

# Synchronous Data Input Scaling

*Your tool got super popular after the Information is Beautiful Awards posted about it on LinkedIn !*

Now instead of 100s of users, your input visualization must accommodate 100,000s of users.

Change the visual and/or interaction design to accommodate the influx of new users. Does the type of data (aggregate or individual) change?

# Synchronous Data Input Scaling

*Your tool got super popular! The city hall is asking to use it in their civic tech initiative.*

*Now instead of few users, your input visualization must accommodate 10 millions people in real time.*

Change the visual and/or interaction design to accommodate the influx of new users. Does the type of data (aggregate or individual) change?

# Change in Data Input Modality

*You have gone mobile!*

Adapt your design so that you can accommodate for small screen inputs.

Feel free to change the type or data that is input if it will better align with the data input technique.

# Change in Data Input Length

*Your visualization has been collecting data for 5 years now.*

Change how time is represented in the tool. What time interval do you want to show? How will this affect future data inputs?

# Data Reset

*Congratulations! A nonprofit wants to use your visualization, which means they will start collecting data from scratch.*

How does resetting the data change your visualization?  
What must you change to accommodate a small number of inputs?

# Data Reset

*Congratulations! Your data visualization has been wildly successful and you have a strong base of users and data collectors. Unfortunately, data storage is becoming quite expensive.*

Rather than charging your customers, you have decided to aggregate historical data. Decide what data you will aggregate and how it will be visually communicated to data input users.

# Change in Purpose

*Surprise! The purpose of your visualization has to change.*

Modify your visualization to support one of these purposes:



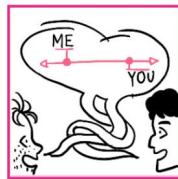
Individual  
Reflection



Public Group  
Reflection



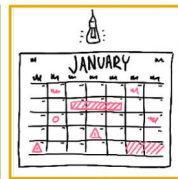
Public Activity  
Documentation



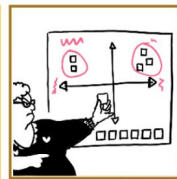
Data Discussion



Survey



Planning



Organizing

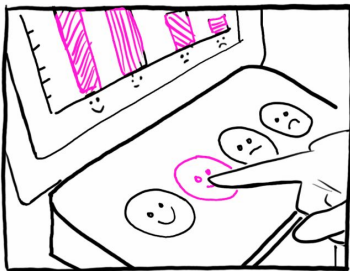
# Change in Data Paradigm

*Your users want more expressive ways to input data into the tool.*

Add one of the following input paradigms to your visualization:



Manipulating Tokens



Interacting with Controls



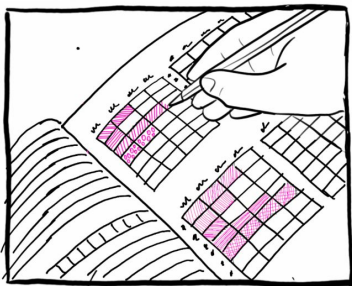
Authoring Words



# Change in Data Paradigm

*Your users want more expressive ways to input data into the tool.*

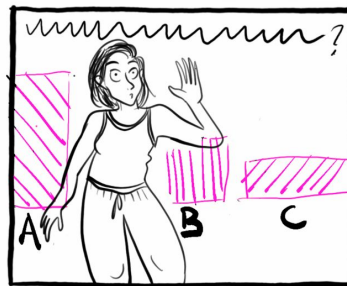
Add one of the following input paradigms to your visualization:



Drawing Marks



Forming Materials



Interacting with the Body

# New Data Dimensions

*Your users want to add new data dimensions to your visualization.*

Adapt your visualization so that people can either (1) add, (2) modify, or (3) remove a new data dimension of your choice with the visualization.

# New Tasks

*Your users want to be able to perform more tasks with your input visualization.*

Adapt your visualization so that people can either (1) collect, (2) plan, or (3) organize data with your visualization.

# To Show or Not to Show

*In some instances it makes sense to show users existing data that has been already collected, but in other instances it may be better to withhold that view until after the person has inputted their data.*

Come up with different scenarios where you would want to hide the existing data and scenarios where you would show it immediately. What is different about these scenarios? Does the visualization design change?

# Data Input Scenarios: Co-located/Distributed

*Surprise! People like to move, so the context of your data input has changed!*

Modify your visualization to reflect how a change in input scenarios would change your visualization design.

For example, if your tool currently collects data from people that are in different places, what would change if they could suddenly only use the tool in one place? And vice versa, if they had to use it in distributed locations?

# Data Input Scenarios: Async/Sync

*Surprise! People are busy and have requested different times that they can input data.*

Modify your visualization to reflect how a change in input scenarios would change your visualization design.

For example, if your tool currently collects data synchronously, what would change if people suddenly only used the tool at different times? And vice versa, if they had to use it at the same time?

# Change the Materiality of Your Visualization

*You've grown tired of the digital world!*

Change the material of your visualization. Explore what materials would work well and which would not:

Examples materials:

- Beads, paper, yarn, string, plastic
- Paper, stickers, wood, fabric, liquids
- Legos
- Food

# Change the Materiality of Your Visualization

*You're tired of desktops and laptops! You've decided to experiment.*

Change the digital display medium of your visualization.  
Explore which mediums work well and which do not:

Examples:

- Touch screen
- Tablet
- E-paper display
- Mobile device
- AR/VR device
- Projection



## Time to Toolkit-Ify

*You want to turn your input visualization into a toolkit for workshops with a diverse set of participants. How would you go about turning the visualization into a toolkit?*

A toolkit would comprise of generalized building blocks that support a variety of functions.

Feel free to change modality (e.g. digital to physical) and complexity (e.g. focus on one aspect of the data input rather than all functionality).

## Change the Visual Representation

*You had a sudden wave of creative inspiration! You want to explore different visual idioms.*

Try different chart types to collect the same data.

Explore 1–2 different options:

- Bar chart
- Matrix
- Timeline
- Heatmap

## Change the Visual Representation

*You had a sudden wave of creative inspiration! You want to explore different visual idioms.*

Try different chart types to collect the same data.

Explore 1–2 different options:

- Dot plot
- Map
- Scatterplot

## Change the Visual Representation

*You had a sudden wave of creative inspiration! You want to explore different visual idioms.*

Try different chart types to collect the same data.

Explore 1–2 different options:

- Parallel coordinates
- Affinity diagram
- Network Diagram

# Invent New Visual Representation/Techniques

*You had ANOTHER sudden wave of creative inspiration!*

Can you imagine a new visual representation or technique specific to your input visualization and/or the data, the task, or the audience you are working with ?

# Change the Number of Data Dimensions

How many dimensions of data are you collecting? If the number is closer to 10, then reduce the dimensions by half. If the number is closer to 4, then add a few more dimensions.

*What are the challenges of reducing/adding data dimensions? What aspects of the design will change significantly?*

# Add a New Input Data Type

*More is more in this scenario!*

Add the following data type and modify your design to accommodate the new input: Categorical

# Add a New Input Data Type

*More is more in this scenario!*

Add the following data type and modify your design to accommodate the new input: Quantitative



# Add a New Input Data Type

*More is more in this scenario!*

Add the following data type and modify your design to accommodate the new input: Text Input

# Add a New Input Data Type

*More is more in this scenario!*

Add the following data type and modify your design to accommodate the new input: Ordinal