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Data Stories: Using Data & Narrative to Explain & Explore

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Boise State University

Presented at the 2021 Idaho Library Association Conference, virtual

Data Stories



Using Data & Narrative to Explain & Explore

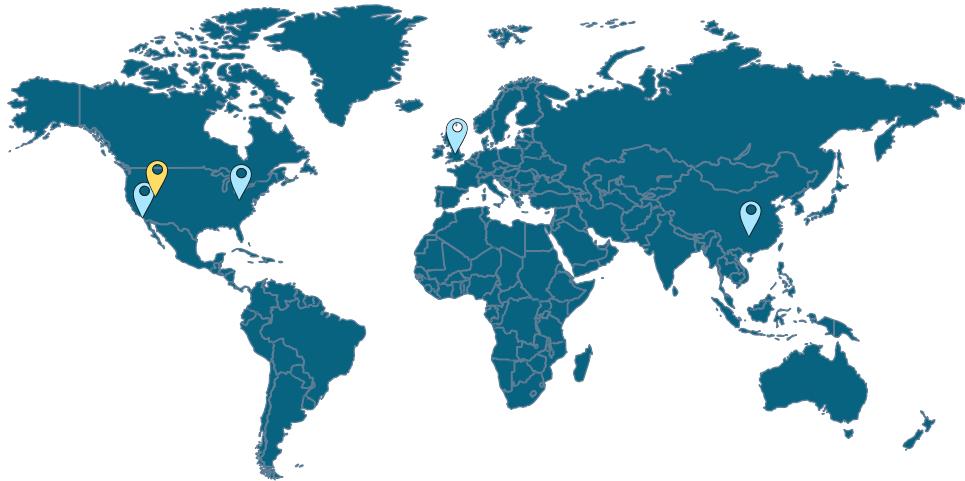
Ellie Dworak

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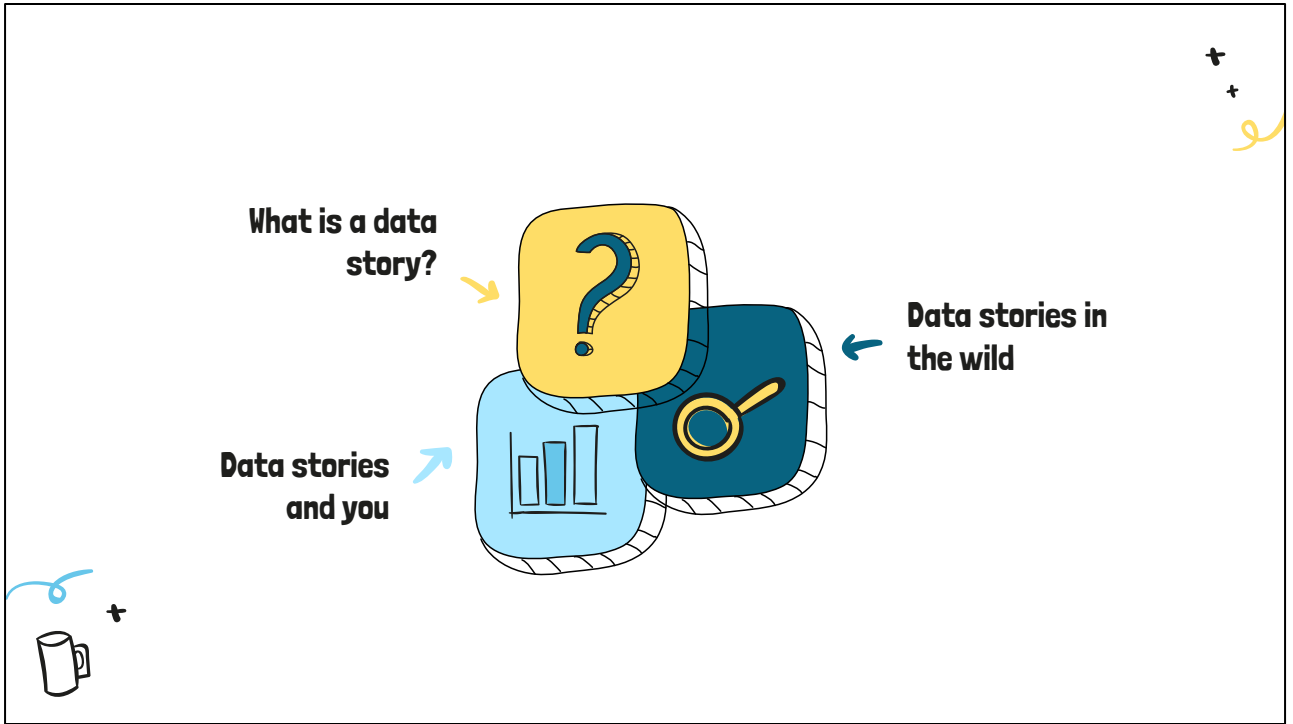
Idaho Library Association 2021



Introductions



- Places I've lived for at least a month
- For most of my career, I've been a reference librarian, though I did have a foray into systems
- Now I'm the research data librarian - work with researchers to
- If there's time, Where you're from, where you work, and one reason you decided to attend this workshop



OK, so here's what we're going to do today



Data Stories & You, Part 1

Your Library's Story

Taking control of the narrative

By [Meredith Farkas](#) | January 2, 2020



[was taken out of context](#). Circulation and reference transaction data was reported from different time periods and didn't reflect the fact that academic librarians have increasingly focused on teaching within the curriculum, for example.

Like many in our profession, I was dismayed to hear the administration of [St. Cloud \(Minn.\) State University](#) has [laid off four tenured faculty librarians](#) as part of its cost-cutting retrenchment efforts. Beyond the terrible loss to the library and university community, what struck me was how the administration selectively used library data to justify its decision—data the [library faculty](#) argued

Image source: <https://americanlibrariesmagazine.org/2020/01/02/your-librarys-story>



Data Story: A Starting Point

Data: (mass noun) symbols which can be given meaning through interpretation

- ★ May be *qualitative* (categorical) or *quantitative* (numeric)

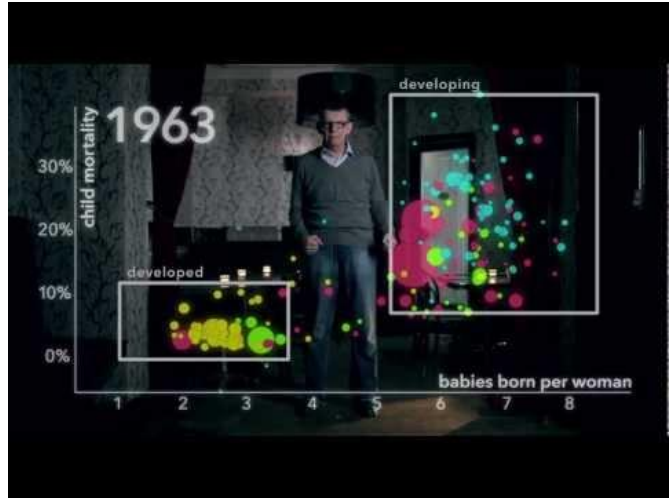
Story: an account of events or experiences

- ★ Built around characters, setting, plot, conflict, and resolution

Data Story: a narrative to communicate information driven by analysis of data

1:40

What's a data story, anyway?

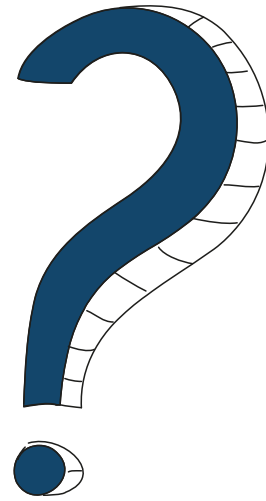


Video source: <https://youtu.be/IYpX4l2UeZg>

4:48

What's a data story, anyway?

- ★ Was that a story?
- ★ Where was the data?
- ★ What was the medium?



What's a data story, anyway?



<https://stories.oxfamireland.org/impact/index.html>

What's a data story, anyway?

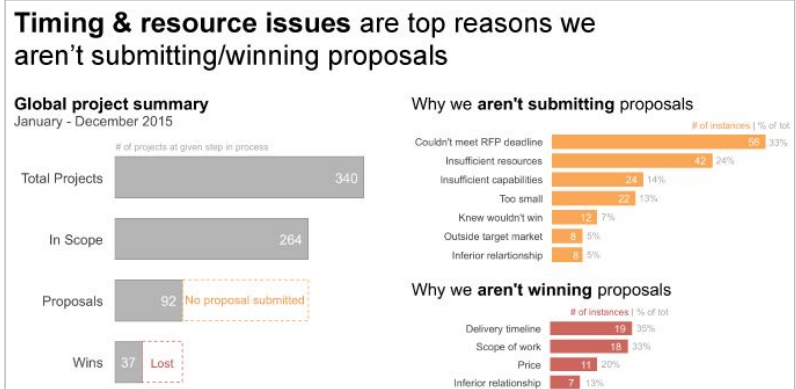


Image source: <https://www.storytellingwithdata.com/blog/2016/1/26/connecting-the-dots>



Video source: <https://youtu.be/vpL3PC89C6g>

Significant Changes In 2017



February

Display Across Accounts

The most traffic and conversions come from targeting local people on news and weather sites.

June

Corporate Properties

Reached new market using expanded keyword lists and targeting.

July

Gmail Ad Test

Additional site traffic at a comparable cost of paid search. Best medium for highly-detailed ad copy.

September

Responsive Display Ads

Outperformed image ads and allow for quick messages updates and more details.

November

Conversion Tracking

Apply Now button on site changed to Contact Us. No longer tracking click on this button as a conversion.

Image source: <https://twooctobers.com/blog/8-data-storytelling-concepts-with-examples>

Top candidates for the 2020 Democratic Presidential Nomination

Click to filter: ☒ Male ☐ Female


<p>Joe Biden</p>  <p>"If we give Donald Trump eight years in the White House he will forever and fundamentally alter the character of this nation."</p> <p>Currently: Former Vice President Declared: April 25, 2019</p>	<p>Elizabeth Warren</p>  <p>"It's time for women to go to Washington and fix our broken government and that includes a woman at the top."</p> <p>Currently: US Senator, MA Declared: February 9, 2019</p>	<p>Bernie Sanders</p>  <p>"The only way we will win this election and create a government and economy that work for all is with a grassroots movement - the likes of which has never been seen in American history."</p> <p>Currently: US Senator, VT Declared: February 19, 2019</p>	<p>Kamala Harris</p>  <p>"The American people deserve to have somebody who is going to fight for them."</p> <p>Currently: US Senator, CA Declared: January 21, 2019</p>
<p>Pete Buttigieg</p>  <p>"Running for office is an act of hope."</p> <p>Currently: Mayor, South Bend, IN Declared: January 23, 2019</p>	<p>Cory Booker</p>  <p>"I believe that we can build a country where no one is forgotten no one is left behind."</p> <p>Currently: US Senator, NJ Declared: February 1, 2019</p>	<p>Beto O'Rourke</p>  <p>"We can either be governed by fear... or we can be governed by our ambitions and our aspirations, and our desire to make the most out of all of us."</p> <p>Currently: Former Congressman, TX Declared: March 14, 2019</p>	<p>Andrew Yang</p>  <p>"What I've been saying is the opposite of Donald Trump is an Asian man who likes math."</p> <p>Currently: Entrepreneur Declared: November 6, 2017</p>

Image source: <https://flourish.studio/2019/10/17/cards-template/>

Photo Gallery

We captured images from the Loop and Lincoln Park Library on March 8, 2016 for Library Snapshot Day.



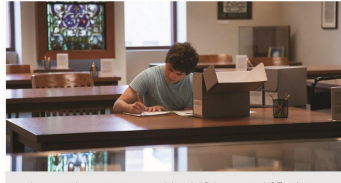
DePaul University Library Snapshot Day | March 8th, 2016



There were 109 study space reservations totaling 195 hours.



154 questions were answered at the Research Help Desks by reference librarians and peer research tutors.



4 researchers spent a combined 10 hours and 25 minutes in the Special Collections and Archives Reading Room working with primary and archival materials.

Image source: <https://bit.ly/3oGdxj5>

An Elaboration Stories and Arguments #1

Story

- ★ An account of imaginary or real people and events told for entertainment (an adventure story)
- ★ An account of past events in someone's life or in the evolution of something (the story of farming)

Argument

- ★ A set of reasons offered to support a claim

An Elaboration Stories and Arguments #2

Arguments as data stories?

- ★ Organizing information (what's in and what's out)
- ★ Standards for a good story?

Our First 'Story'

What's the best restaurant in downtown Boise?

- ★ How would you collect the data?
- ★ Fast versus accurate versus data-driven

Let's take a minute to jot down some ideas



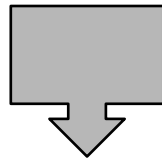
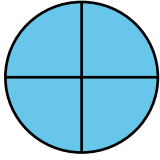
Data Stories & You, Part 2



so you've got some data . . .

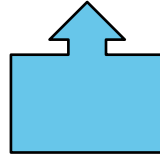


Change Over Time

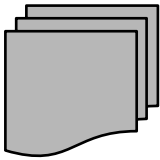


Drill Down

Zoom Out

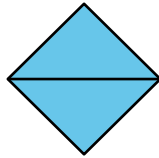


Data Brainstorming Guide



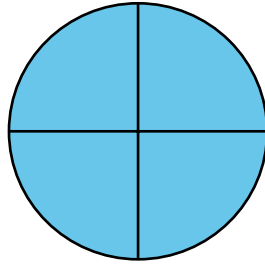
Contrast

Factors



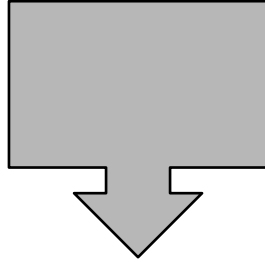
Outliers

Change Over Time



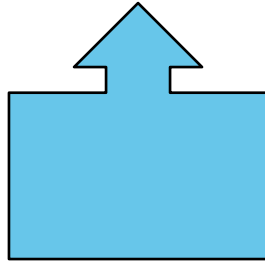
- ★ subject matter interest
- ★ faculty citations
- ★ types of instruction

Drill Down



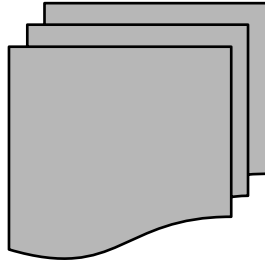
- ★ geographic
- ★ age
- ★ patron type/status
- ★ gender

Zoom Out



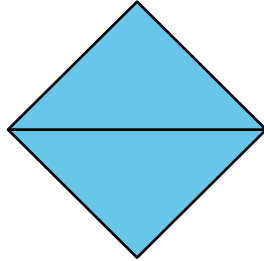
- ★ geographic
- ★ similar institutions
- ★ system(s)

Contrast



- ★ minimum/maximum
- ★ drill down groups
- ★ other organizations

Factors



- ★ pieces of the pie vs the whole pie
 - ★ expenditures overall/by category
- ★ factors within a metric
 - ★ journal cost analysis

A yellow starburst graphic with a black outline, centered in the upper half of the page. The word "Outliers" is written in the center of the starburst in a blue, bold, sans-serif font with a white outline.

Outliers



Story Type: Explainer

why

is thing x
going up?
trending?

how

does this
confusing
thing work?

what

factors
influence a
decision

what do
you
think?
[tell us your
story]

why

we need
this money



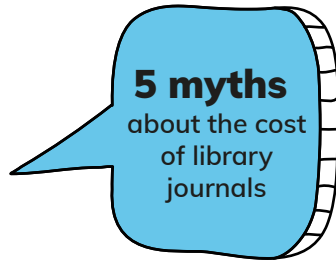


Story Type: What we Know





Story Type: Fact Check





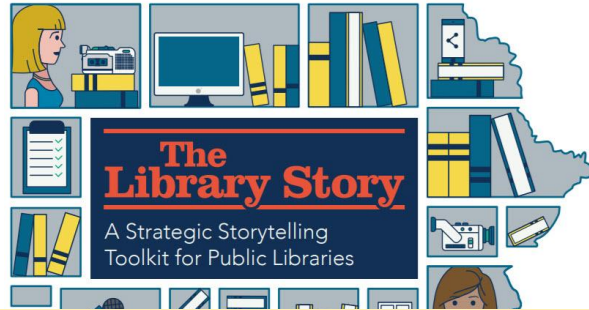
Story Type: Annotations





Story Type: Takeaways





Some Resources



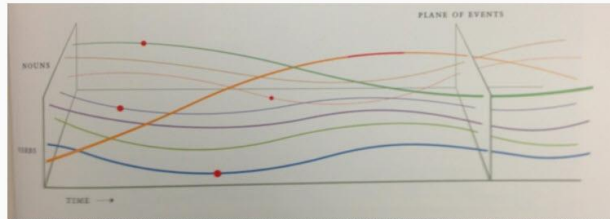
Source: https://powerlibrary.org/wp-content/uploads/2014/12/PA_StorytellingTOOLKIT.pdf





Data Storytelling: The Ultimate Collection of Resources

Zach Gemignani · Data Storytelling



Ocean_of_the_Stream_of_Stories

Source: <https://www.juiceanalytics.com/writing/the-ultimate-collection-of-data-storytelling-resources>





HAND-BOOK

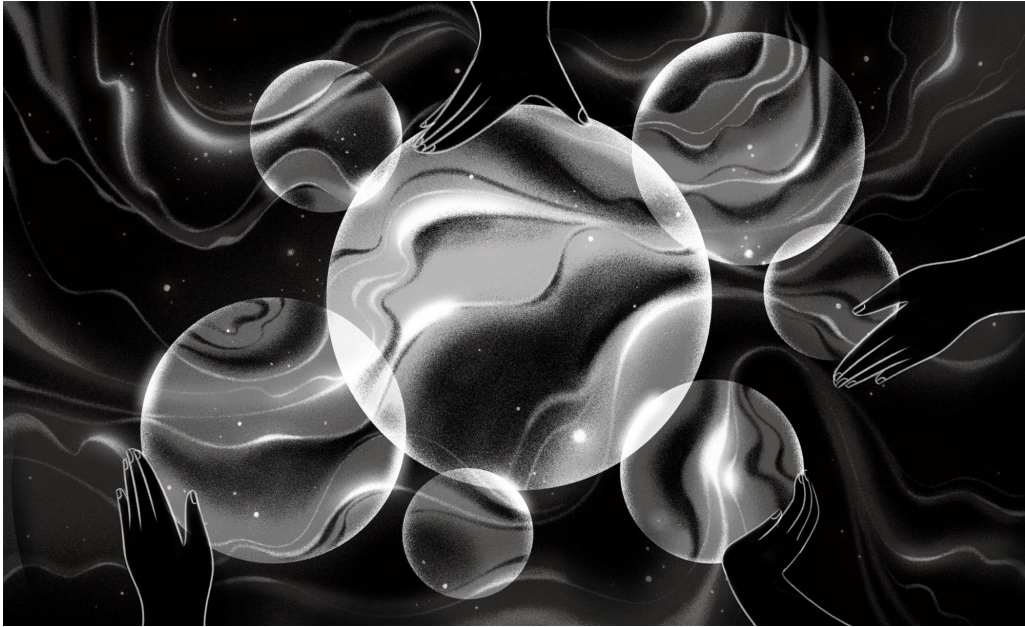
OF THE MODERN DEVELOPMENT SPECIALIST

Being, a Complete, Illustrated Guide to
Responsible Data Usage, Manners, and
General Deportment

Source: <https://responsibledata.io/resources/handbook/>

Tool	Type	Used by	Difficulty	Notes
Excel	Data cleaning, wrangling, analysis	STEM types, social science types	Varies by task	
Google Sheets	Slightly less powerful tool for data cleaning and wrangling. Pretty good for analysis.	Everybody who needs to make a spreadsheet	Varies by task	
Datawrapper	Data visualization (charts, maps, tables)	Data viz and science types who don't program	Low to moderate	Free version available. No signup required. It's not hard, but you need to understand how a dataset should be structured (e.g. column headers with no spaces)
Flourish	Visualizations (big range of chart options including some less commonly available ones like Sankey diagrams) and stories	Data viz and science types who don't program	Low to moderate	Free version available (content posted publicly on their servers). Signup required. This is similar to Datawrapper except instead of uploading data first, you choose a chart type first (which means you need to know what chart would be appropriate for your data) and they populate the chart with data (which means you can see the structure and edit with your own data)
GapMinder Tools	Data visualization (Bubble maps especially)			I think this is just for their datasets, but I need to look a bit more closely.
Tableau Public	Data visualization, stories, some data wrangling if you know how.			People that have a stats and data analysis background say that this is a super intuitive tool, but I find it to be pretty confusing compared to some of the others.
Google Data Studio	Create reports from predefined templates.			
Interactive Dotplot	Data visualization			I haven't used this one, so I don't know how easy it is to create with this tool
RawGraphs	Data visualization			Open source, which is awesome. Lots of interesting and less common chart types.
InfoArt	Data visualization			Free version. Signup required. This is a new tool, so I haven't tried it, but I've used the same company's diagramming tool and

Source: <https://bit.ly/2WUUGpg>



Source: <https://nyti.ms/2Yz2TjF>

Questions?

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