



data storytelling

transform **numbers** into **narratives**

1 Context

Here are some discussion-starter questions.

- Who's Our Audience?**
Make a list of all the different groups we're trying to reach. Then, customize our graphs for one audience at a time.

- Internal or External?**
Internal audiences don't mind boring graphs, while external audiences might need xenographs to get them hooked.

- What Actions Should Be Taken?**
Kindergarten-level: "We'll make sure they're informed!"
Advanced: Informed for which decision, on which date...?

- Technical or Non-Technical?**
Technical audiences love tables and decimal places; non-technical audiences don't.

- How Many Points in Time?**
Do viewers need operational information (frequent points in time) or strategic information (fewer points in time)?

- When Should We Use Data Storytelling?**
Which viewers prefer topical graphs vs. takeaway graphs?

- Which Formats?**
Will viewers benefit from reports, slideshows, dashboards, infographics...?
If you're writing a report, follow the 30-3-1 approach.

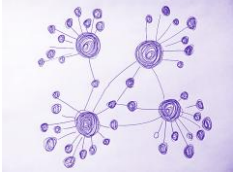



























Audience	Internal or External	Actions or Decisions	Technical or Non	Points in Time	Topical or Takeaway	Format(s)
<i>Example: Current government funders</i>	<i>External – see grants on variety of topics beyond ours</i>	<i>Are targets being met (why or why not)</i>	<i>Mostly technical, but busy and get TONS of reports</i>	<i>Numbers collected quarterly, but reported annually</i>	<i>Takeaway – due to busy-ness factor</i>	<i>Narrative report using their template</i>
<i>Our internal leaders</i>	<i>Internal – know all the lingo & acronyms</i>	<i>What should we actually do differently</i>	<i>Tammy – technical Everyone else – non</i>	<i>Numbers collected and shared weekly</i>	<i>Tammy – topical Everyone else – takeaway</i>	<i>Weekly Excel tables with quick vizzes</i>

2 Chart Choosing




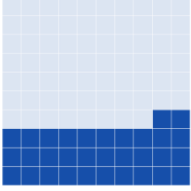

Sketch a couple options and discuss the pros and cons with a colleague.

See more at DepictDataStudio.com/charts.


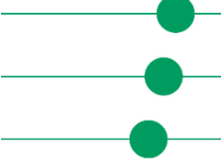
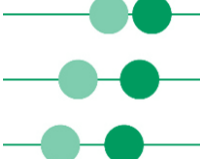


Exploratory

Sketching	Heat Tables	Data Bars	Spark Lines	Spark Columns																																															
Thank me later	Color-coding	Within-cell bars	Mini trendlines	Mini columns																																															
	<table border="1"> <tr><td>A</td><td>20</td></tr> <tr><td>B</td><td>40</td></tr> <tr><td>C</td><td>60</td></tr> </table>	A	20	B	40	C	60	<table border="1"> <tr><td>A</td><td>20</td><td></td></tr> <tr><td>B</td><td>40</td><td></td></tr> <tr><td>C</td><td>60</td><td></td></tr> </table>	A	20		B	40		C	60		<table border="1"> <tr><td></td><td>'16</td><td>'17</td><td></td></tr> <tr><td>A</td><td>20</td><td>55</td><td></td></tr> <tr><td>B</td><td>40</td><td>35</td><td></td></tr> <tr><td>C</td><td>60</td><td>20</td><td></td></tr> </table>		'16	'17		A	20	55		B	40	35		C	60	20		<table border="1"> <tr><td></td><td>'16</td><td>'17</td><td></td></tr> <tr><td>A</td><td>20</td><td>55</td><td></td></tr> <tr><td>B</td><td>40</td><td>35</td><td></td></tr> <tr><td>C</td><td>60</td><td>20</td><td></td></tr> </table>		'16	'17		A	20	55		B	40	35		C	60	20	
A	20																																																		
B	40																																																		
C	60																																																		
A	20																																																		
B	40																																																		
C	60																																																		
	'16	'17																																																	
A	20	55																																																	
B	40	35																																																	
C	60	20																																																	
	'16	'17																																																	
A	20	55																																																	
B	40	35																																																	
C	60	20																																																	

Part : whole

Pie/Donut	Stacked	Diverging	Waffle	Icon Array
2-3 slices max!	Parts + the total	Focus on poles	aka square pies	aka Pictographs
				



Comparisons

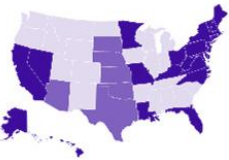
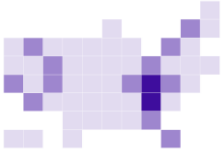
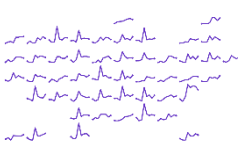

Bar/Column	Lollipop	Dot	Clustered	Multiples
Zzzzz.....	Bar alternative	Clustered alternative	I hate these.	Disaggregated
				

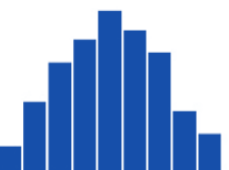

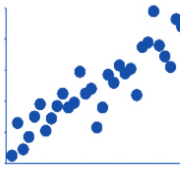
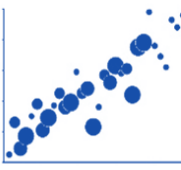
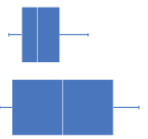
Area
Try circles or squares

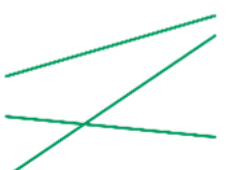
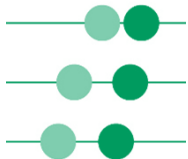
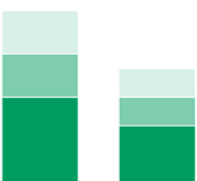


Nested Area
aka Tree

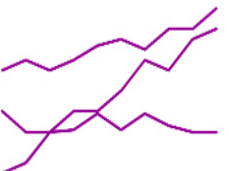



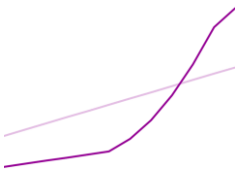
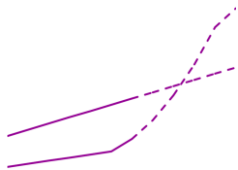

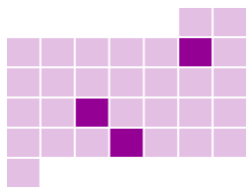
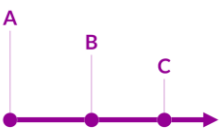
Progress

Overlapping	Target Line
Different goals	Same goals
	

Maps	Choropleth aka Heat Map 	Tile or Hex Equal-sized shapes 	Tile Trendline Patterns over time 	Network Connections between people 
-------------	--	---	--	---

Distribution	Histogram Ordinal variables 	Pyramid Ordinal & nominal 	Scatter Correlations (x & y) 	Bubble Correlations (x, y, & z) 	Box Plot Min, Q1, median, Q3, & max 
---------------------	--	--	---	--	--

Before/after	Slope Focus on the slope of the line 	Dot 1 dot per timeframe 	Stacked Part-to-whole 	Waterfall How parts add up to the whole 	Deviation The difference 
---------------------	--	---	---	---	--

3+ points in time	Line The classic choice 	Multiples Separate the spaghetti 	Stacked Bar Part-to-whole 	Stacked Area Part-to-whole 	
	Target Line Goal is light 	Estimation Guess is dotted 	Fan Guess is shaded 	Calendar Milestones 	Timeline Milestones 

Software Options

There are *too many* tutorials on the internet nowadays. Some are excellent... but most are mediocre. Here's how and where to spend your time.

How to Spend Your Precious Learning Time

First, go broad.

Spend **1 hour per tool** and learn about **10 different tools**.

1 hour of introductory learning

x

These **10** different tools

Then, go deep.

Spend **10 hours** and focus on **just 1 tool**.

10 hours of deep learning

x

Just **1** tool

10 Dataviz Tools worth 1 Hour of Learning

There are hundreds of dataviz tools. Which ones are worth the learning curve??

Tool	When It Shines	Resources
① Word	Narratives + light viz	?
② PowerPoint	Narratives + heavy viz	Nick Visscher
③ Excel	Common denominator	Leila Gharani
④ Tableau	Interactive dashboards	Their own conference
⑤ Power BI	Cheaper than Tableau	Joseph Travers
⑥ InDesign	THE graphic design tool	?
⑦ Canva	Templates for inspiration	?
⑧ R	Reproducibility	David Keyes
⑨ Datawrapper	Embedding in websites	Lisa Charlotte Muth
⑩ ArcGIS	Maps	?

3 Declutter

Declutter your visualization so that viewers can focus on what matters—the “so what?”

- Remove Borders... and Add White Outlines**
We don't need outlines around graphs or tables. Don't forget to outline “touching” shapes in white (e.g., a stacked bar charts' segments get outlined in white).

- Remove Distortions**
3D distorts the data. Using a Mac? No bevels please.

- Remove Background Distractions**
e.g., shading, fills, and decorations

- Remove Decorative Clip Art**
For bonus points: Add icons.

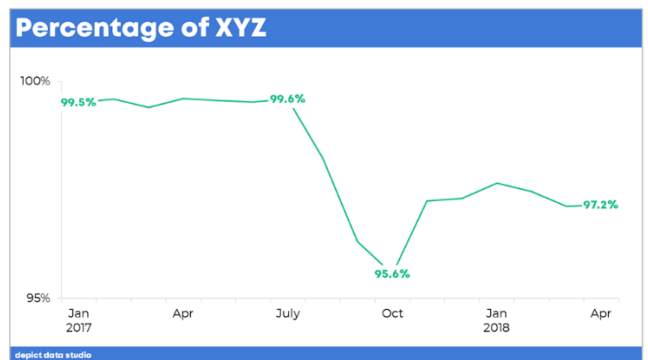
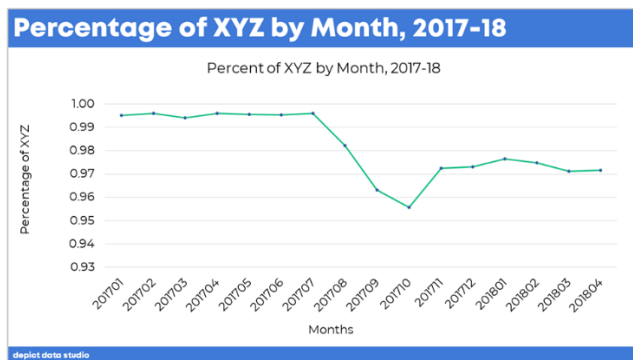
- Remove Redundant Labels**
Label the axis or the individual data points, but not both.

- Remove Redundant Text**
Say what you need to say—once!

Example

We removed the

- redundant words,
- extra y-axis increments,
- extra x-axis dates, and
- “markers” (the circles along the line).



4 Color

We'll use colors that are branded, Big A Accessible (508/ADA compliant), and little a accessible (intuitive).

- Use Your Brand Colors**
Find brand colors in style guides; view your website's html/CSS code; or identify colors with instant-eyedropper.com. Then, set up Theme Colors to save time.

- Avoid Red-Green**
Avoid red/green combinations. Instead, use orange/green or red/blue. Test drafts at color-blindness.com.

- Don't Rely on Color Alone**
Use direct labels, dark-light contrast, and/or filled-empty shapes.

- Increase the Color Contrast**
White-black is the highest contrast. Color-on-color should be large and bold. Test drafts at webaim.org/resources/contrastchecker.

- Apply Colors to Make Data Feel Intuitive**
Apply your branded colors using one of the following techniques.

Binary

"Presence" is darker.

No	Yes
----	-----

Sequential B

One color. "More" is darker.

Some high school	High school graduate	College degree	Advanced degree
------------------	----------------------	----------------	-----------------

Diverging

Two colors. Poles are dark.

Strongly Disagree	Disagree	Agree	Strongly Agree
-------------------	----------	-------	----------------

Categorical aka nominal

One color per category.

Group A	Group B	Group C	Group D
---------	---------	---------	---------

Storytelling

"Look here first!"

--	--	--	--

5 Text

Your graph's title, annotations, and reading level can speed up comprehension.

- Use Your Brand Fonts**
Find brand fonts in style guides; view your website's html/CSS code; or identify fonts with [WhatTheFont.com](https://www.whatthefont.com/). Then, set up Theme Fonts to save time.

- Add Takeaway Text**
In the graph's title, document's headings, slide title, and/or hover-over tooltips.

- Provide Context with Annotations**
Add call-outs within the graph (rather than hiding info in paragraphs).

- Left-Align Text and Right-Align Numbers**
Left-aligned text is fastest to read. Right-aligned numbers provide visual cues about the number's size (because the digits are aligned).

- Use a Consistent Text Hierarchy**
I suggest a max of 4 levels: Title, headings, subheadings, and body.

- Make Sure Text is Horizontal**
You may need to rotate text boxes. Or, you may need to rotate the graph.

- Avoid ALL CAPS (and all lowercase)**
Use title case or sentence case.

- Underlines Are Only For Hyperlinks**
If it's not a link, don't underline it.

- Use Bold Sparingly**
If everything is bold, nothing stands out.

- Lower the Reading Level**
Shorten your paragraphs, sentences, and words. Use active voice. Replace jargon.

- Lower the Numeracy Level**
Transform 33.26% → 33% → 1/3 → 1 in 3.

- Add Alt Text**
The details depend on the audience. You'll probably have to add takeaway text.