- YMCA Austin
- Acumen and Root Capital
- Leading Edge
- Repair the World
- Challah for Hunger
- Moishe House

Data Visualization

- Tailoring Your Presentation to Your Audience
- Nonprofit Data Visualization & Infographics: The Definitive Guide

Infographic Visualization Tools

- Venngage
- Pikto Chart
- Canva

Chart Visualization Tools

- Google Charts
- Datawrapper
- ChartBlocks
- Infogr.am

- Data Visualisation Catalogue
- DataColor Blindness Simulator
- Think Like a Designer