

Data Storytelling

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Data Storytelling or Data Narrative is the art
of telling stories with data

Communication, Persuasion according to Aristotle



The **narrative** refers to ethical values

The **story** refers to the emotions

The **data** refers to logic

Data	Story	Narrative
Data is the reality	A story is an account of events based on data	A narrative is a set of beliefs, values or worldview that interprets a story

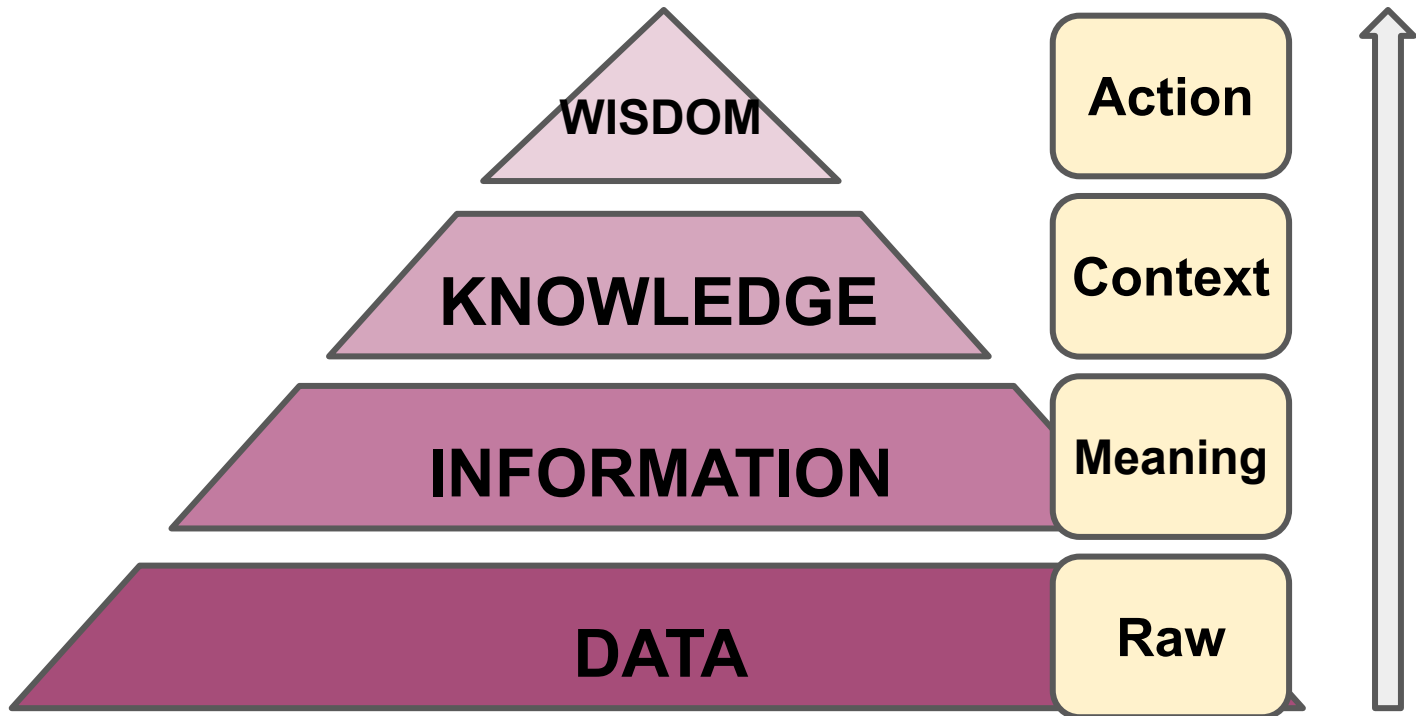
Your story is for your Audience

Purpose of your story:

- Entertaining the audience
- Informing the audience
- Teaching something to the audience.

The effect of your story should be calling the audience to action!

The Data Information Knowledge Wisdom (DIKW) pyramid

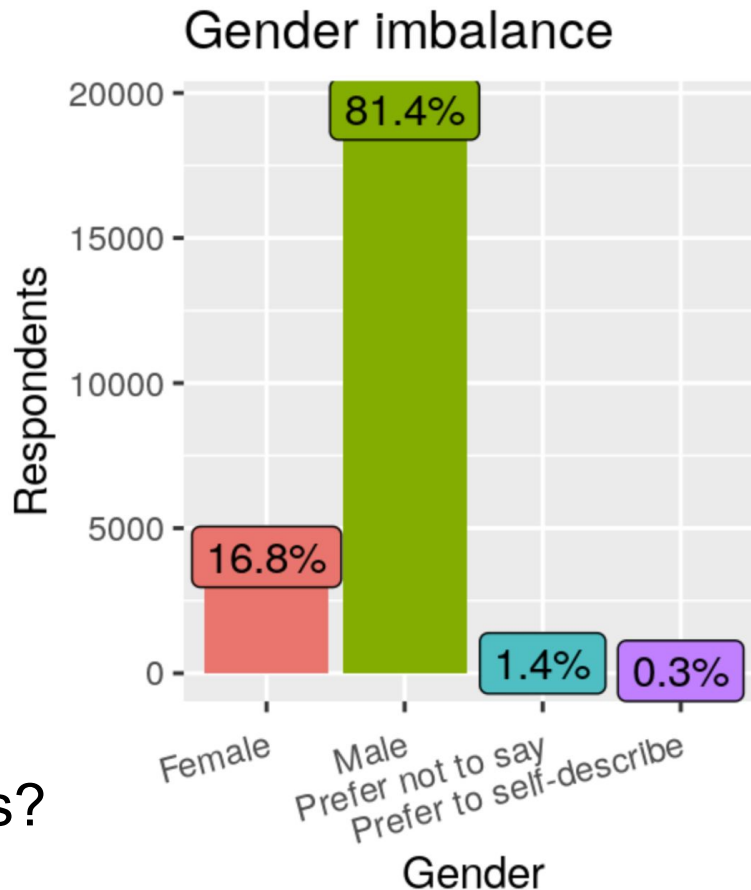


Starting from Data

Survey responses

Female	16.8%
Male	81.4%
NS	1.4%
ND	0.3%

What is the difference between these two representations?

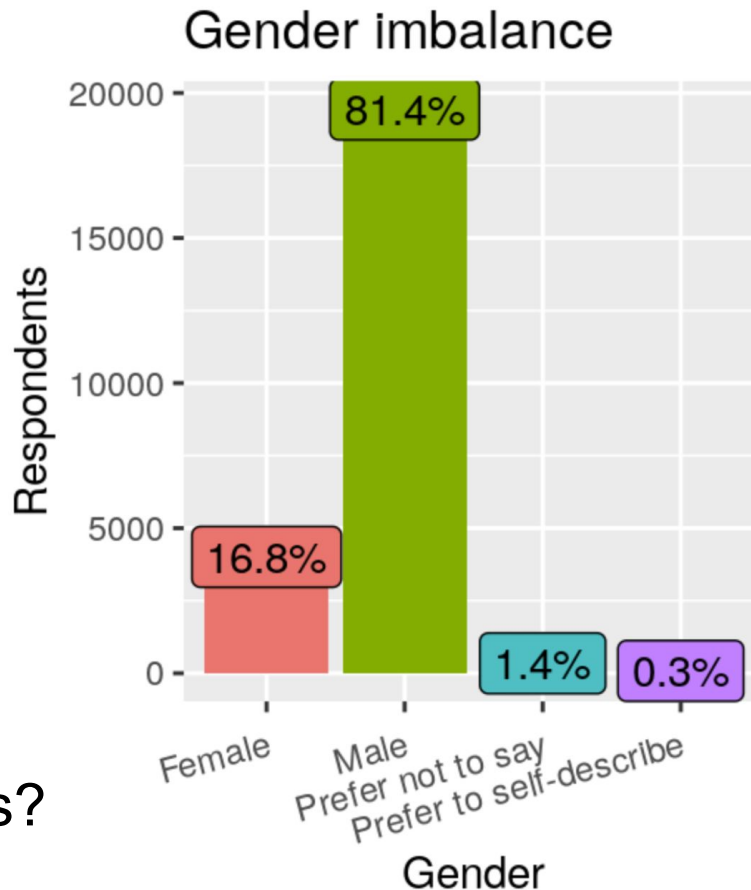


Survey responses

Female	16.8%
Male	81.4%
NS	1.4%
ND	0.3%

What is the difference between these two representations?

NO DIFFERENCE!



*How to turn data into
information?*

Adding a **meaning** to data

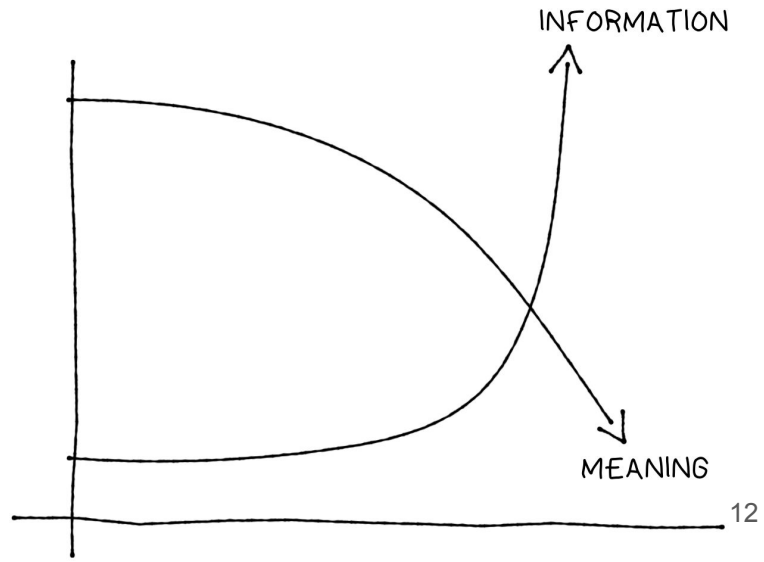
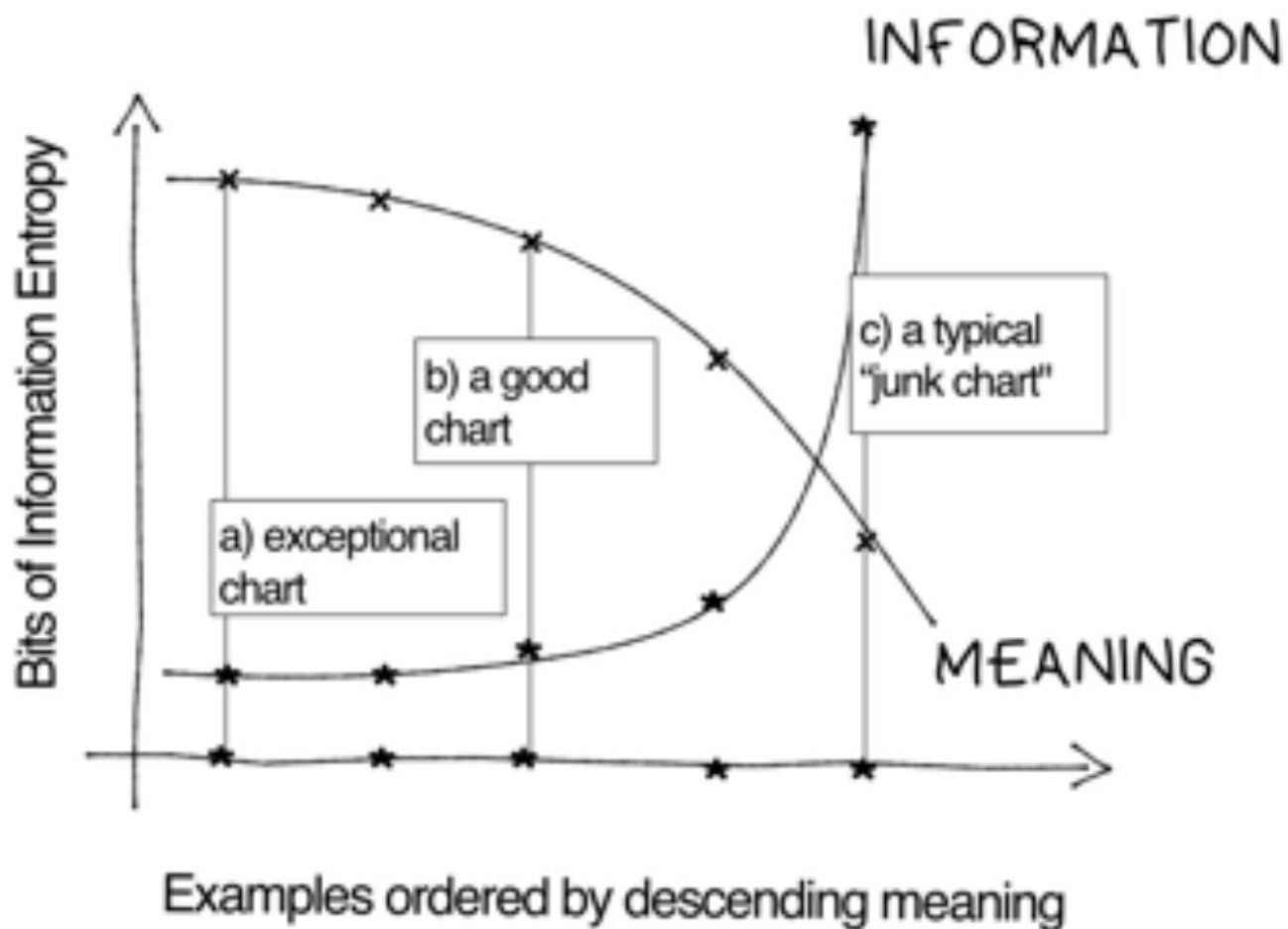
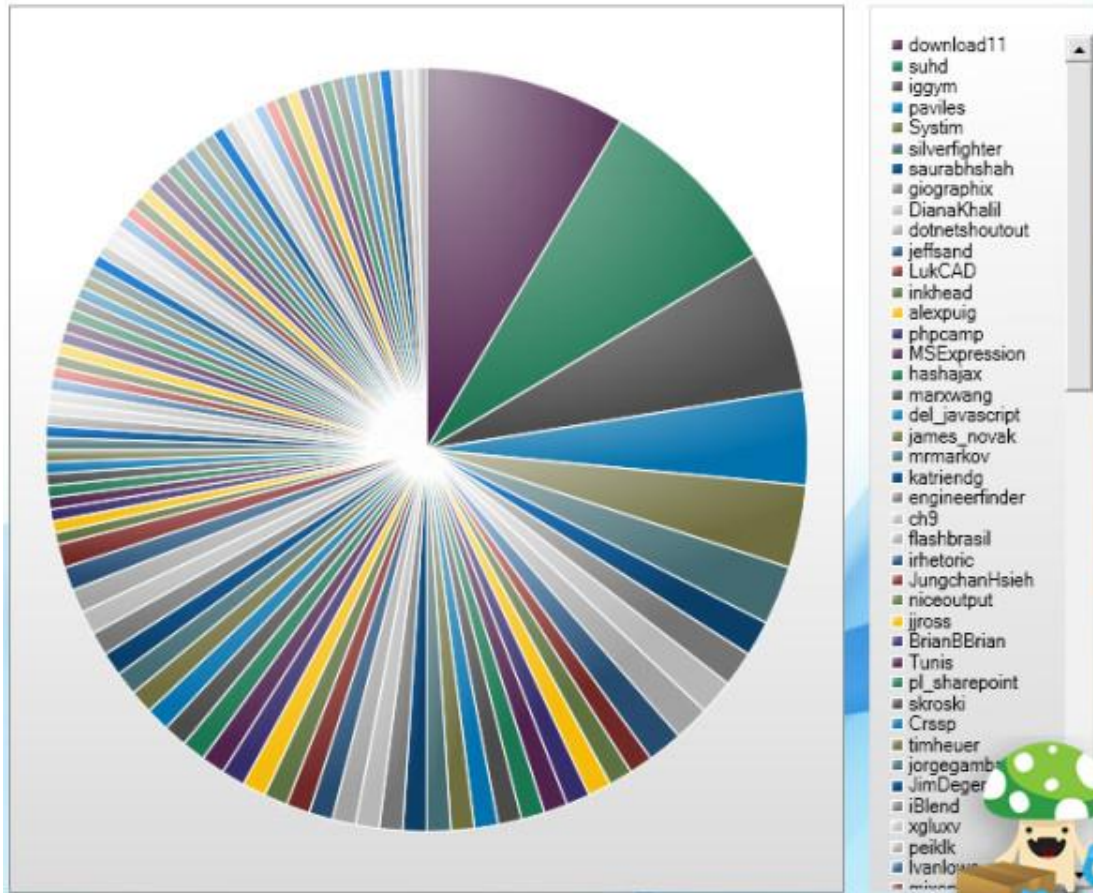


Exhibit A



100 Most Active Tweeters



Code

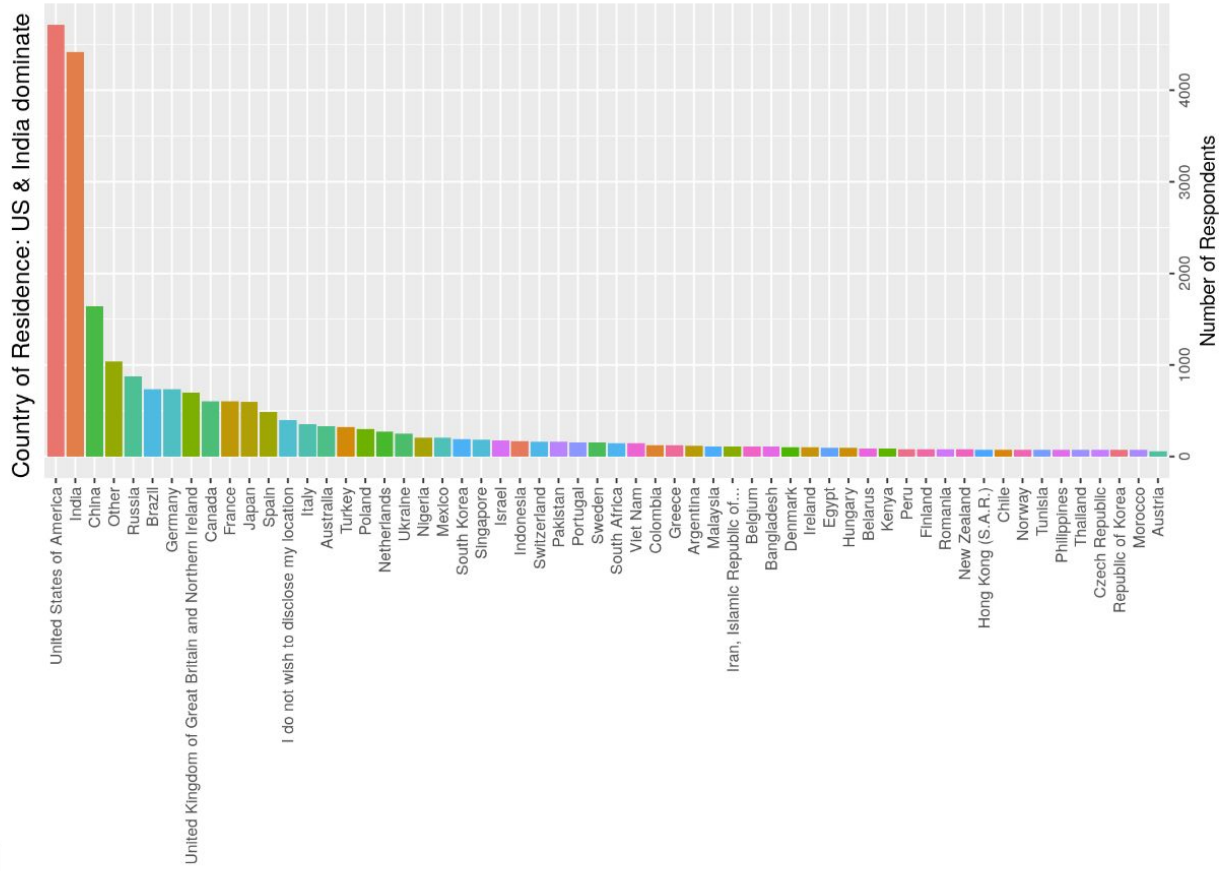


Fig. 5

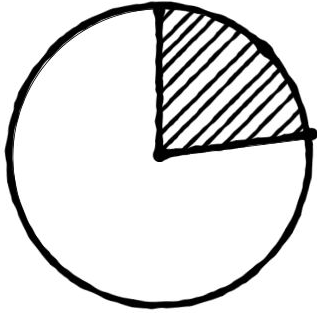


2 possible strategies

Focus on a single message – If your message brings everything, it brings nothing.

Simplify – avoid all the details relating to the data and abstract the data as much as possible.

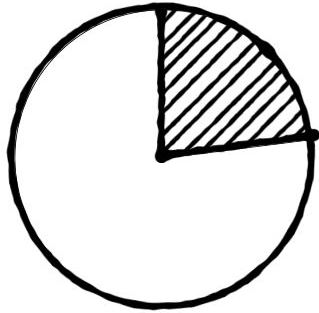
Focus on a single message



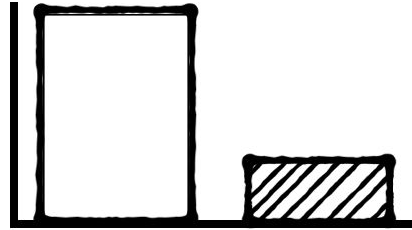
Pie chart



Focus on a single message



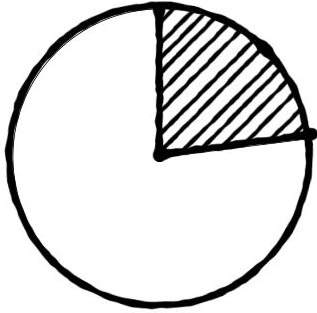
Pie chart



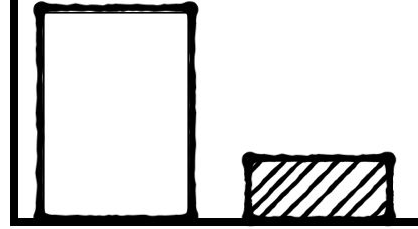
Bar plot



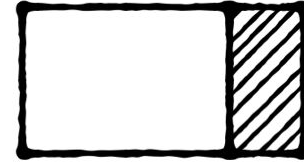
Focus on a single message



Pie chart



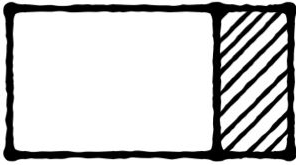
Bar plot



Stack-bar

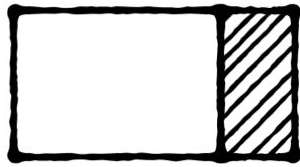


Focus on a single message

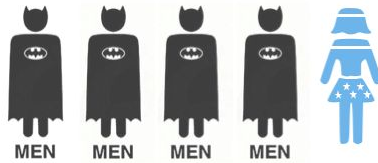


Impersonal

Focus on a single message

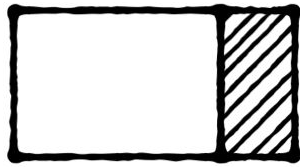


Impersonal

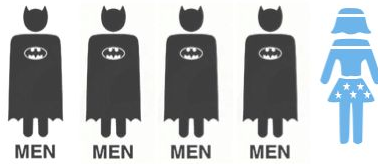


Compelling

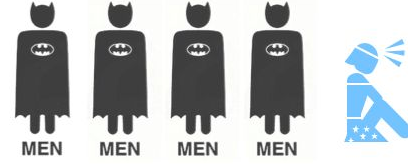
Focus on a single message



Impersonal

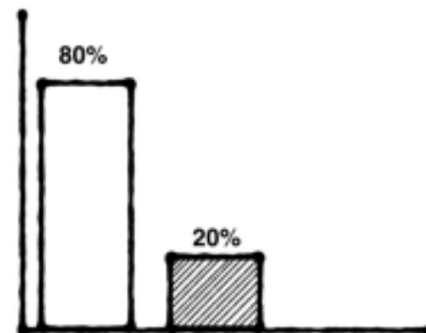
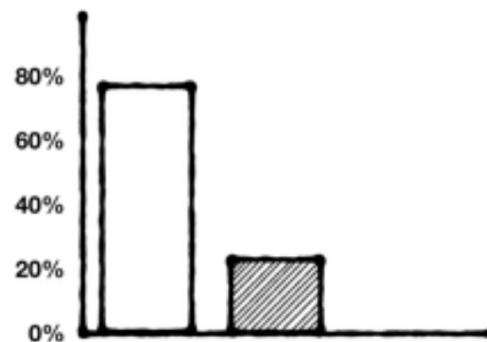


Compelling

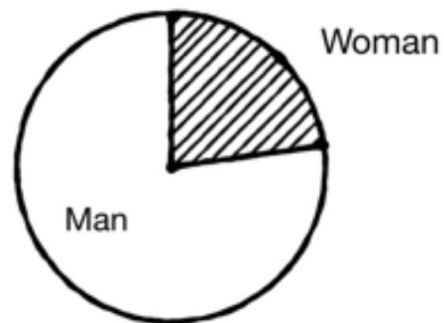


Dramatized

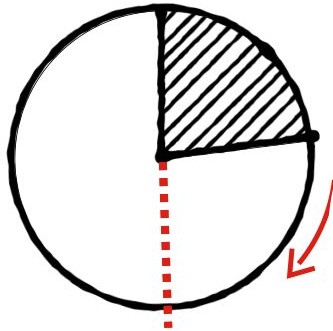
Simplify



Simplify

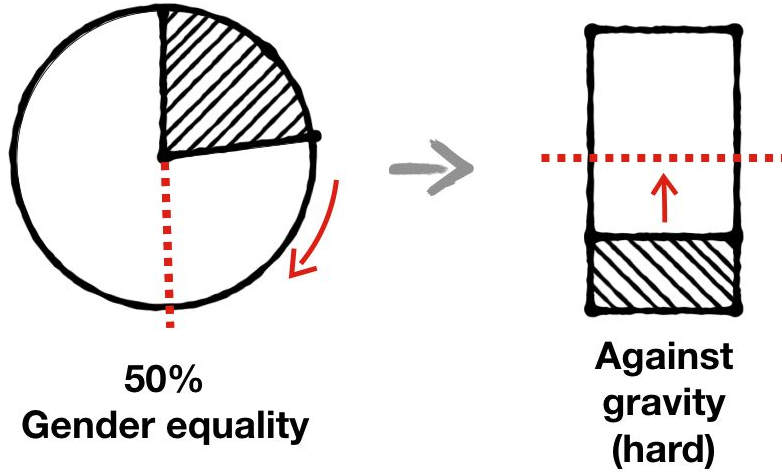


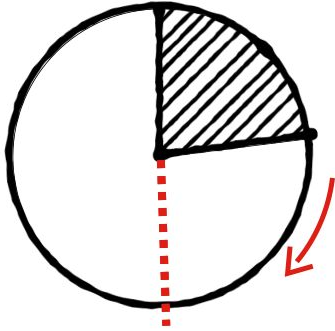
Further improvement



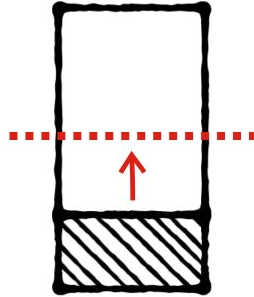
50%
Gender equality

Further improvement

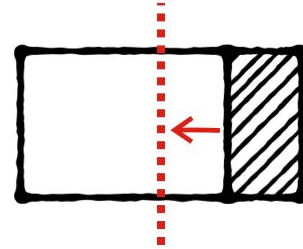




50%
Gender equality



Against
gravity
(hard)

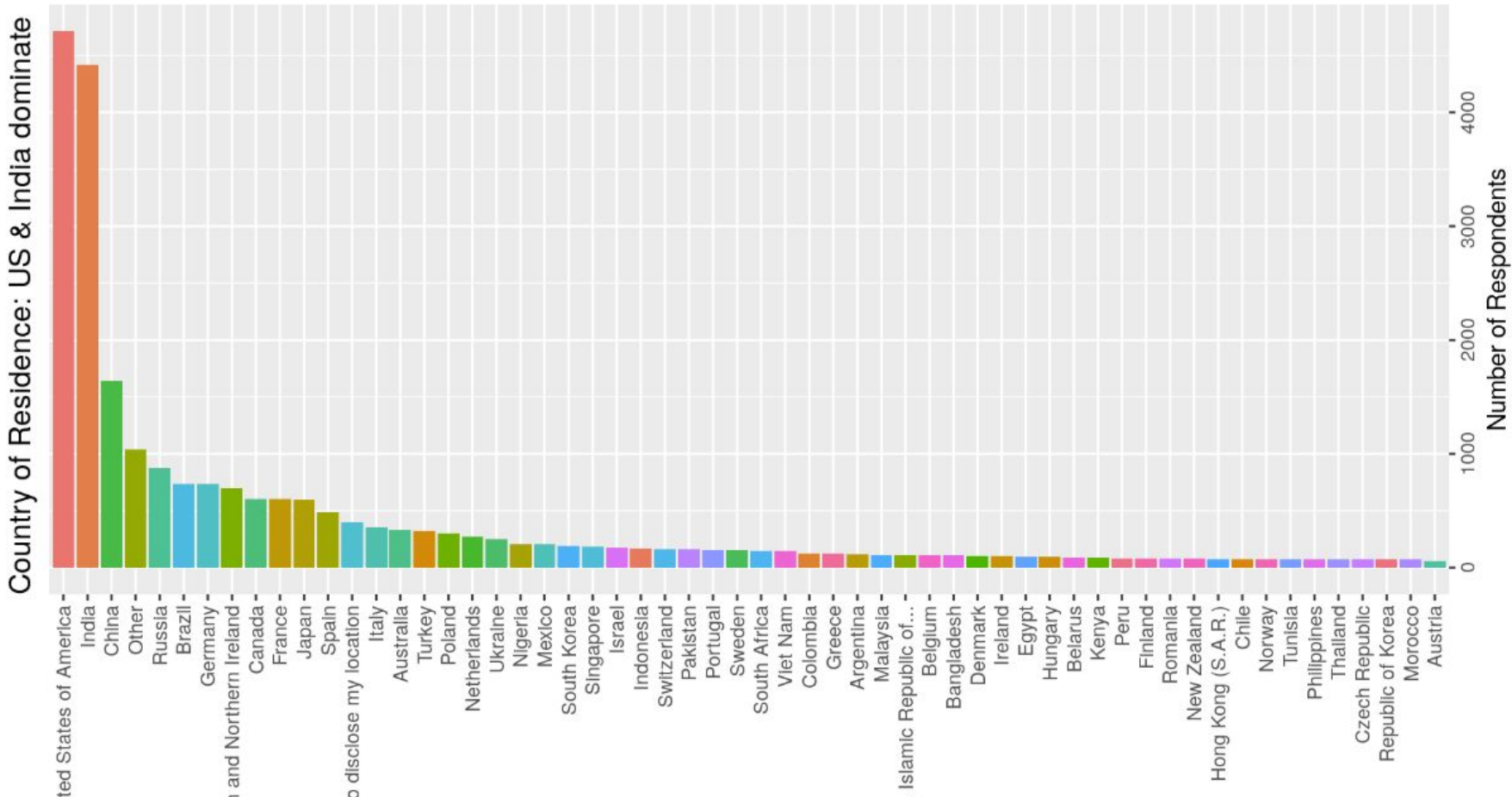


horizontal
(easier to achieve)

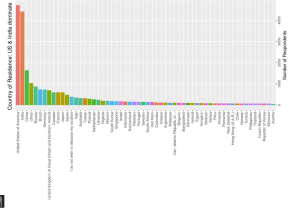
The goal is at a
lower level

Exercise

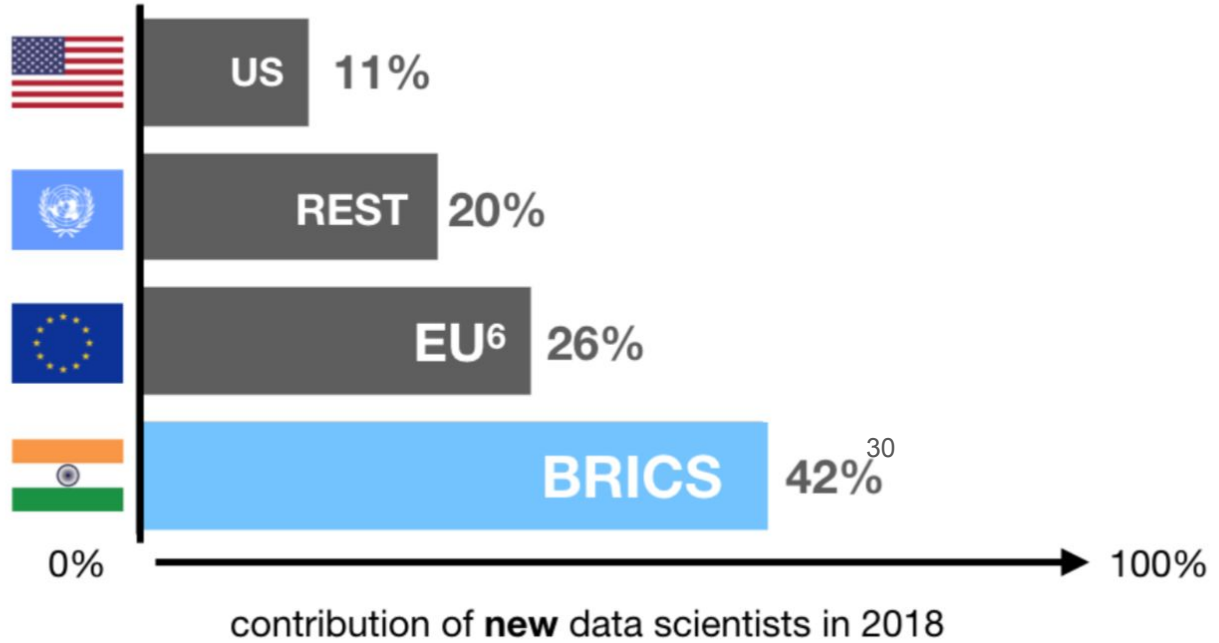
Data scientist by country. How more meaning?



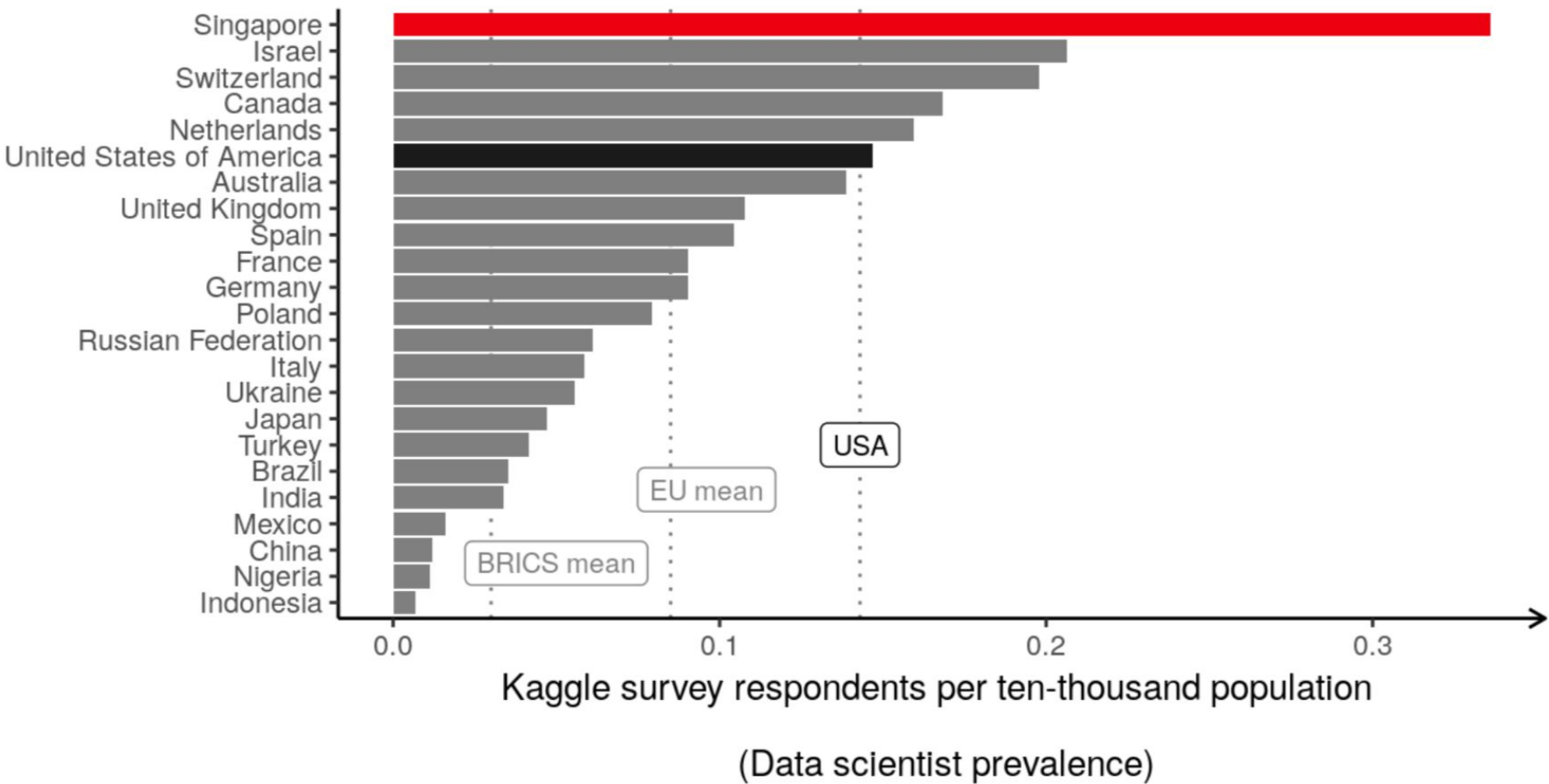
Solution A



BRICS growing faster than US, Europe



Solution B



*How to turn information into
knowledge?*

Adding a **context** to information

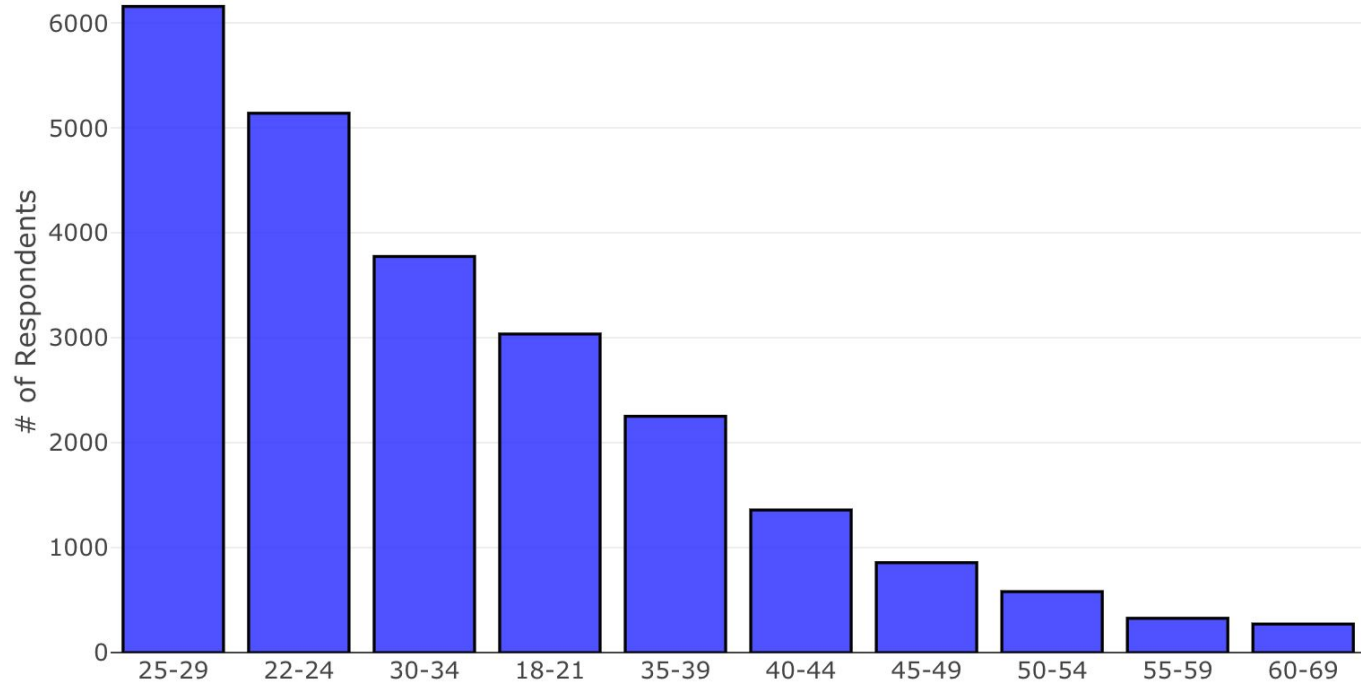
What is context?

- **Events** – something that happens.
- **Environment** – an external or internal constraint.
- **Time** – a chronological order in the data.

3 possible strategies to add a context

- Define communication goals
- Choose only information that permits to achieve your communication goals and remove all the other information.
- Add annotations

of Respondents per Age Group

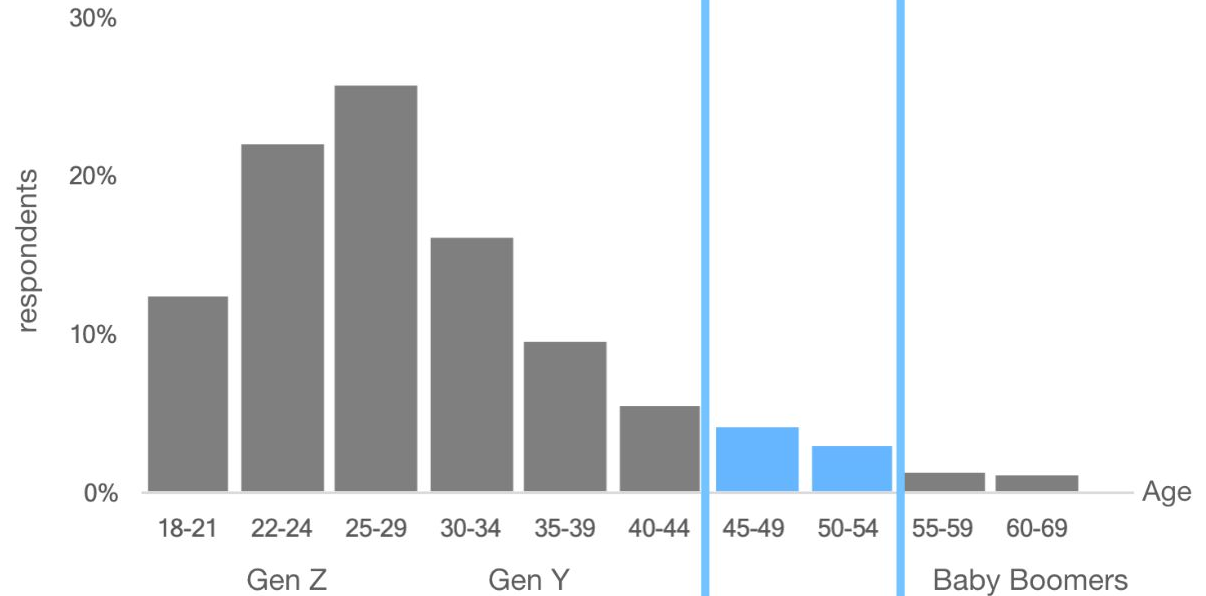


Generation & work-ethic attribute framework

- The **Baby Boomers**, born 1946 – 1964, “often branded workaholics²³”
- **Gen X**, born 1967 – 1977, “this generation works to live and carry with them a level of cynicism”
- **Gen Y**, “Millennials” born 1980 – 2000, “considered the most educated and self-aware generation in employment”
- **Gen Z**²⁴, born after 2000

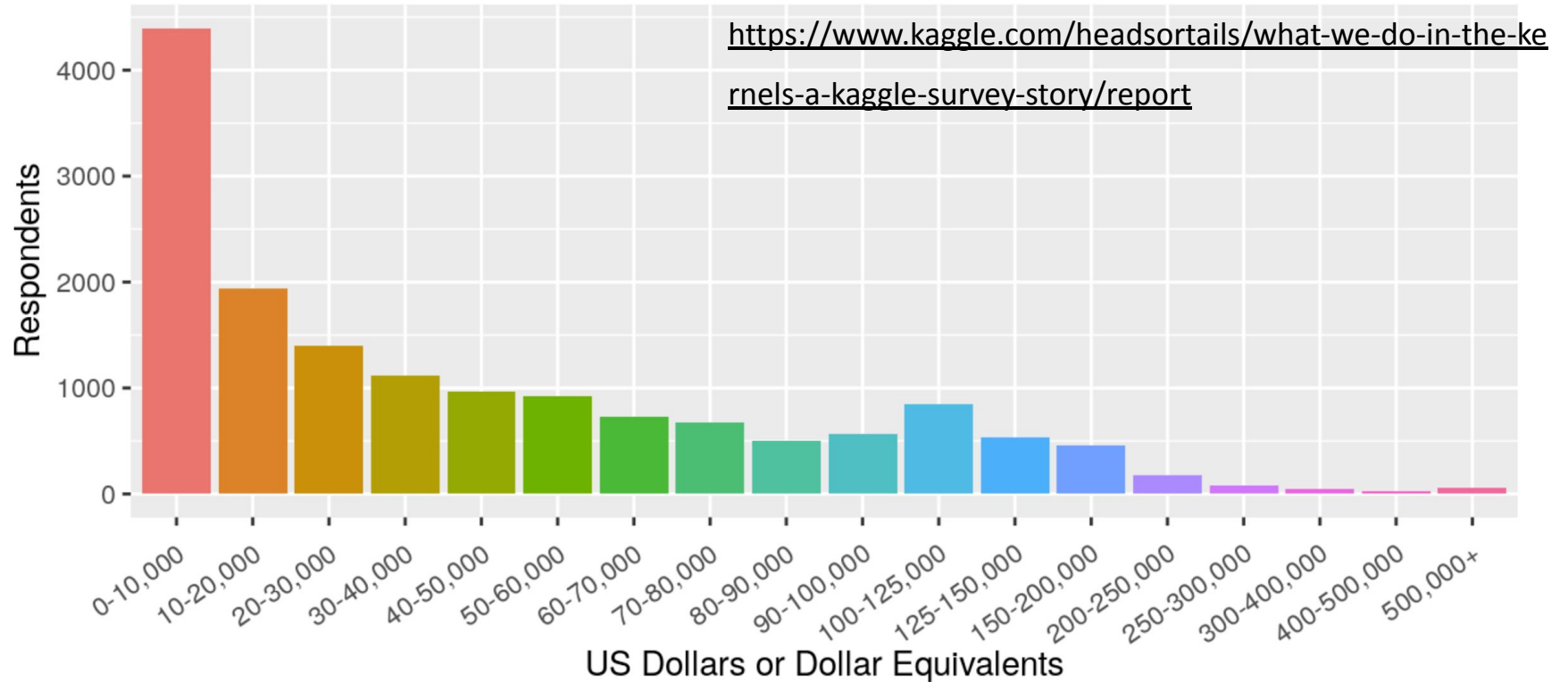
The top grossing cohort is

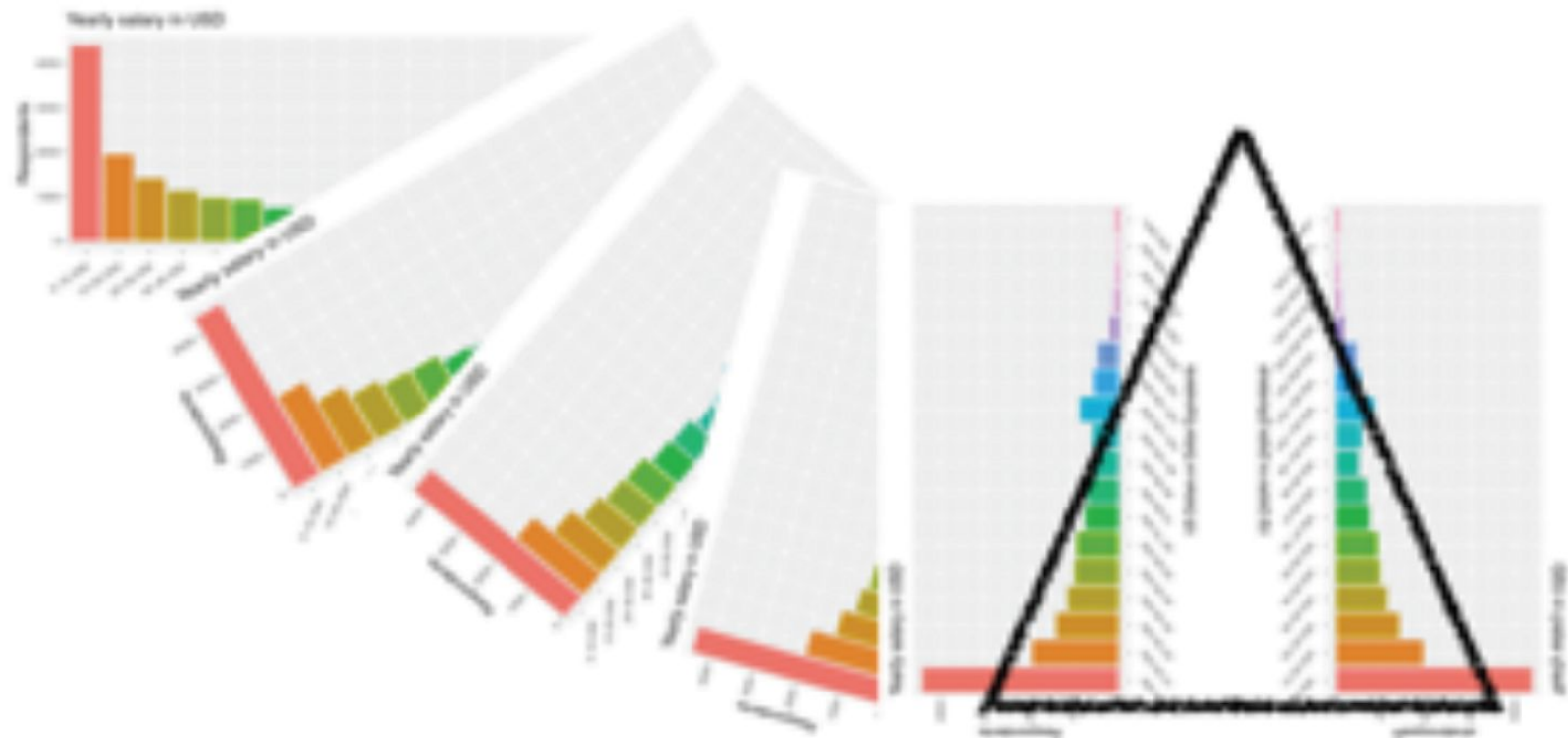
Gen X



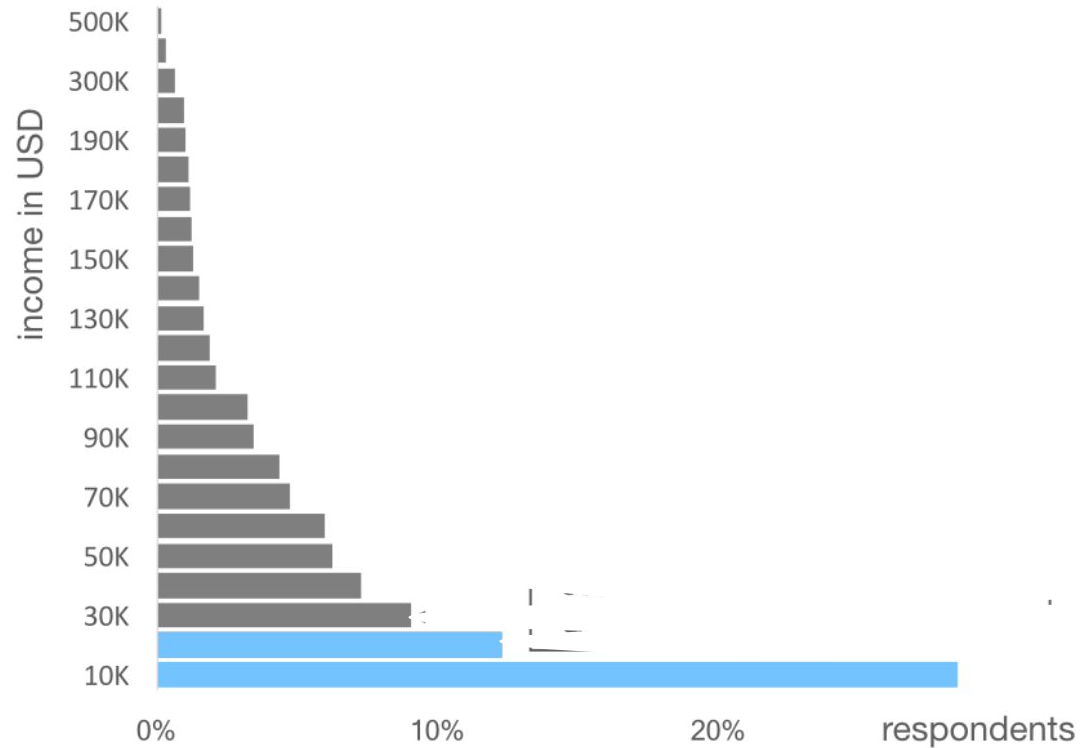
Another example

Yearly salary in USD

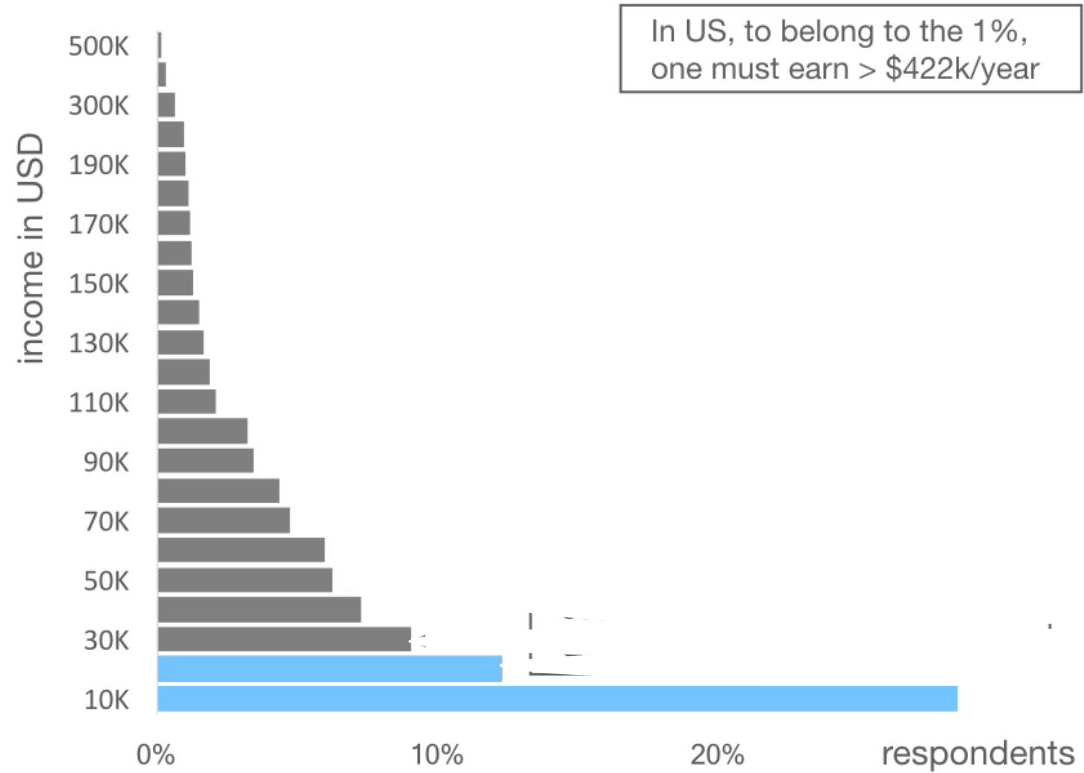




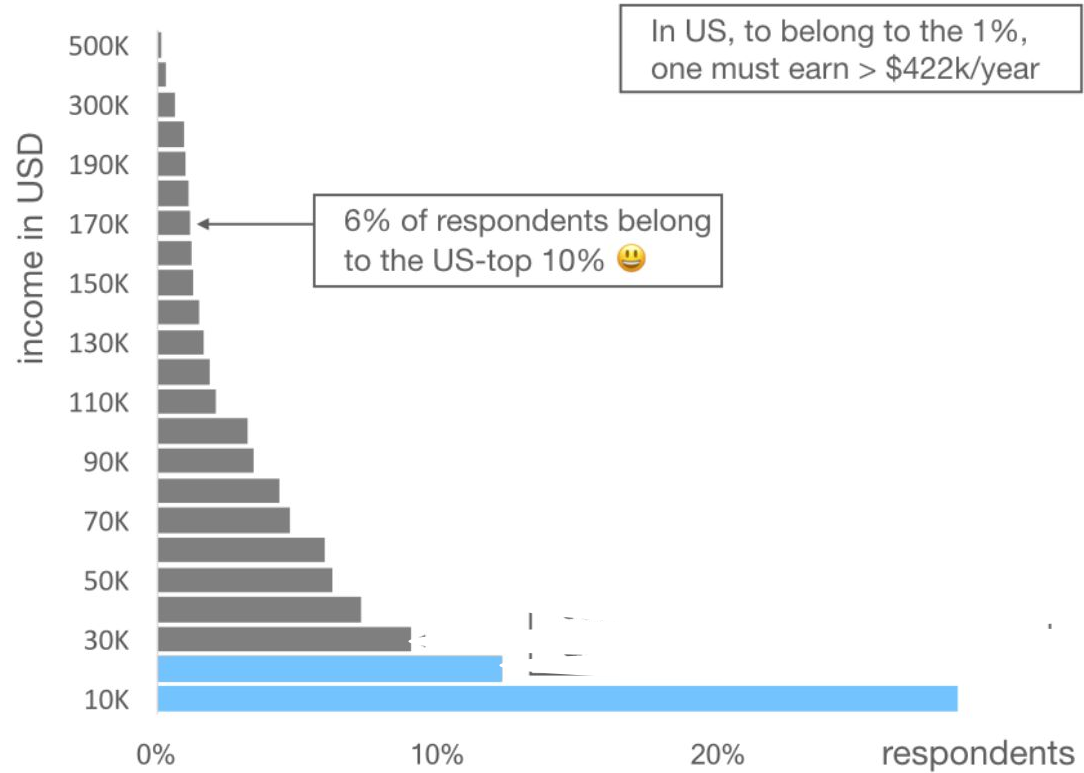
Inclusion and income



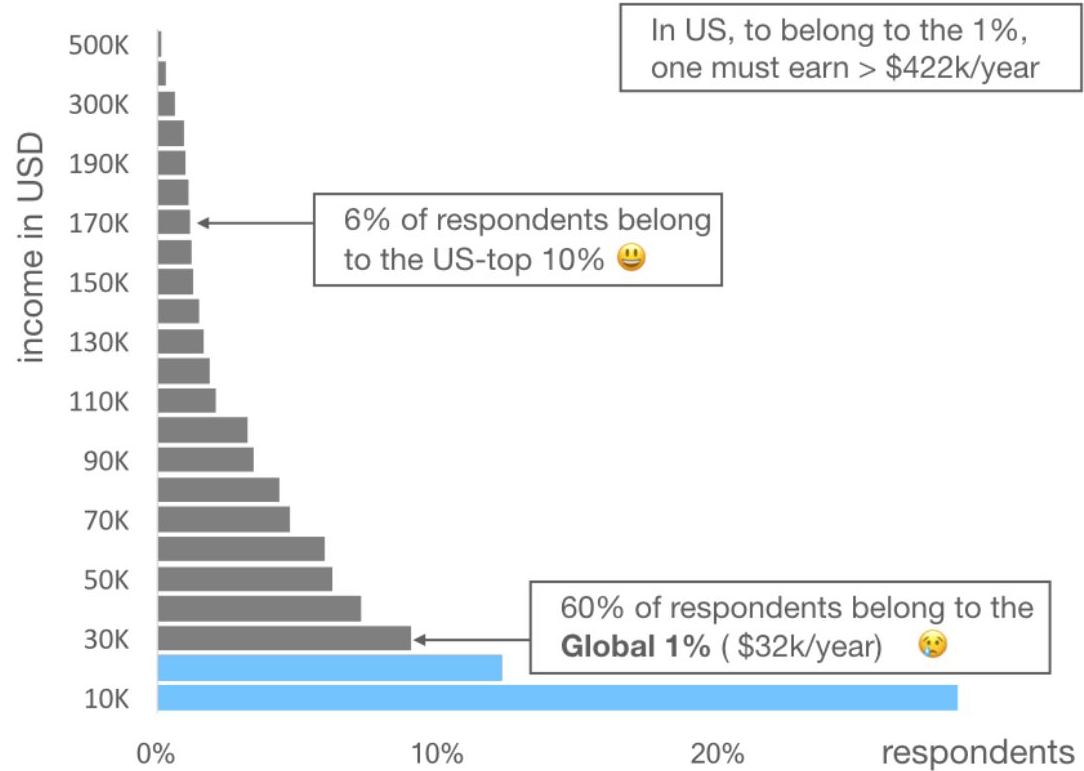
Inclusion and income



Inclusion and income



Inclusion and income



*How to turn knowledge into
wisdom?*

Add a **call to action** to the knowledge

Call to action depends on the ethical evaluation framework

- **Virtues** – the best choice follows a set of predefined values.
- **Fairness** – the best choice optimizes equity.
- **Common good** – the best choice optimizes the well-being society.
- **Utilitarian** – the best choice optimizes global happiness.

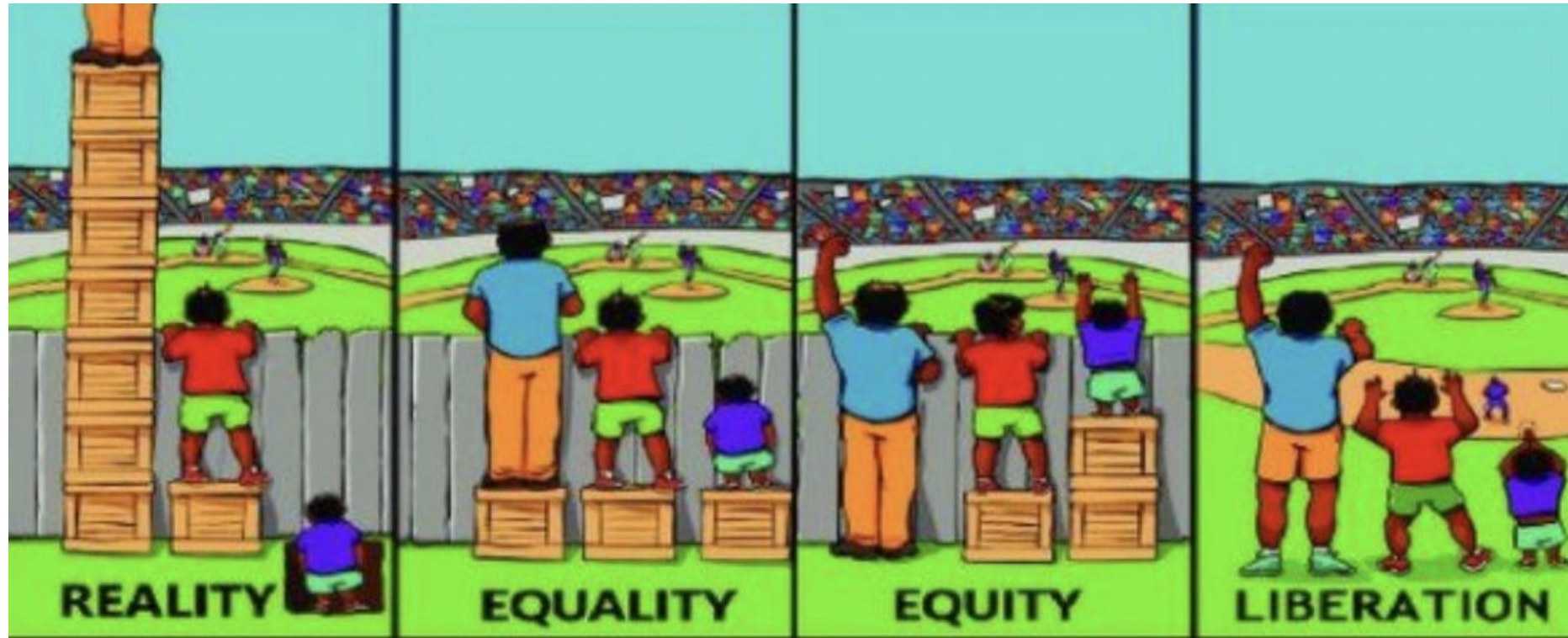


Figure taken from "The A-Z of Social Justice Physical Education: Part 1",
Journal of Physical Education Recreation & Dance 91

Where are:

The Data ?

The Story ?

The Narrative ?

The call to action ?

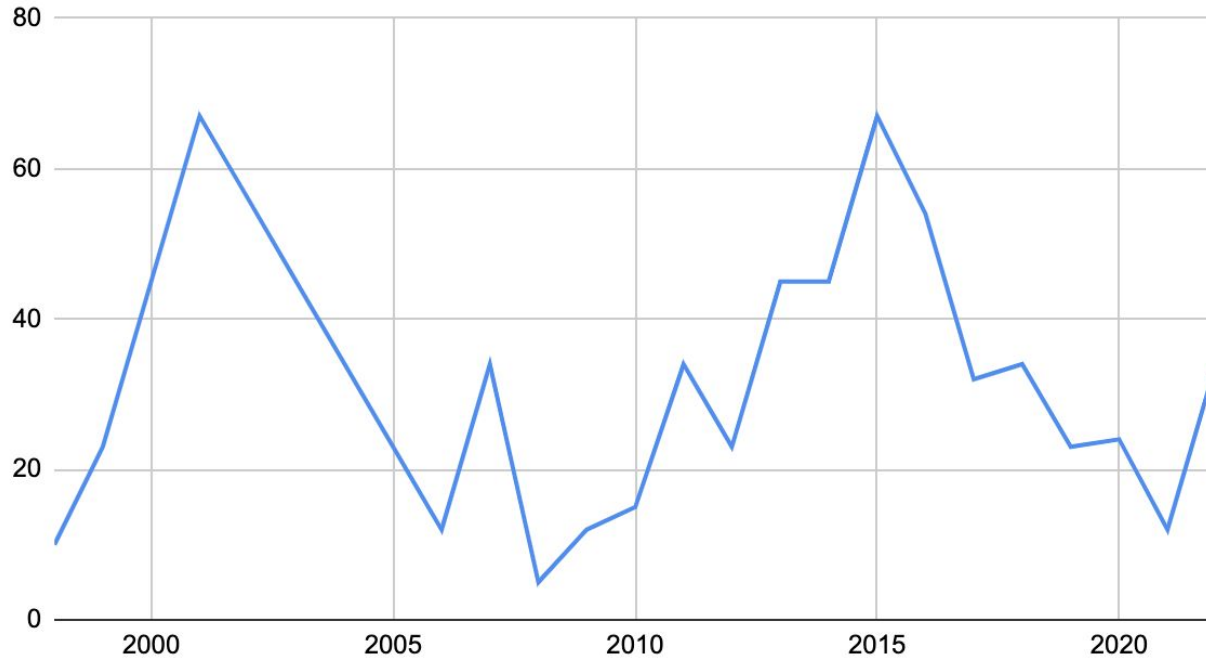




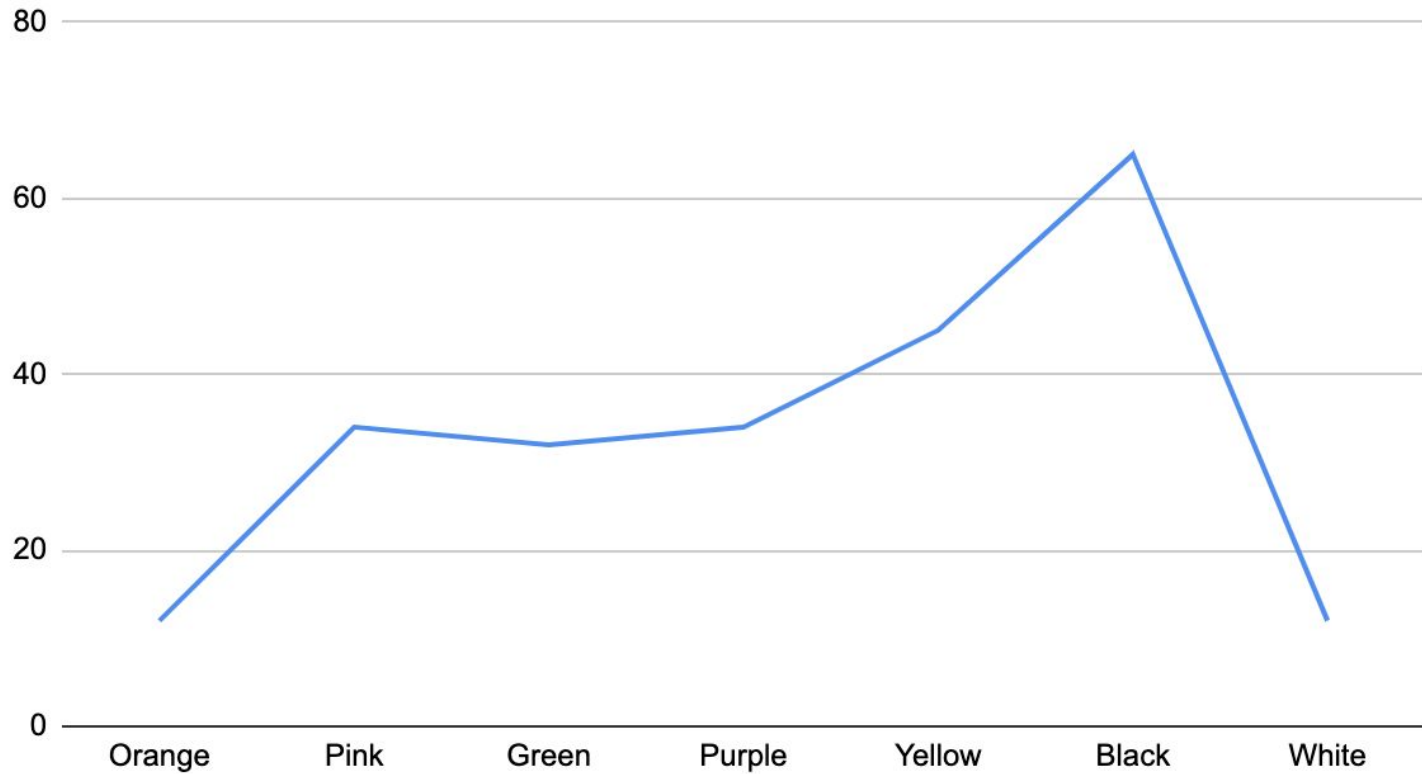
How to choose the correct chart type

Line chart is for Time Series

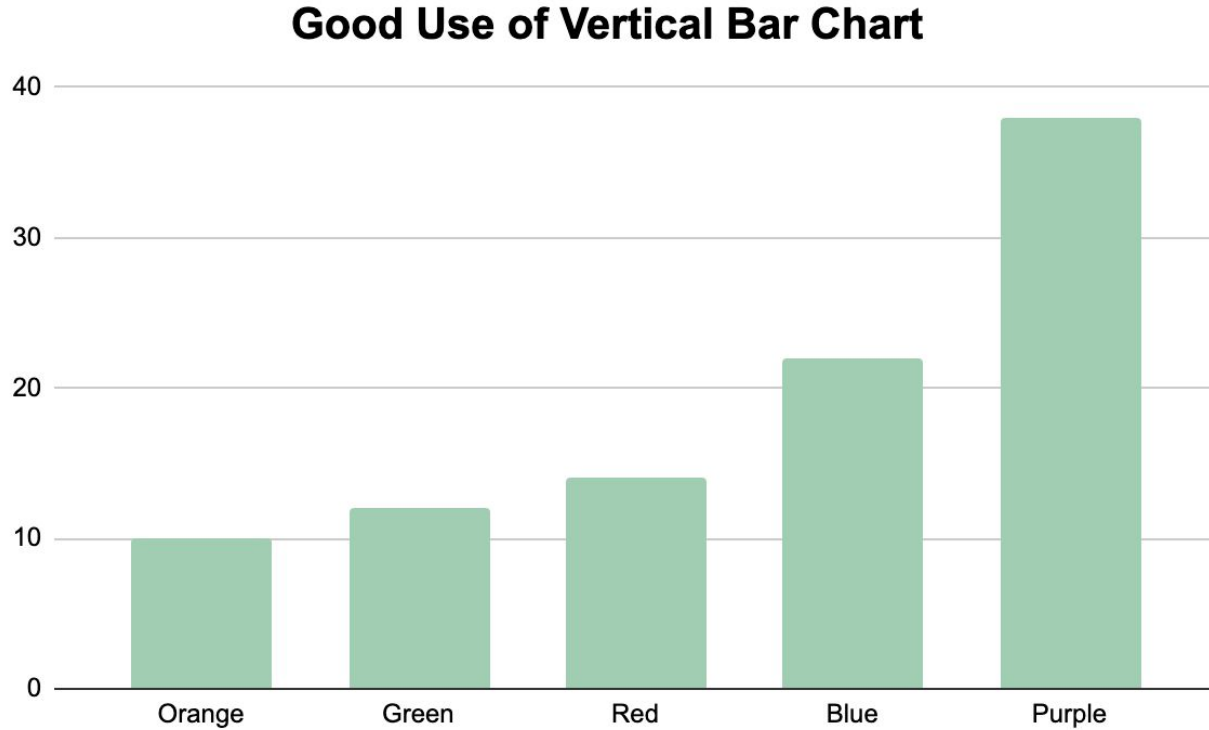
A Line Chart



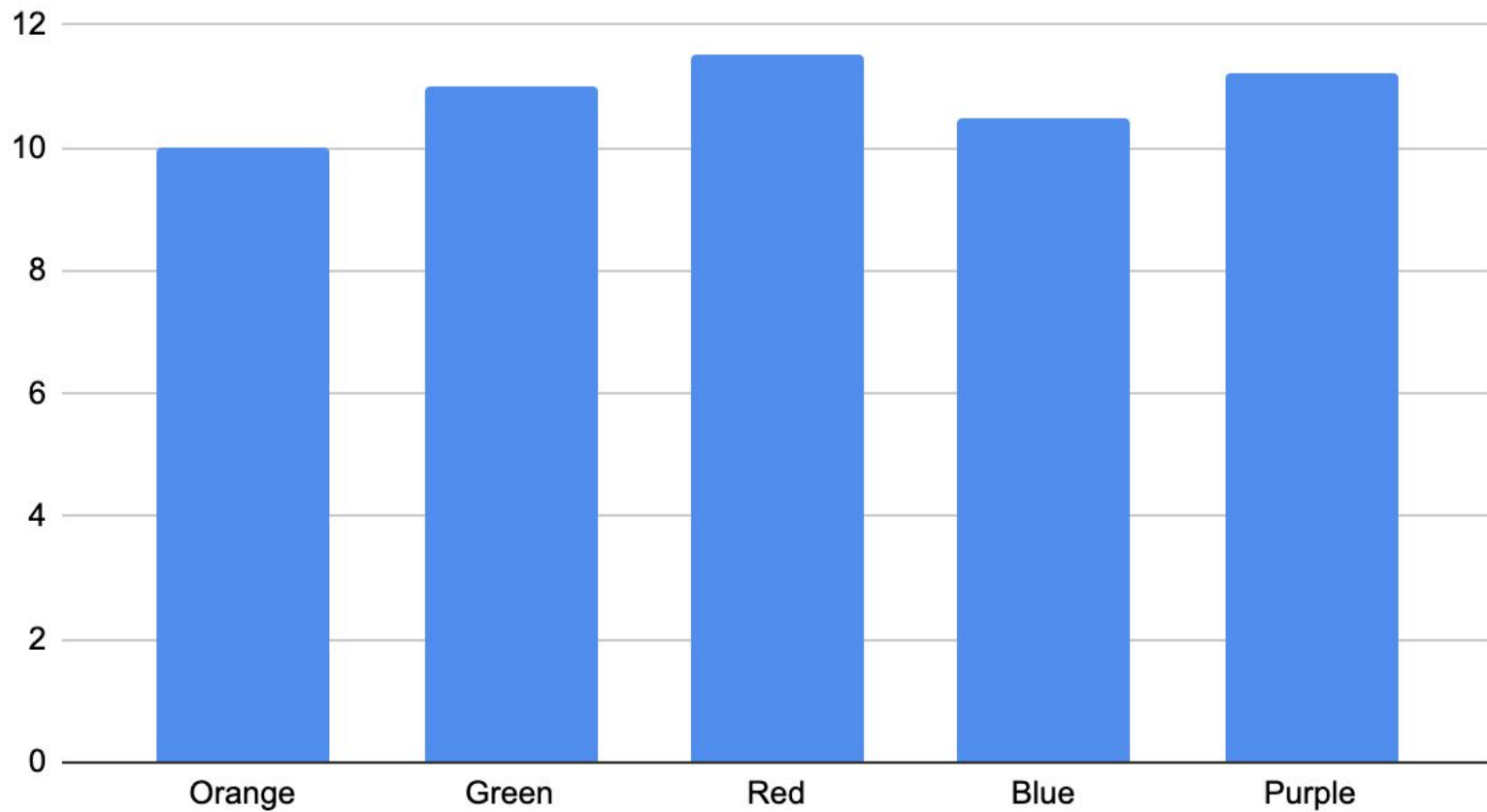
Bad Use of Line Chart



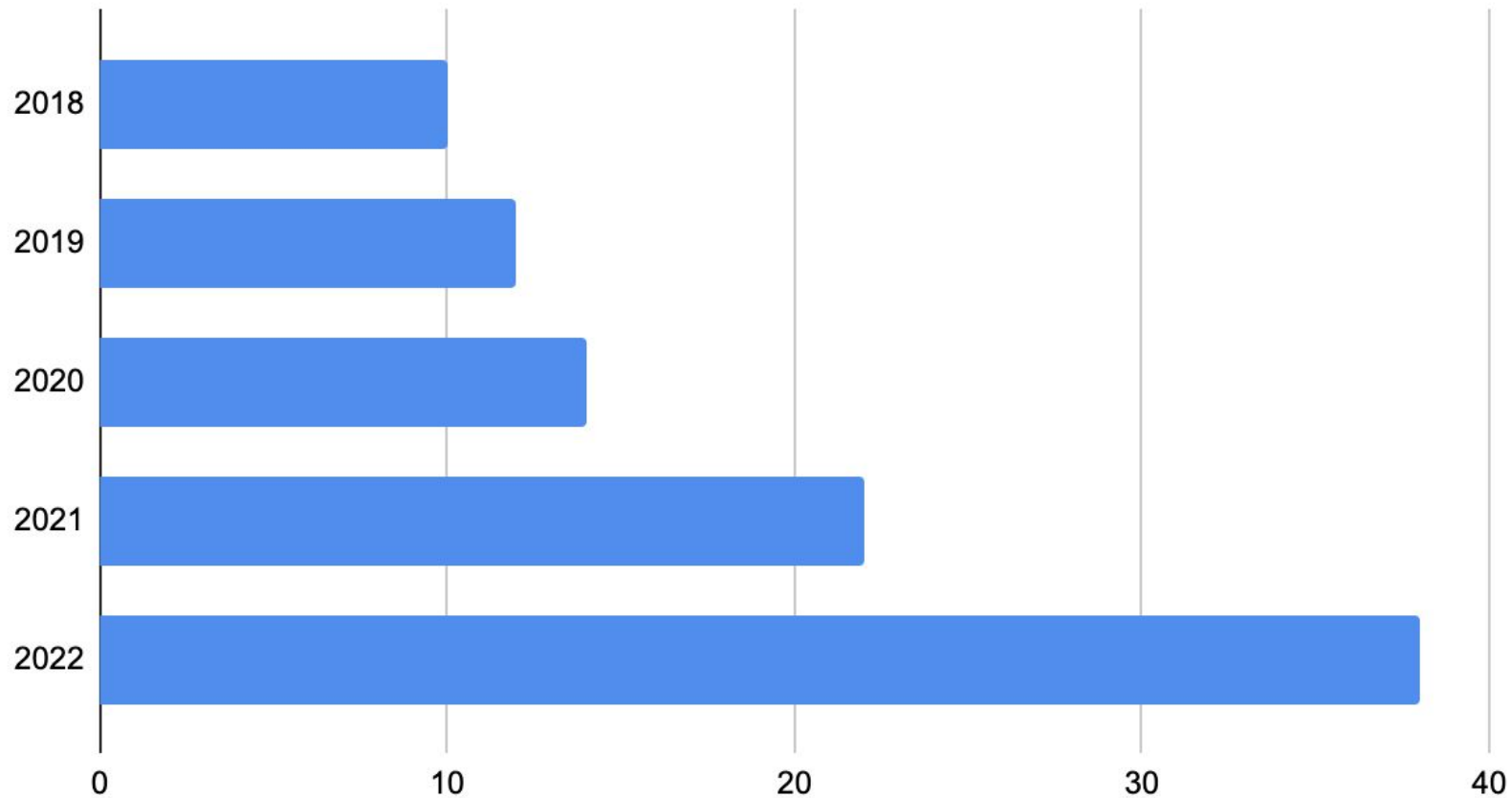
Bar chart is for categories



Bad Use of Vertical Bar Chart

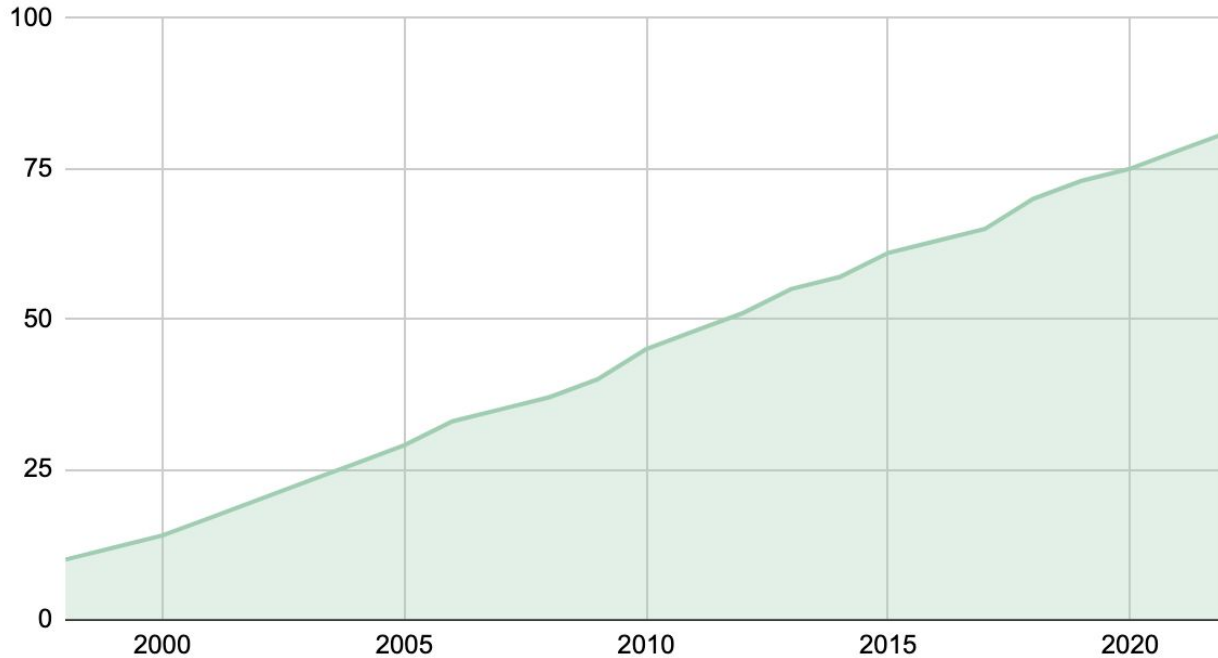


Bad Use of Horizontal Bar Chart



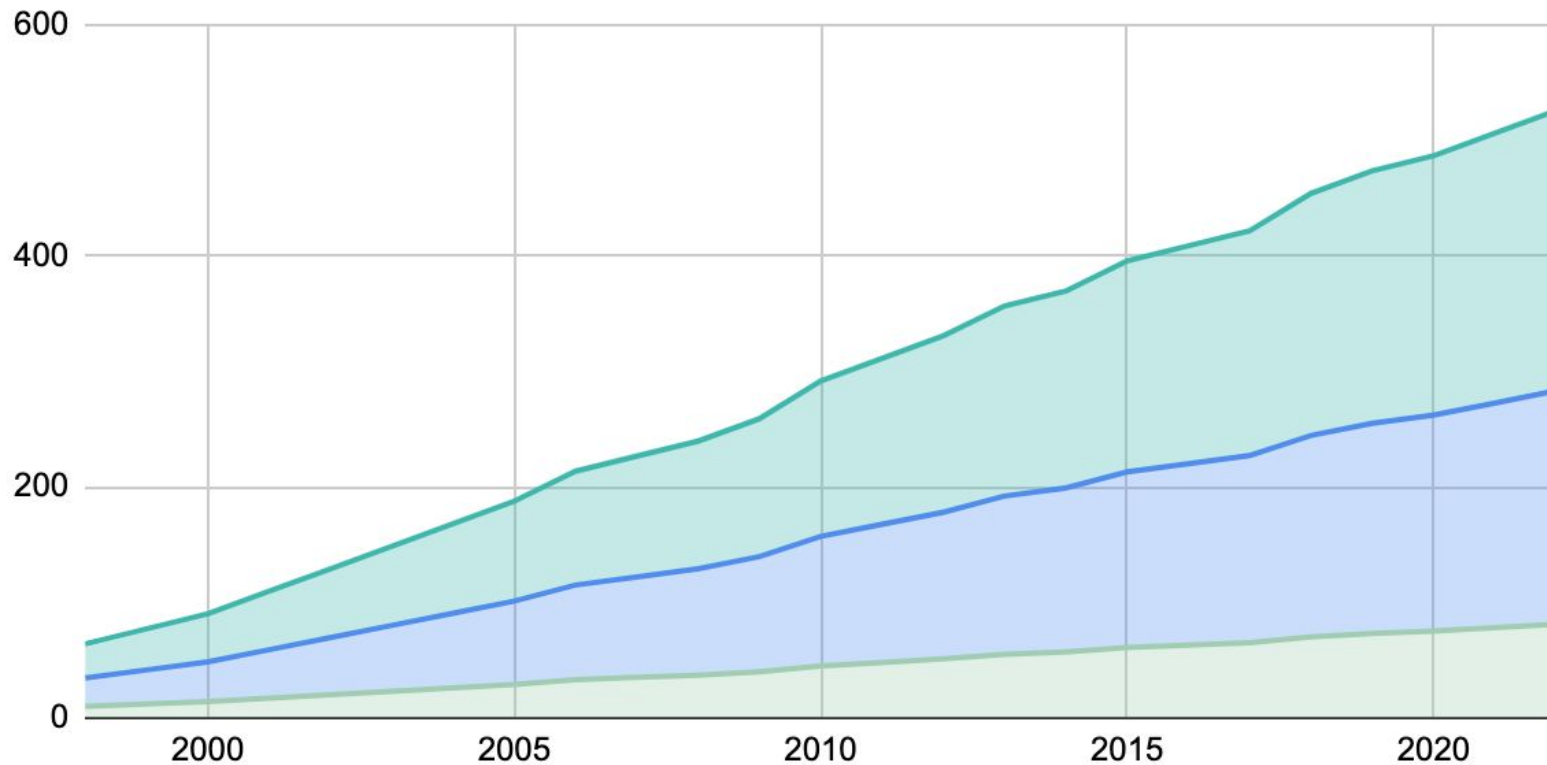
Area chart is for cumulative trend

Area Chart

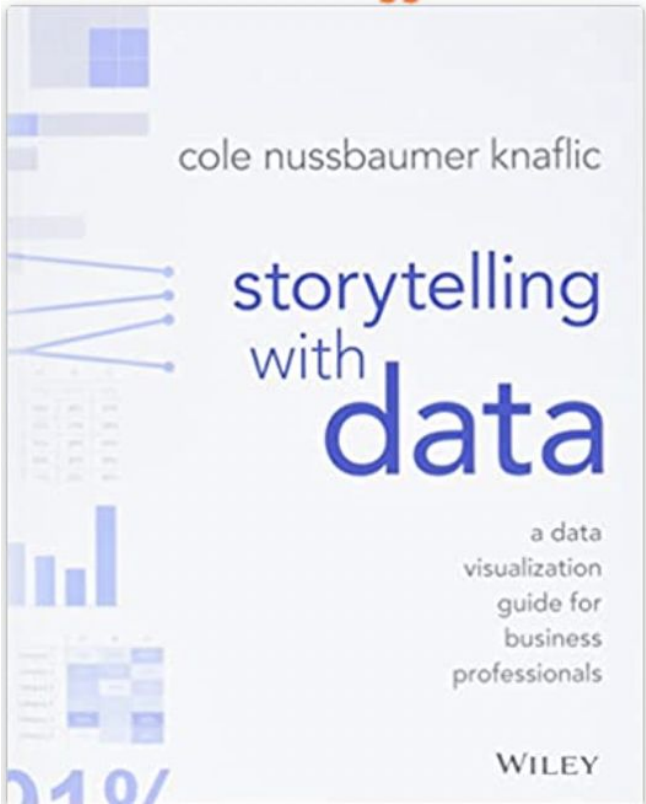
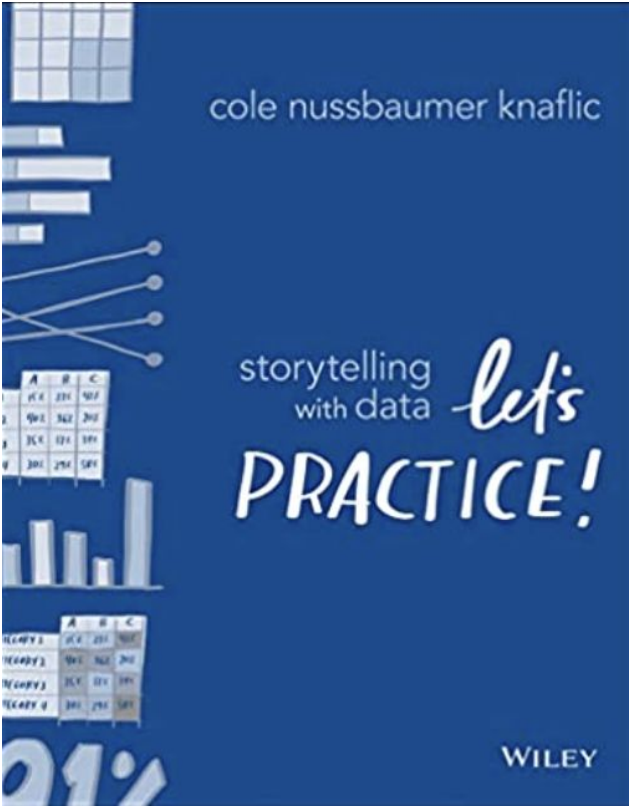


Bad Use of Area Chart

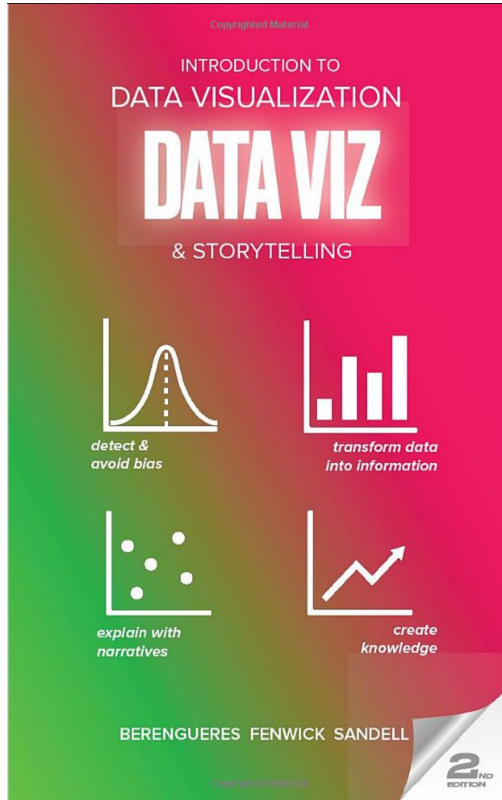
■ C ■ B ■ A



References



References



Andy Kriebel • Eva Murray



#Makeover Monday

Improving How We Visualize and Analyze Data,
One Chart at a Time

WILEY

Interesting websites

- <https://www.storytellingwithdata.com/>
- <https://www.makeovermonday.co.uk/>