Data Visualization: Making Meaning and Driving Action

A decision-support data system (DSDS) is a systematized approach to gather, use, and share data to inform decision-making and engage in continuous improvement efforts. Data visualizations, such as charts and graphs, help share this information in a clear and compelling way. Effective presentation can help your team understand and communicate data in a way that informs your decision-making.

This tool presents two different strategies to share and make meaning from data: Data Gallery and Data Placemat, and tips to create clear visualizations that convey patterns/trends. These activities provide opportunities for your team and stakeholders to reflect on a set of data, co-interpret results, and decide how best to move forward based on the information. Remember, visualizations are just a tool. The conversations with partners and stakeholders, generation of insights from data, and using those insights to take action is essential.

DATA PREPARATION

Before meaning can be made from data, it must be collected, analyzed, and visualized as charts, graphs, or figures. A preliminary analysis of data collected from your DSDS does not need to be complex: descriptive statistics like range, mean or averages, frequencies or percentages, common themes or key quotes are all examples of analyses that are easy to generate and informative for action planning.

Choosing the right visualization for data depends on the type of data and the relationship, comparison, composition, or distribution you are looking to explore. Look online for more recommendations on choosing the right representation for the data, how to design charts and graphs, and data visualization checklists. Microsoft Excel or other data visualization programs like Chart.ly or Tableau can create a variety of figures from your data.

Once your data are analyzed and presented in the appropriate format, take stock of your library of figures. Consider pasting each visualization onto its own slide in Microsoft PowerPoint for easy access and editing, here is an example from the Office of Adolescent Health. Review for legibility and clarity, ensure axis are labeled, and sources cited.

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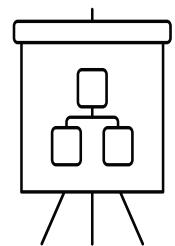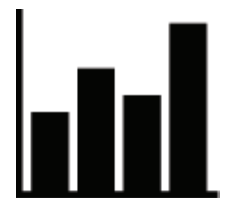
DATA PLACEMAT ACTIVITY

In this activity, a "placemat" of thematically similar data are presented on a single piece of paper. While several placemats may be developed if time and topic permit, focusing on a single page of data will help narrow the scope of the conversation and increase the likelihood of getting to action. Participants are given time to review their placemat(s) and are led through a facilitated discussion of the data. Additional information on choosing data for placemats, creating space for interpretation, leading this activity and guiding questions for facilitators are available online and through the American Evaluation Association blog.

Designing a Data Placemat

Consider the physical constraints of a piece of printer paper: you need print-friendly margins; readable font-size; room for text content like introductions, notes, or call-out boxes for key insights; in addition to the charts and tables with data. Consider your printing options: only use color figures if you have access to a color printer to ensure visibility. If multiple placemats are needed, consider printing one-side only to ensure clear printing (and be sure to number pages). Given these constraints, limit each placemat to a maximum of six visualizations (such as charts, tables, diagrams, quotes).

Try this exercise to draft your placemat:

1. Choose up to six figures that work together to tell a story or answer a specific question.

2. Sketch a thumbnail representation of each onto a post-it note. Ask yourself, "can I see this data clearly if the figure is only this size?" If not, decide how large the final visual will need to be and stick post-its together to mock up a better size.

3. Now, arrange the post-its onto a piece of paper. Ask yourself, "Do they all fit? Is there space for titles or room for notes? Is there another way to show a figure in a more space-efficient way? Does the flow of figures (left to right, up and down) make sense?"

4. Repeat this exercise until you have a working draft.

Design the final version using Microsoft Word or PowerPoint, print and review for readability/clarity. Print sufficient copies for all participants and host the data interpretation meeting.

Figure 1 Example Data Placemat.

DATA GALLERY ACTIVITY

In this activity, also known as data walks, large-format visualizations are presented as "art" on the walls of a meeting space. Participants tour the "gallery" in groups, rotating to a different visual every 3-10 minutes and reflect with one another on meaning, trends, or other insights. Consider offering blank post-its for groups to document their thoughts before rotating. After time is up, participants re-group and debrief together. To incorporate more data for review, 1-3 related data points may be presented together or touring groups may only view a select number of visuals. Additional information for conducting data walks or galleries, including questions for facilitators and facilitating intentional group learning are available online.

Designing a Data Gallery

1. Decide on the size you want for each visual to include in the gallery walk. At minimum, each figure should be a full page, 8x11. Re-drawing figures you created in the preliminary data analysis by hand with markers on large flip-chart paper is one strategy to create larger figure, which also helps make data seem more approachable. If you do not feel comfortable with your artistic skills and/or do not have access to a large-scale printer, you can tile-print (PowerPoint slides or pdf files) and use scissors to cut and tape together several pieces of paper.

2. Tailor the number of visuals, duration of the visit, and number of groups to the time allocated for this activity. Allow each visual to be visited by at least two groups to allow cross-group discussion and learning.

3. Distribute the "art" throughout your meeting space, leaving sufficient distance between visuals for groups to have space to gather and converse. Consider sticking additional blank flip-chart paper next to visuals to capture participant thoughts or insights.

Figure 2 Example Data Gallery Walk.

MAKING MEANING OUT OF DATA

Sharing data visualizations is only the first step. Data placemats or galleries are a way to present data visually, but must be accompanied by discussion and other sense-making activities in order to truly use data for learning and improvement. When sharing data, you want to generate conversation on what people are noticing, what they think is missing, what they have questions about, and how you might use data. Some prompts below may help guide these types of conversations:

- What do these data tell you? What patterns did you see in the data? What gaps?
- What did you learn? What do you find interesting? Surprising?
- Do these findings lead to any new questions?
- What other data would help show a fuller picture?
- What are some limitations of this data? Consider how it was collected, and what you can and can't say using it.
- Whose perspective is reflected in these data? Whose is missing?
- What race equity/inclusion steps might be present?

What? So what? Now what?

The goal of sharing data is to increase awareness and understanding, generate new ideas and/or solutions, and to make important decisions. Beyond exploring the "what is going on?" in the data, it is critical to engage with stakeholders on the "so what" of the data, the consequences of trends and ramifications of outcomes and to agree on a path forward based on this information. Asking the group to consider "now what?" to do, using data to inform decision-making and engage in continuous improvement efforts ensures the efforts put into gathering, analyzing, and visualizing data are converted into improvements for communities.

ADAPTATIONS FOR REMOTE MEETINGS

The activities outlined above can be adapted for remote meetings and/or webinars, such as Zoom, Adobe Connect, Google Hangouts, etc. Rather than printing visuals, create PowerPoint slide decks with either a single visual per slide (for a Data Gallery) or a single slide with multiple visuals (for a Data Placemat). Share the slides ahead of time for participants who wish to print and share your screen as you facilitation the discussion.