

Effektive Datenvisualisierung

**kommunizieren statt konfrontieren,
gestalten statt generieren**

Dr. Cédric Scherer
JUGA Science Camp | 27. Juni 2025



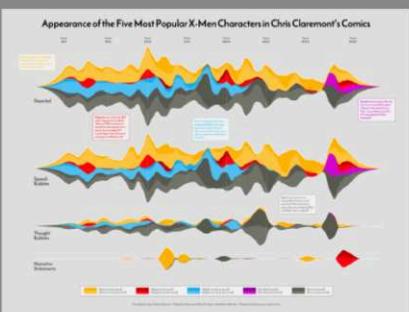
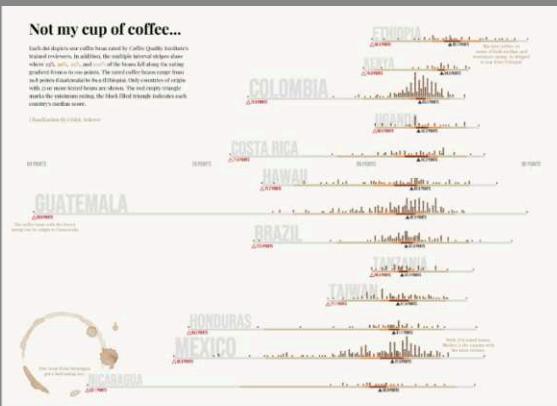
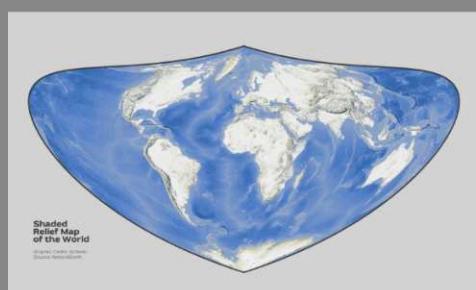
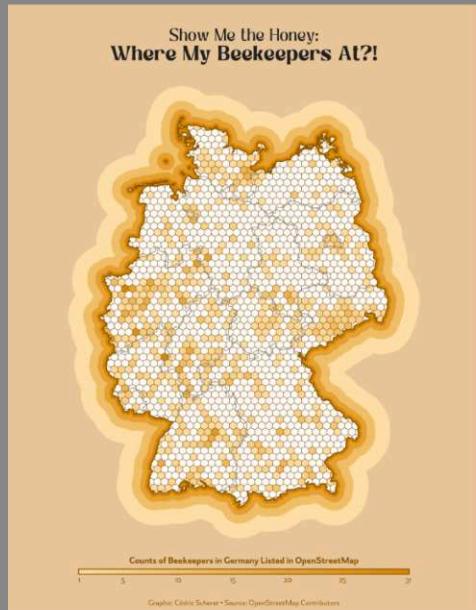
Hallo, ich bin Cédric.

hello@cedricscherer.com

Als freiberuflicher Spezialist für
Infografiken und Datenvisualisierungen

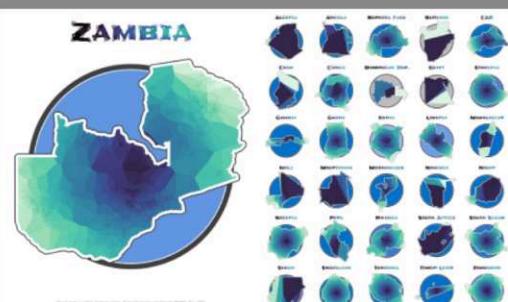
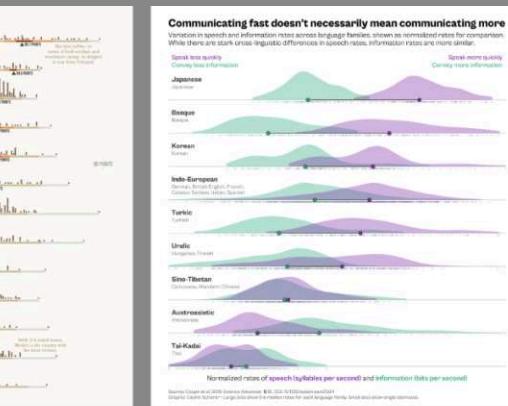
- entwickle Diagramme, Karten & interaktive Inhalte,
- optimiere Workflows zur Datenkommunikation und
- lehre den Prozess effektiver Datenvisualisierung – von Prinzipien über Design bis zur Umsetzung mit ggplot2.



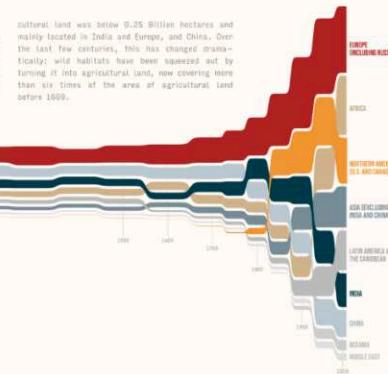


IN 2016, THE GLOBAL AREAL LAND USE FOR AGRICULTURE COVERED 1.6 BILLION HECTARES – AN AREA ALMOST SIX TIMES AS LARGE AS IN 1800 AND TWO TIMES THE AREA OF 1900.

Visualization: Cédric Scherer
Data: History Database of the Global Environment (HYDE)

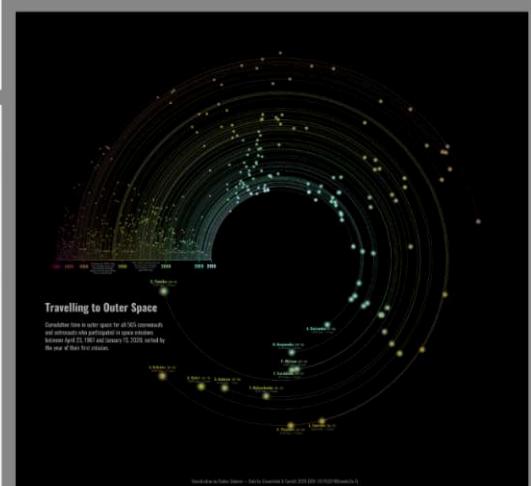
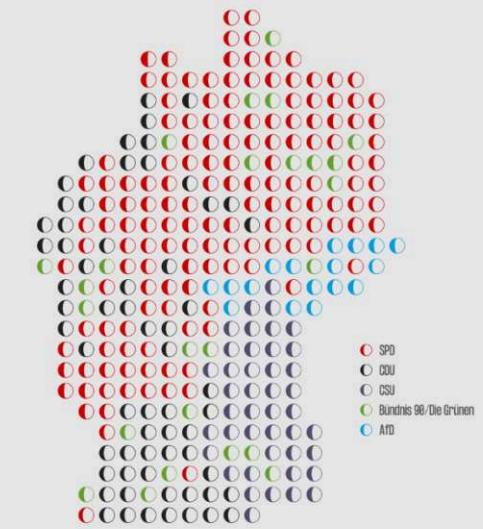


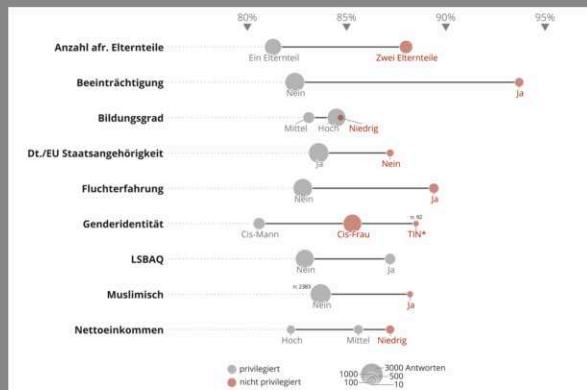
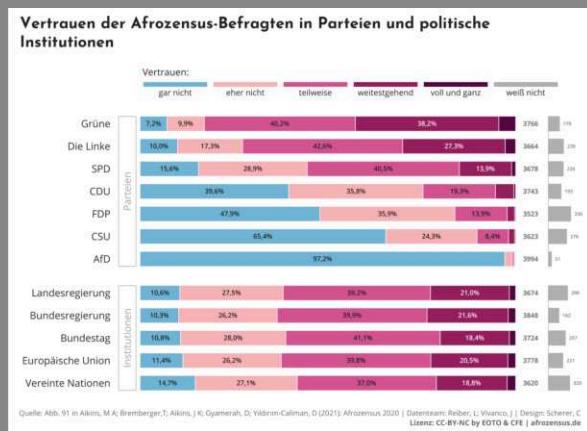
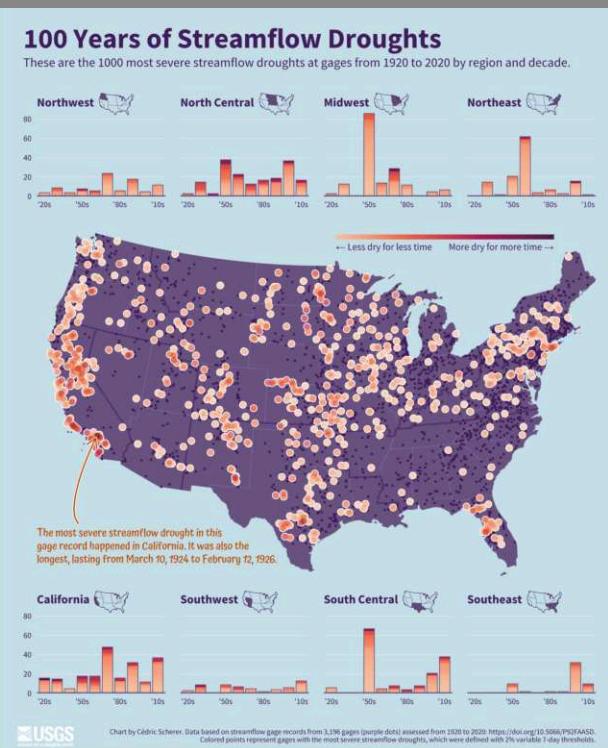
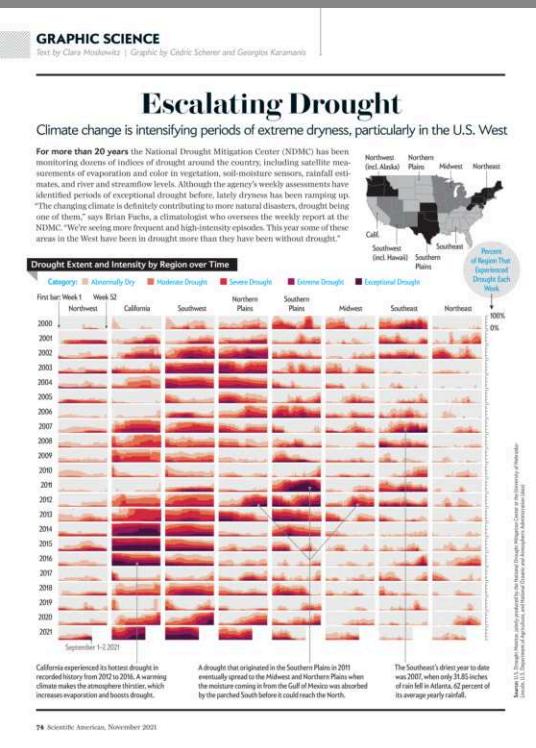
Agriculture, namely arable farming and grazing, is a major use of land. Half of the world's habitable land is used for agriculture. The extensive land use has a major impact on the earth's environment as it reduces wilderness and creates biodiversity. According to the History Database of the Global Environment, for centuries the total amount of agricultural land was below 0.25 Billion hectares and mainly located in India and Europe, and China. Over the last few centuries, this has changed dramatically; wild habitats have been squeezed out by turning it into agricultural land, now covering more than six times the area of agricultural land before 1800.



Ergebnisse der Bundestagswahl 2021

Die stärksten Parteien nach Prozent der Zweitstimmen.





Politiker rechnen bald mit einer Fortsetzung der Fußball-Bundesliga. Wenn auch nicht im Stadion, so ist es voraussichtlich bald wieder möglich Fußball im Fernsehen zu sehen.

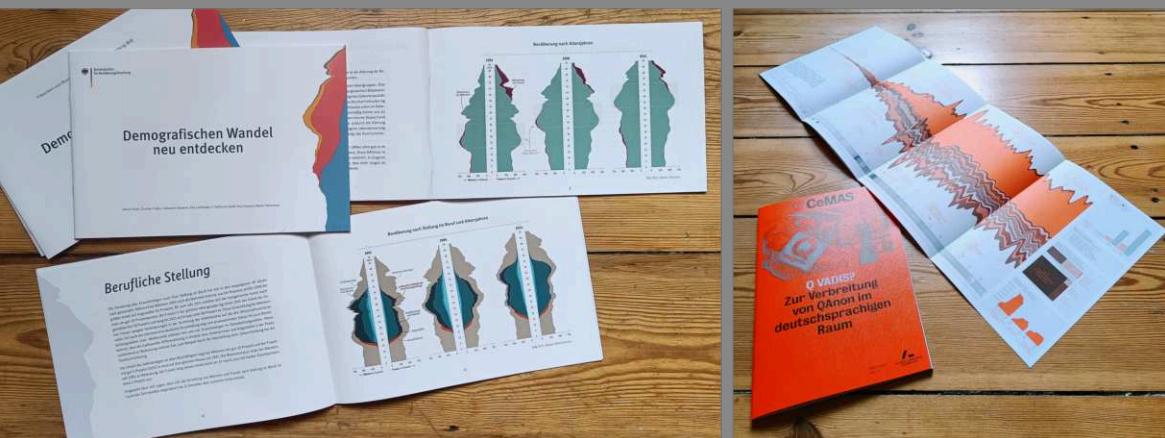
Ich habe einen Vertrag mit einem Anbieter für Sportübertragungen.

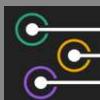


Ich habe keinen Vertrag mit einem Anbieter für Sportübertragungen.



Basierend auf 1018 Antworten auf eine Umfrage von KÜNDIGUNG.ORG

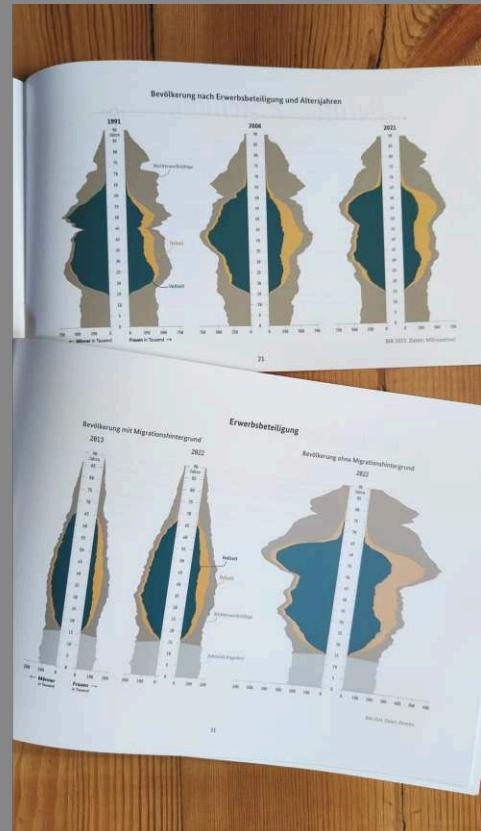
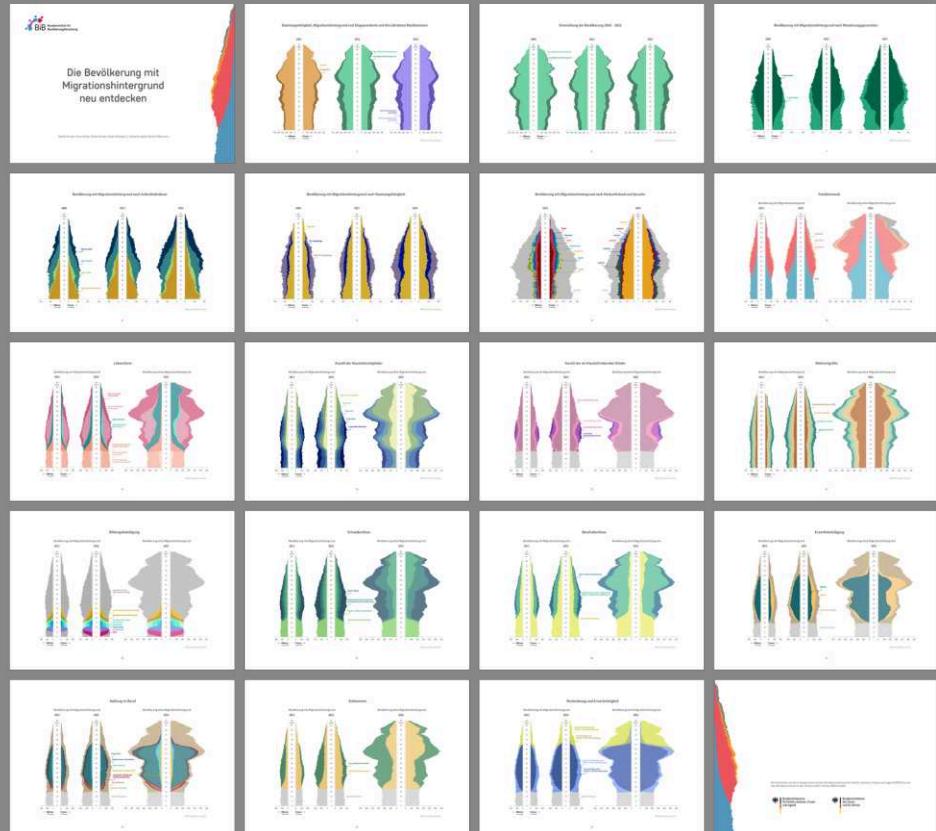


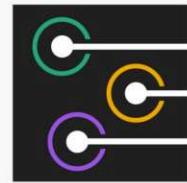




Cédric Scherer







CÉDRIC SCHERER
Data Visualization & Information Design



Consulting



Coaching



Coding



Informationsdesign

ist die Gestaltung von Formen und Strukturen zur effizienten und effektiven Vermittlung von Wissen.



Typologie von Informationsgrafiken

Ist die Information **konzeptionell** oder **messbar** ?

→ Art der Information: Schematische Darstellung <> Umwandlung von Datenwerten



Datenvizualisierung

stellt Zahlen, Kategorien und Beziehungen in anschaulicher, quantifizierbarer Form dar.



Typologie von Informationsgrafiken

Ist die Information **konzeptionell** oder **messbar** ?

→ Art der Information: Schematische Darstellung <> Umwandlung von Datenwerten

Ist das Ziel, die Information zu **erkunden** oder zu **erklären** ?

→ Zweck der Grafik: Entdeckung erleichtern <> Informationen vermitteln



TYPOLOGY OF INFORMATION GRAPHICS

Type of information →

Conceptual

Purely conceptual information cannot be visualized, only illustrated.

Purpose of the graphic ↓

Explanatory

Measurable

Exploratory

Visualization

Information graphics

Quelle: "Data Visualization Handbook" von Juuso Koponen & Jonatan Hildén (2020), Seite 25





Höhlenmalerei im Canyon de Chelly National Monument, Arizona
Foto: [Robert Alexander/Getty Images](#)



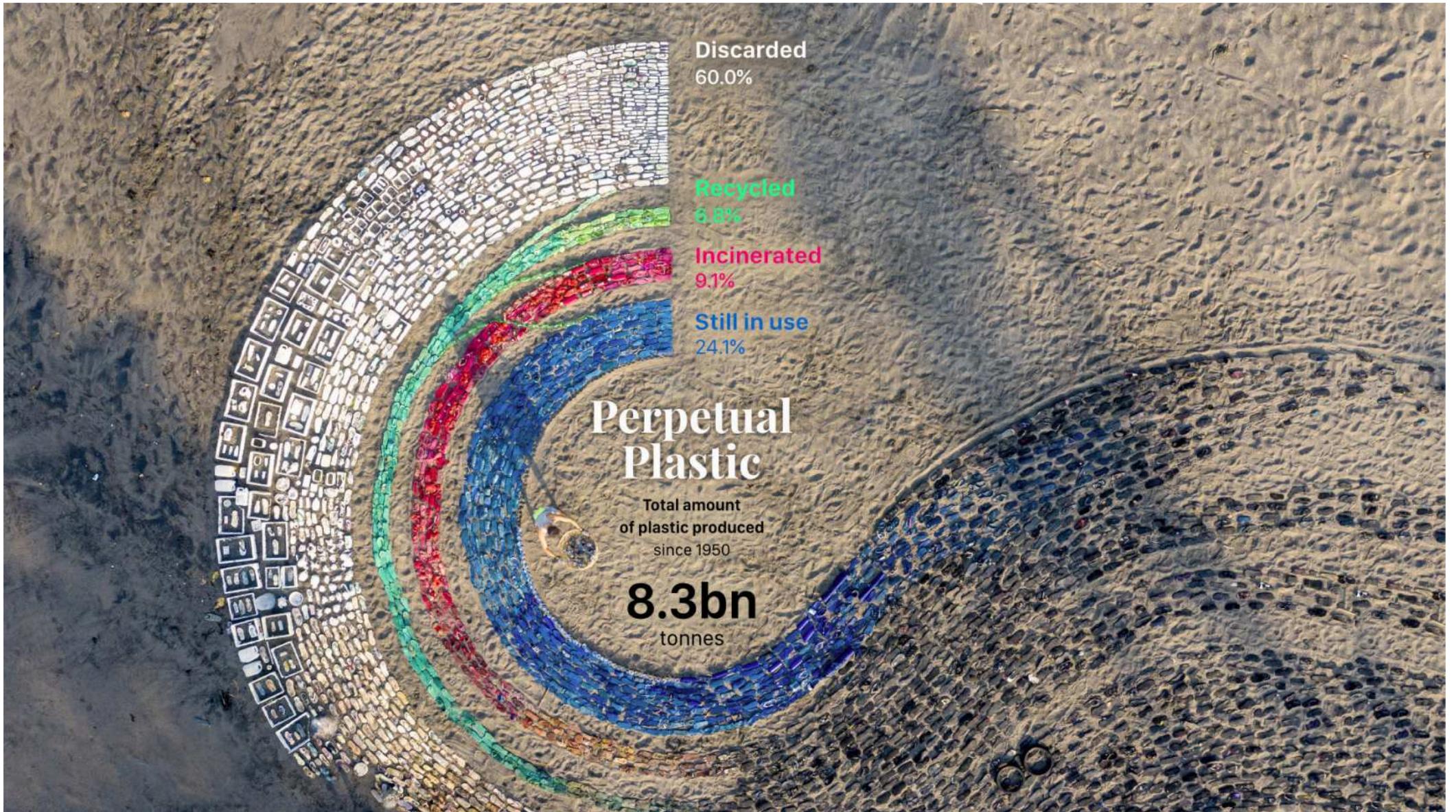


Sorting Sea Shells

Quelle: [TheChocolateMuffinTree Blog](#)

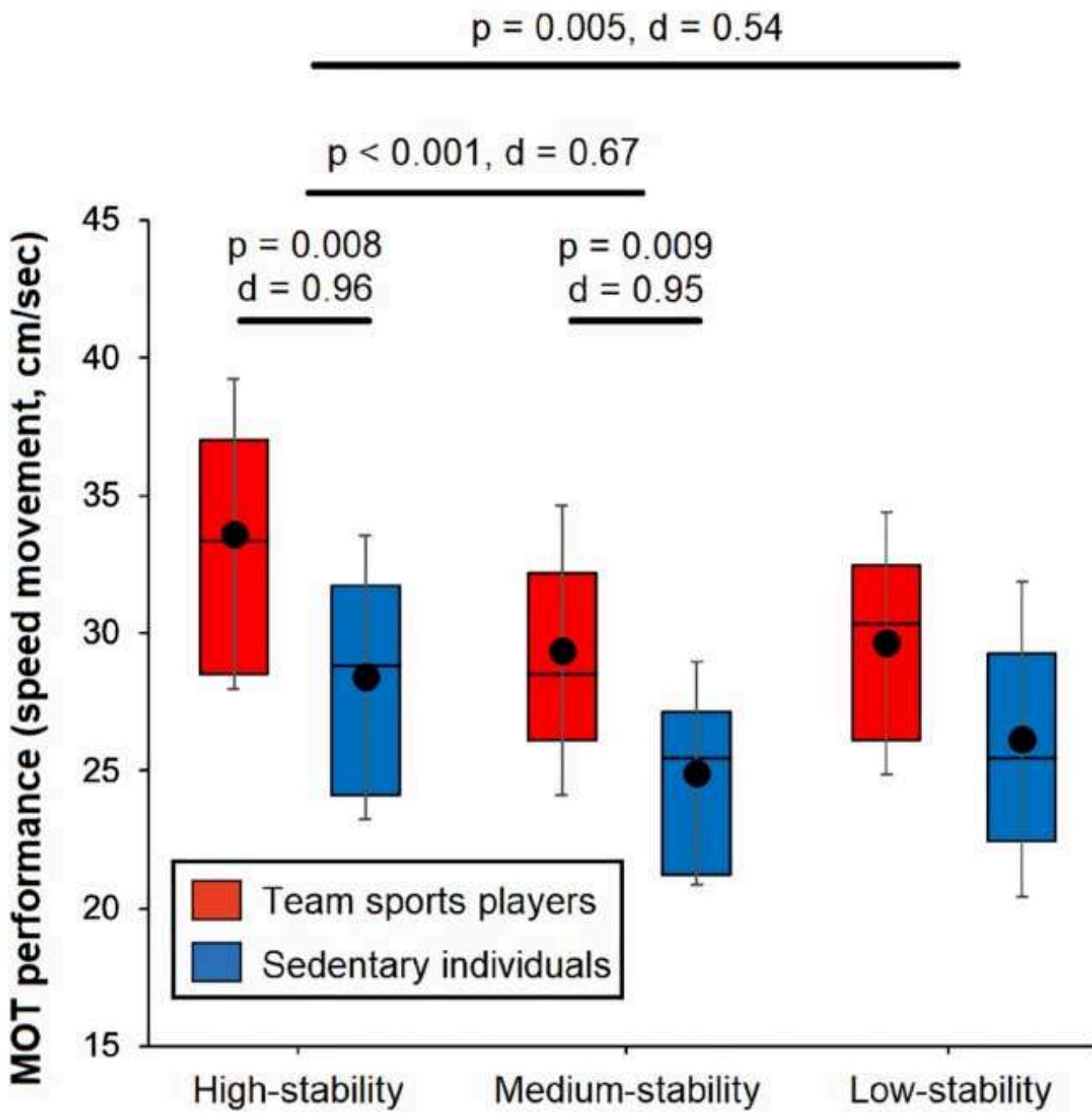
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"Perpetual Plastic" von Liina Klauss, Skye Morét & Moritz Stefaner





Zwierko et al. 2022



US stocks have underperformed global markets in 2025

Indices rebased, year to date



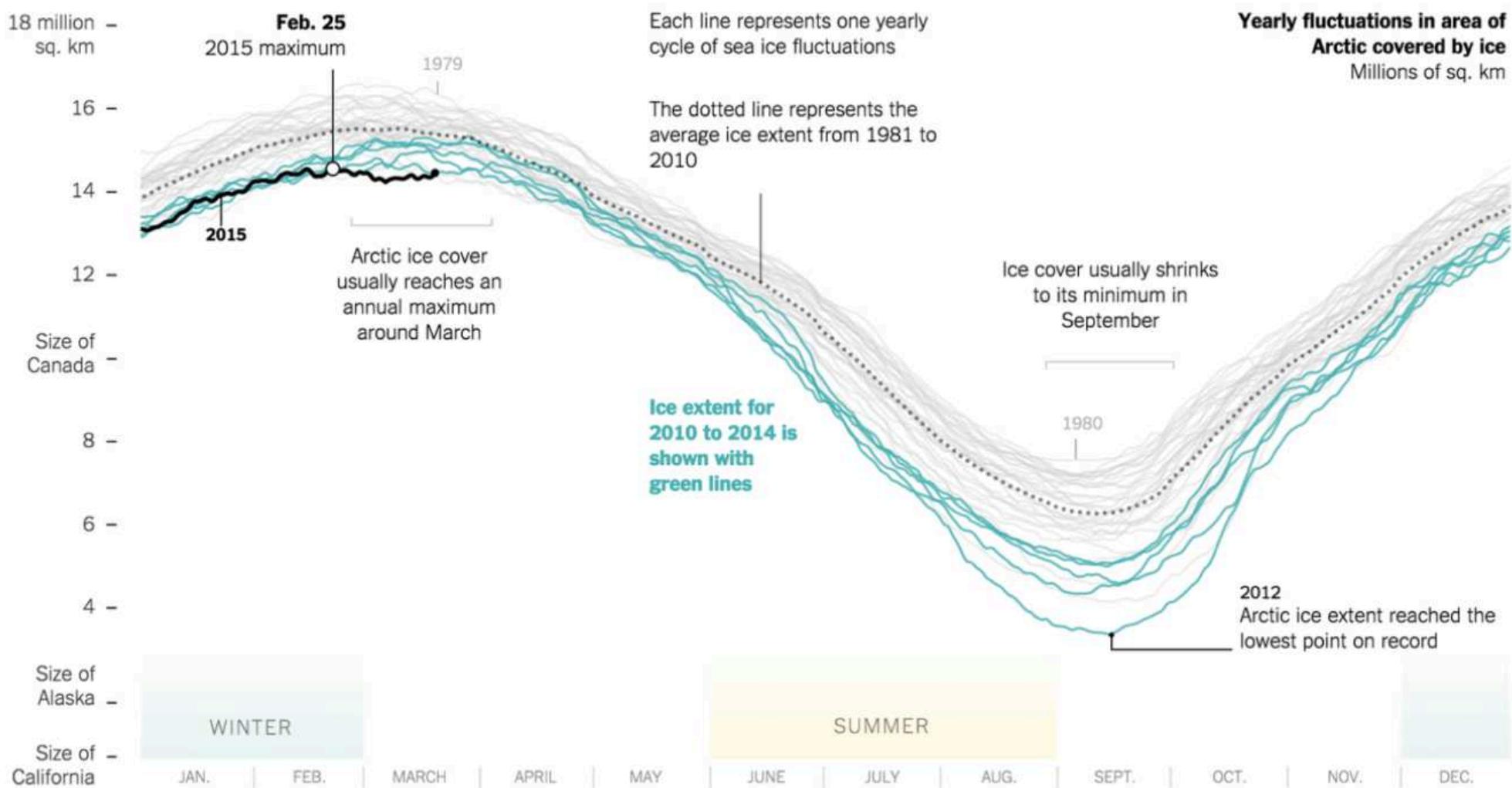
FINANCIAL TIMES

Source: LSEG

Quelle: Financial Times

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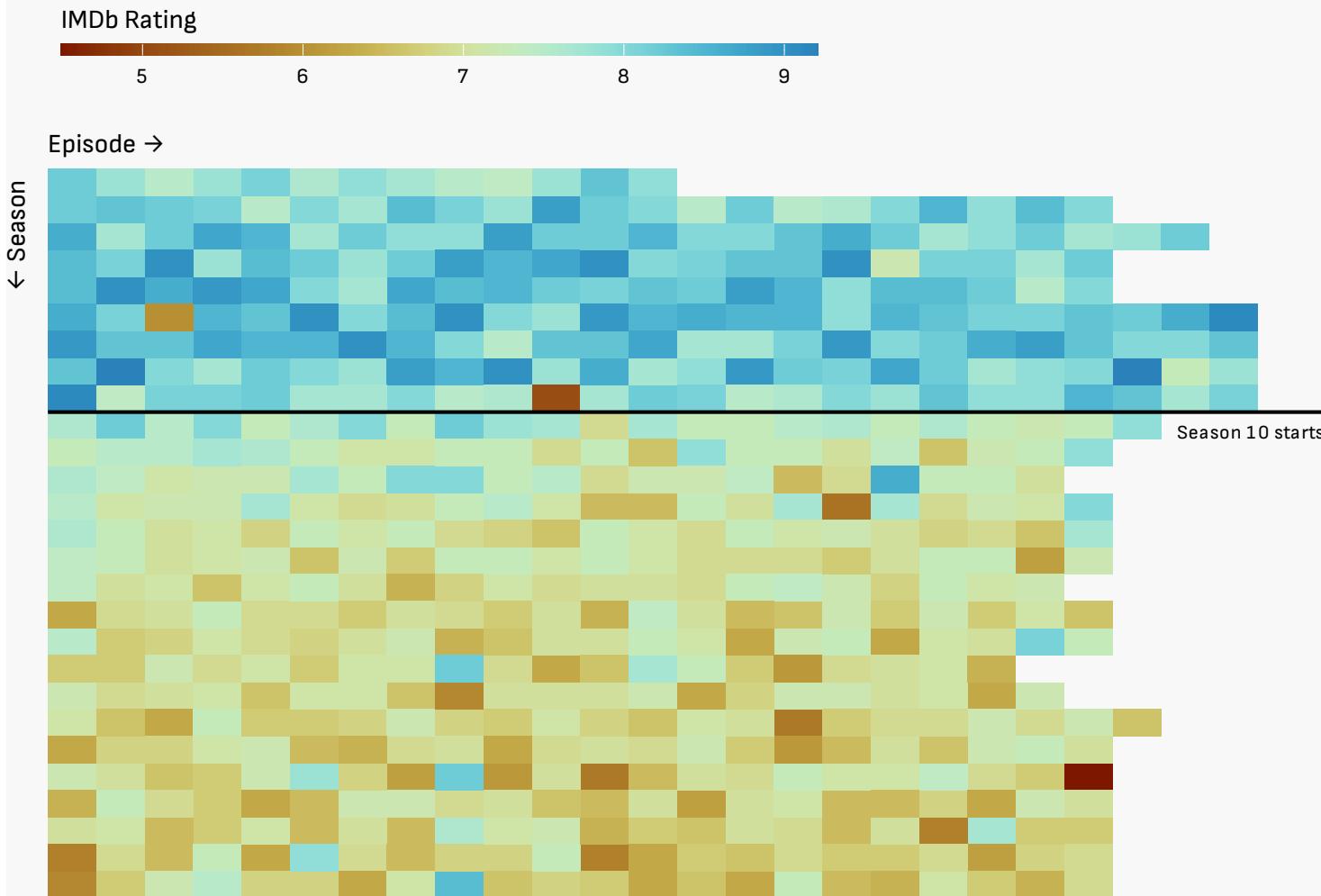




"Yearly Fluctuations in Area of Arctic Covered by Ice" von Derek Watkins (New York Times)



From season 10 onwards, IMDb ratings for "The Simpsons" dropped considerably





Quelle: bypeople.com





"Patchwork Kingdoms" by Nadieh Bremer

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Visualisiere deine Daten!



**“... make both calculations and graphs.
Both sorts of output should be studied;
each will contribute to understanding.”**

F. J. Anscombe (1973)



Anscombe's Quartet

	I	II	III	IV			
10	8.04	10	9.14	10	7.46	8	6.58
8	6.95	8	8.14	8	6.77	8	5.76
13	7.58	13	8.74	13	12.74	8	7.71
9	8.81	9	8.77	9	7.11	8	8.84
11	8.33	11	9.26	11	7.81	8	8.47
14	9.96	14	8.1	14	8.84	8	7.04
6	7.24	6	6.13	6	6.08	8	5.25
4	4.26	4	3.1	4	5.39	19	12.5
12	10.84	12	9.13	12	8.15	8	5.56
7	4.82	7	7.26	7	6.42	8	7.91
5	5.68	5	4.74	5	5.73	8	6.89



Anscombe's Quartet

I

$$\begin{aligned}\mu_x &= 9 \\ \sigma_x &= 3.16\end{aligned}$$

$$\begin{aligned}\mu_y &= 7.5 \\ \sigma_y &= 1.94\end{aligned}$$

$$r = 0.82$$

II

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IV

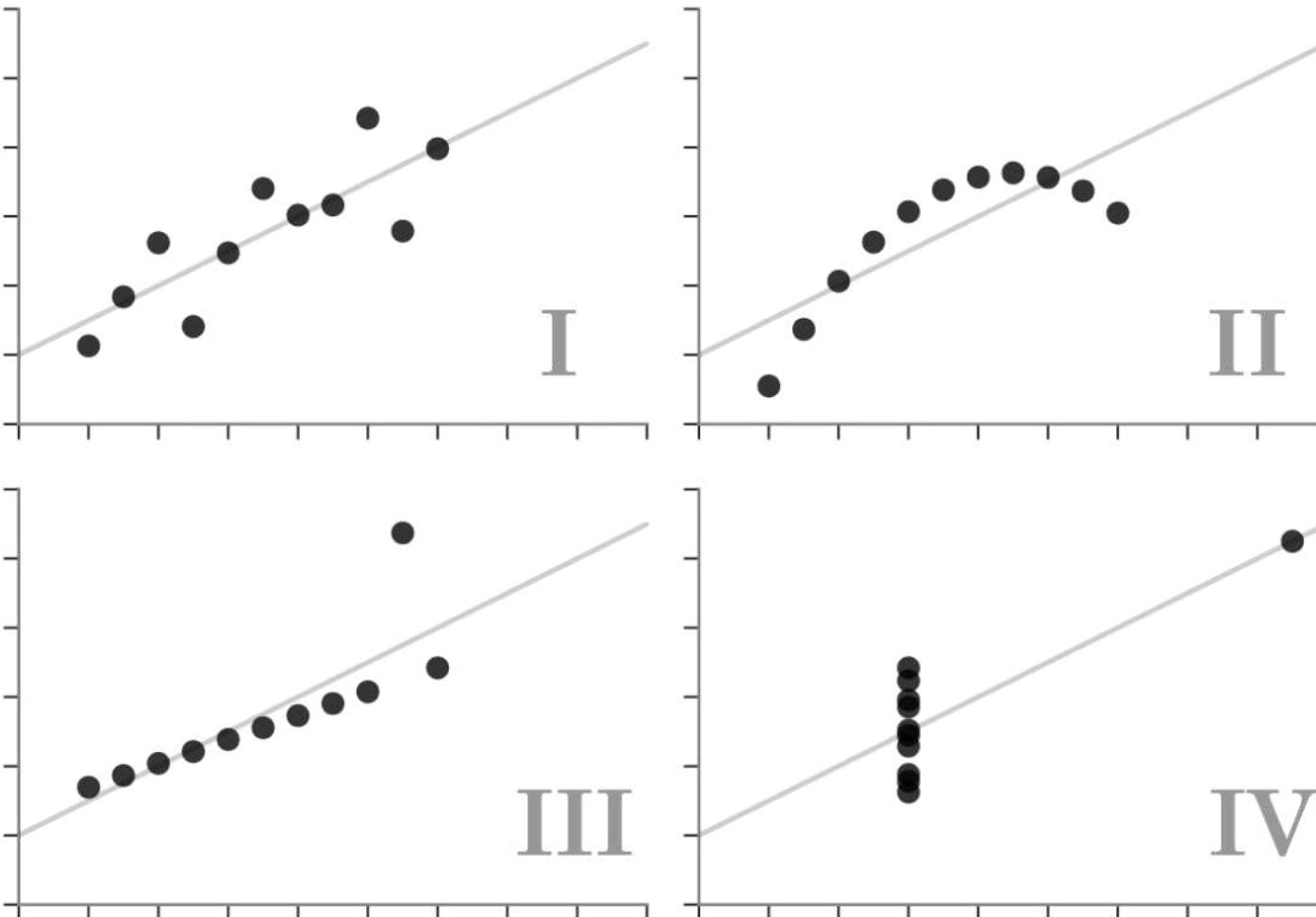
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Anscombe's Quartet



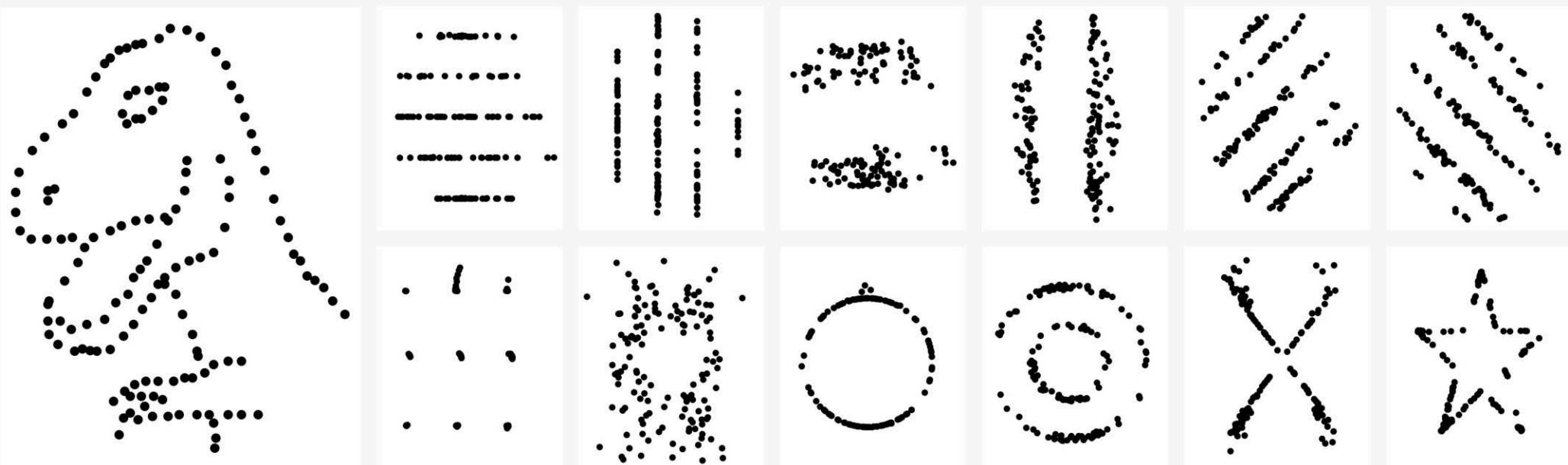
Source: Matejka & Fitzmaurice (2017)

Cédric Scherer Data Visualization & Information Design



The Datasaurus Dozen

A set of 13 datasets with nigh-identical summary statistics, which could lead one to believe the datasets are quite similar. After visualizing the data, it becomes clear that they are clearly different and visually distinct.

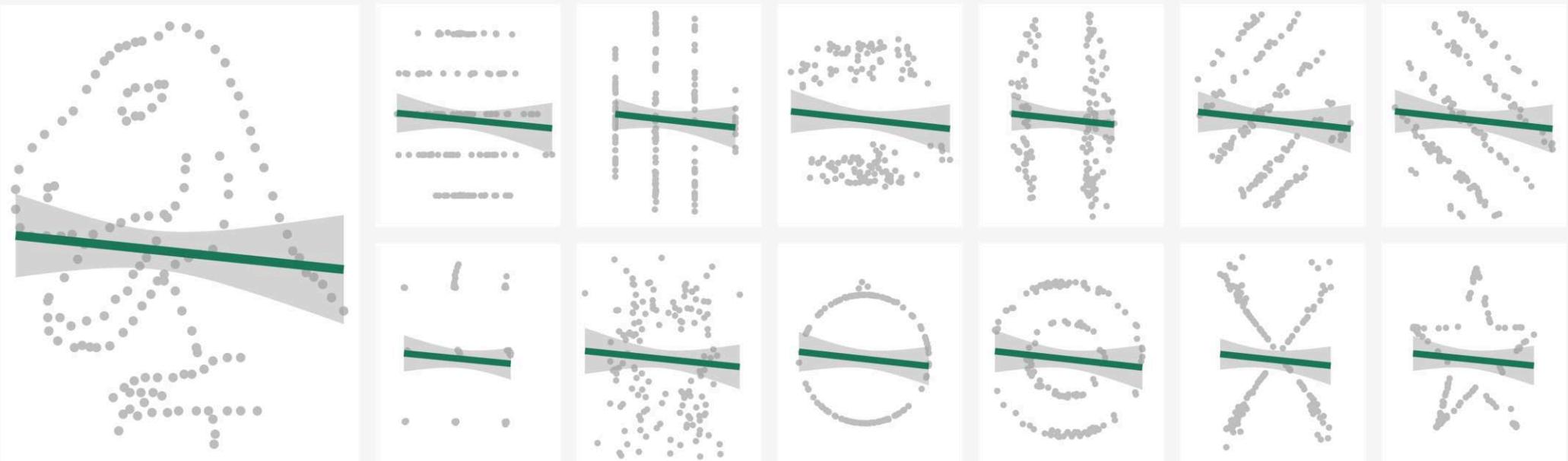


"Same Stats, Different Graphs: Generating Datasets with Varied Appearance and Identical Statistics through Simulated Annealing" by Justin Matejka & George Fitzmaurice (2017)



The Datasaurus Dozen

A set of 13 datasets with **high-identical summary statistics**, which could lead one to believe the datasets are quite similar. After visualizing the data, it becomes clear that they are clearly different and visually distinct.



"Same Stats, Different Graphs: Generating Datasets with Varied Appearance and Identical Statistics through Simulated Annealing" by Justin Matejka & George Fitzmaurice (2017)



Was macht eine gute Datenvizualisierung aus?



- » **Integrität** (Information)
- » **Bedeutsamkeit** (Erzählung)
- » **Zweckmäßigkeit** (Ziel)
- » **Eleganz** (Visuelle Form)





Joshua Stevens  @jscarto · 10m
Visualizing data vs Data Visualization

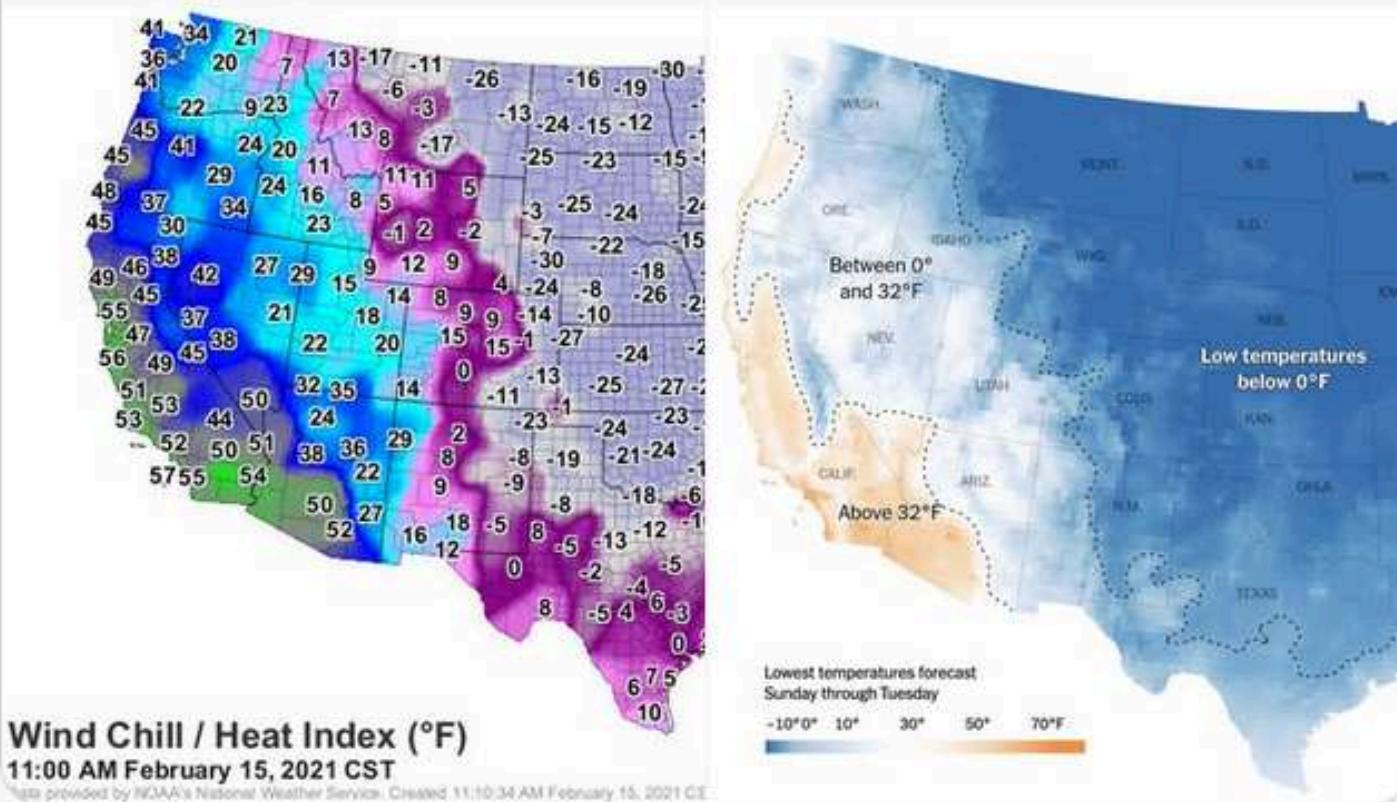
...



Ben Jones  @DataRemixed · 3h

Same variable, same territory, same week, two different color palettes & two different styles. @okmesonet & @nytimes.

[Show this thread](#)

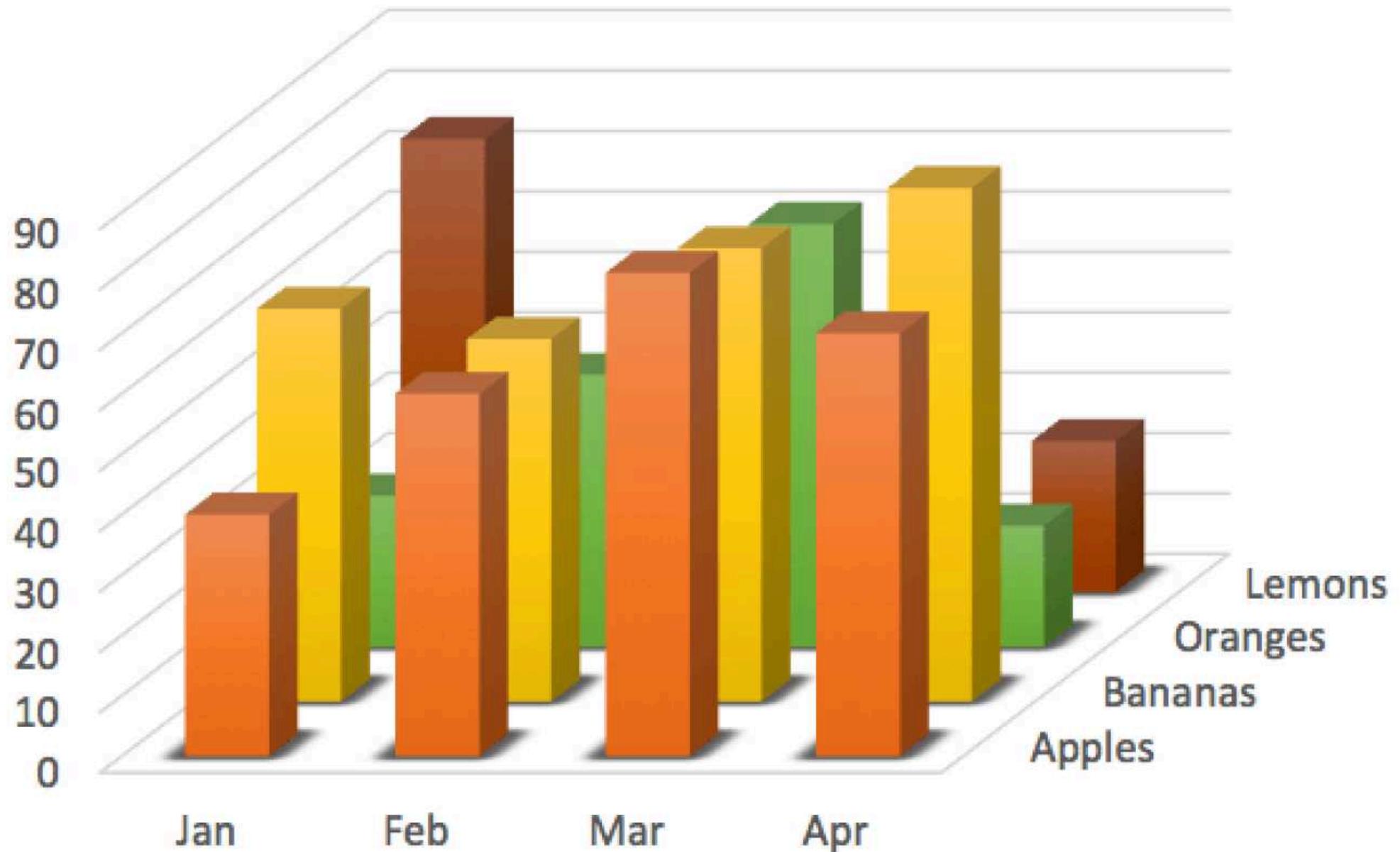


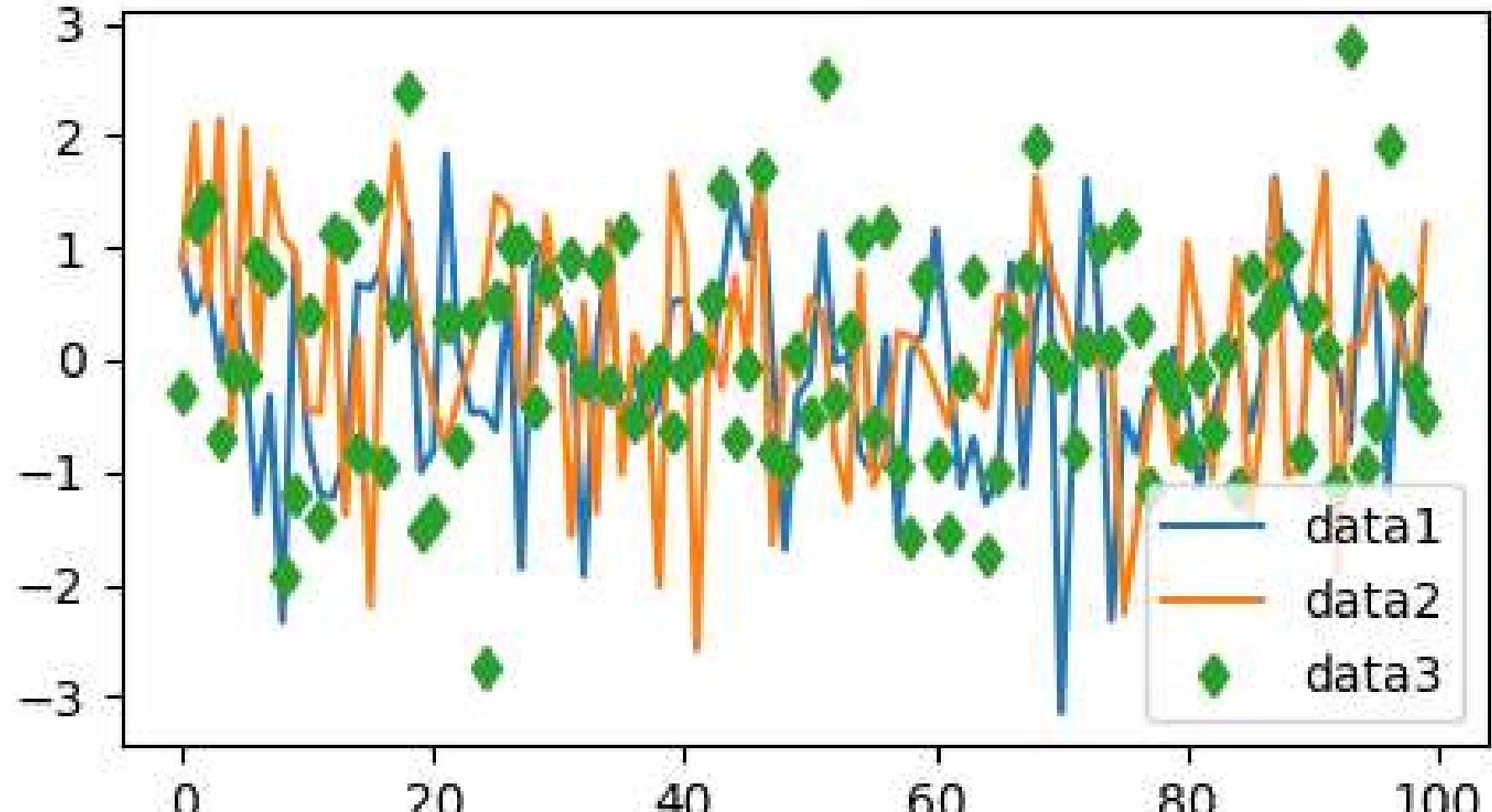
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8

17

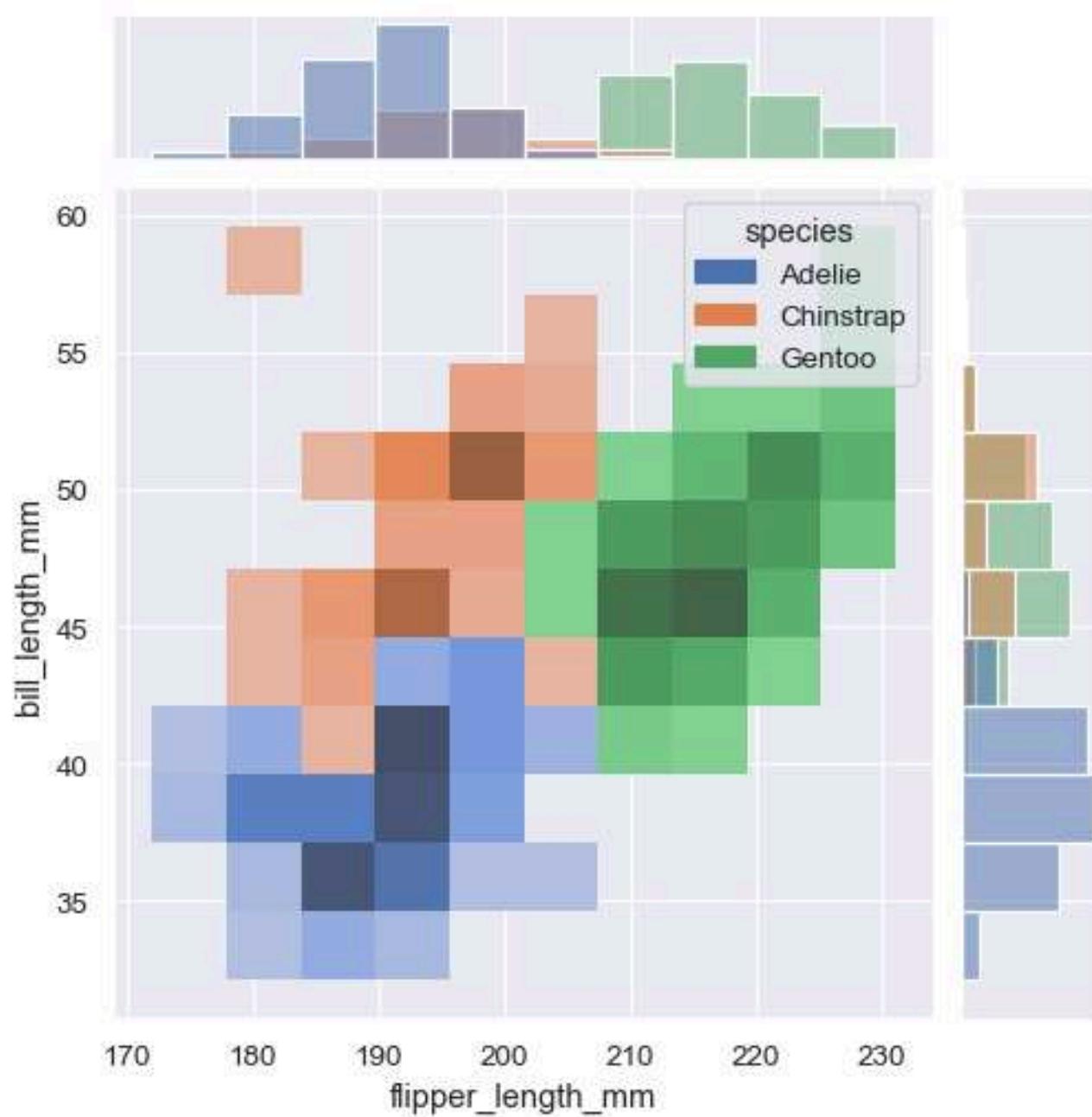






Source: savioglobal.com





Source: savioglobal.com

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Information

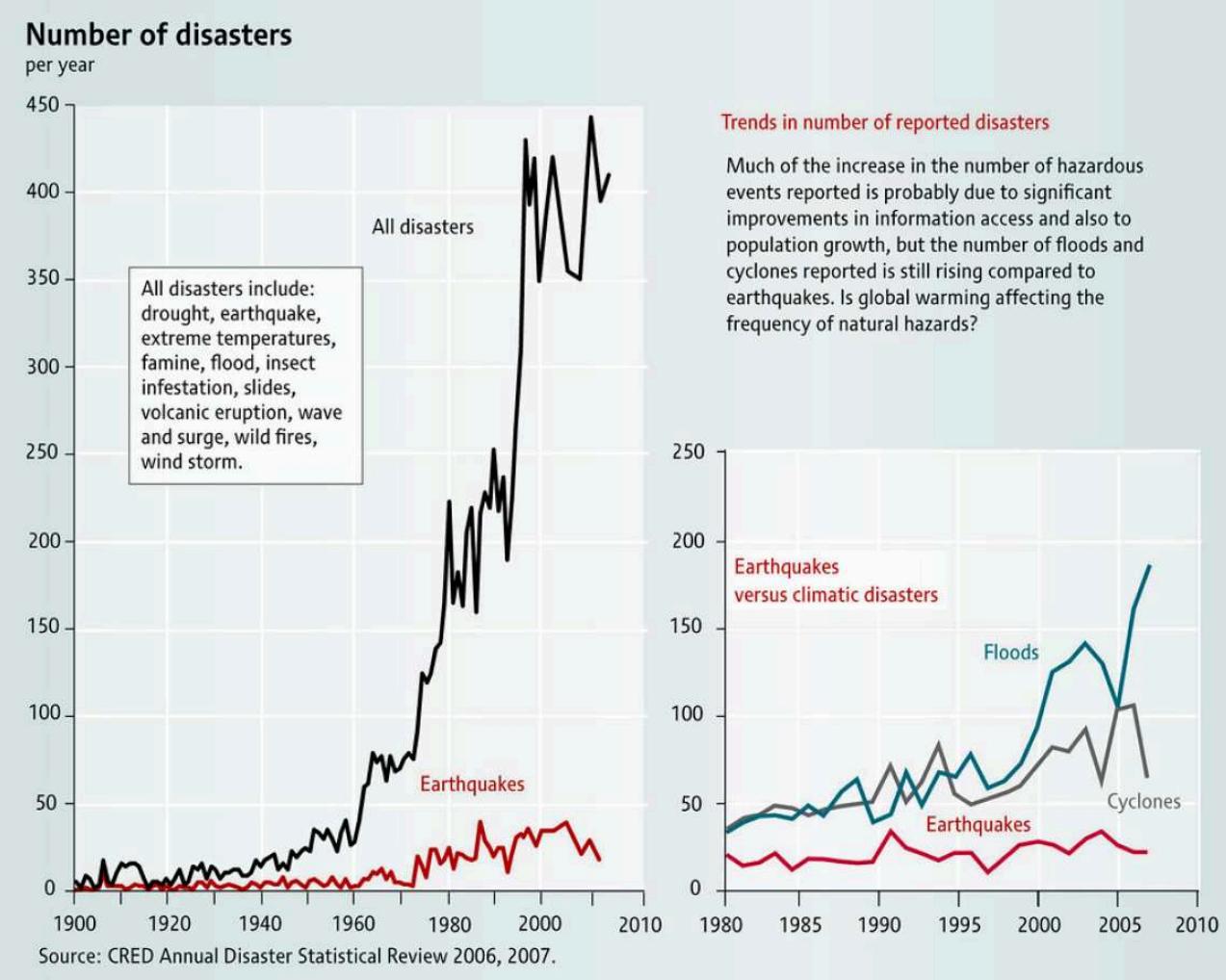
Integrität der Daten



Daten bilden die Realität nie
vollständig oder perfekt ab.

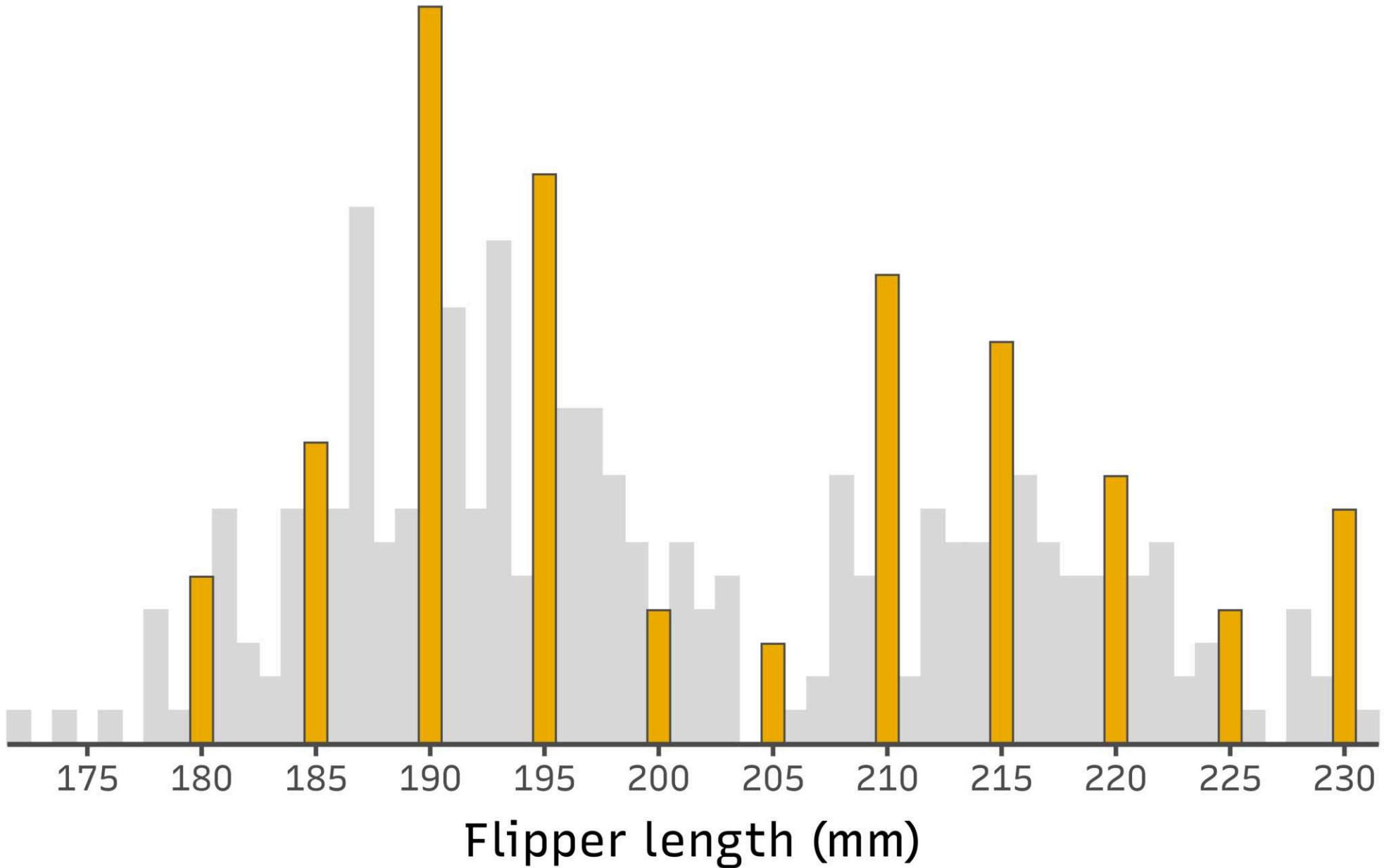


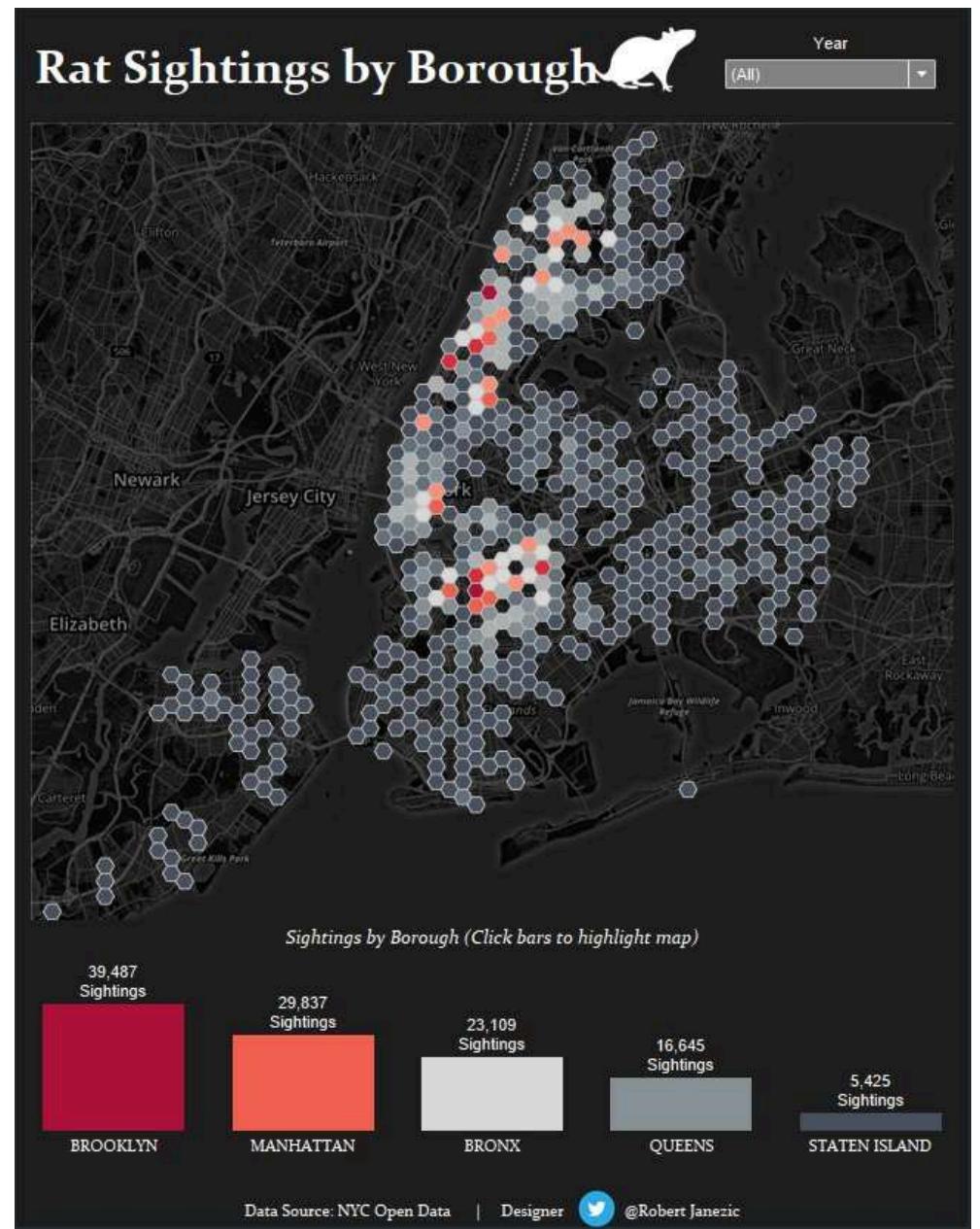
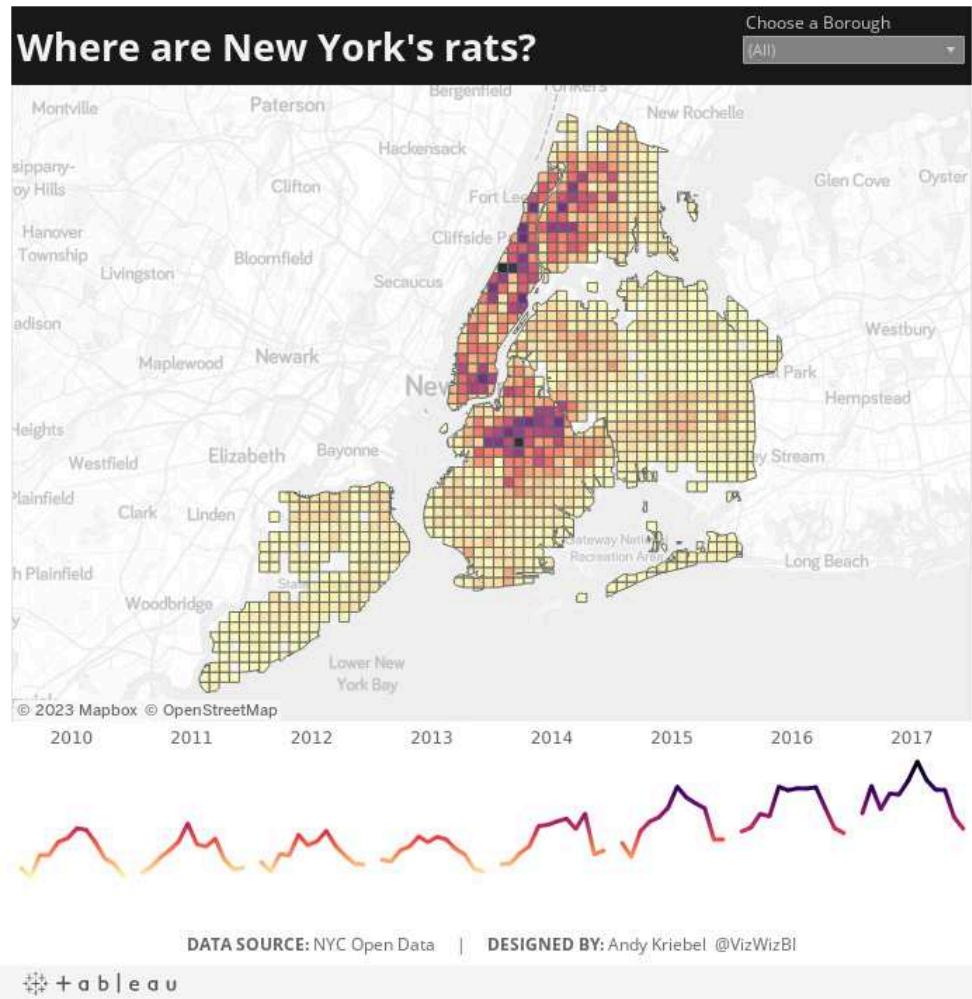




“Much of the increase of hazardous events reported is probably due to significant improvements in information access.”







Integrität der Information

- **Datenqualität:**

- Schätzung, Präzision und Fehler
- Fehler und Irrtümer bei der Berechnung
- unvollständige Daten und fehlende Werte
- zusammengefasste und relative Daten

- **Nur ein Teilabbild:**

- historischer oder gegenwärtiger Zustand
- nicht Straftaten, sondern gemeldete Straftaten



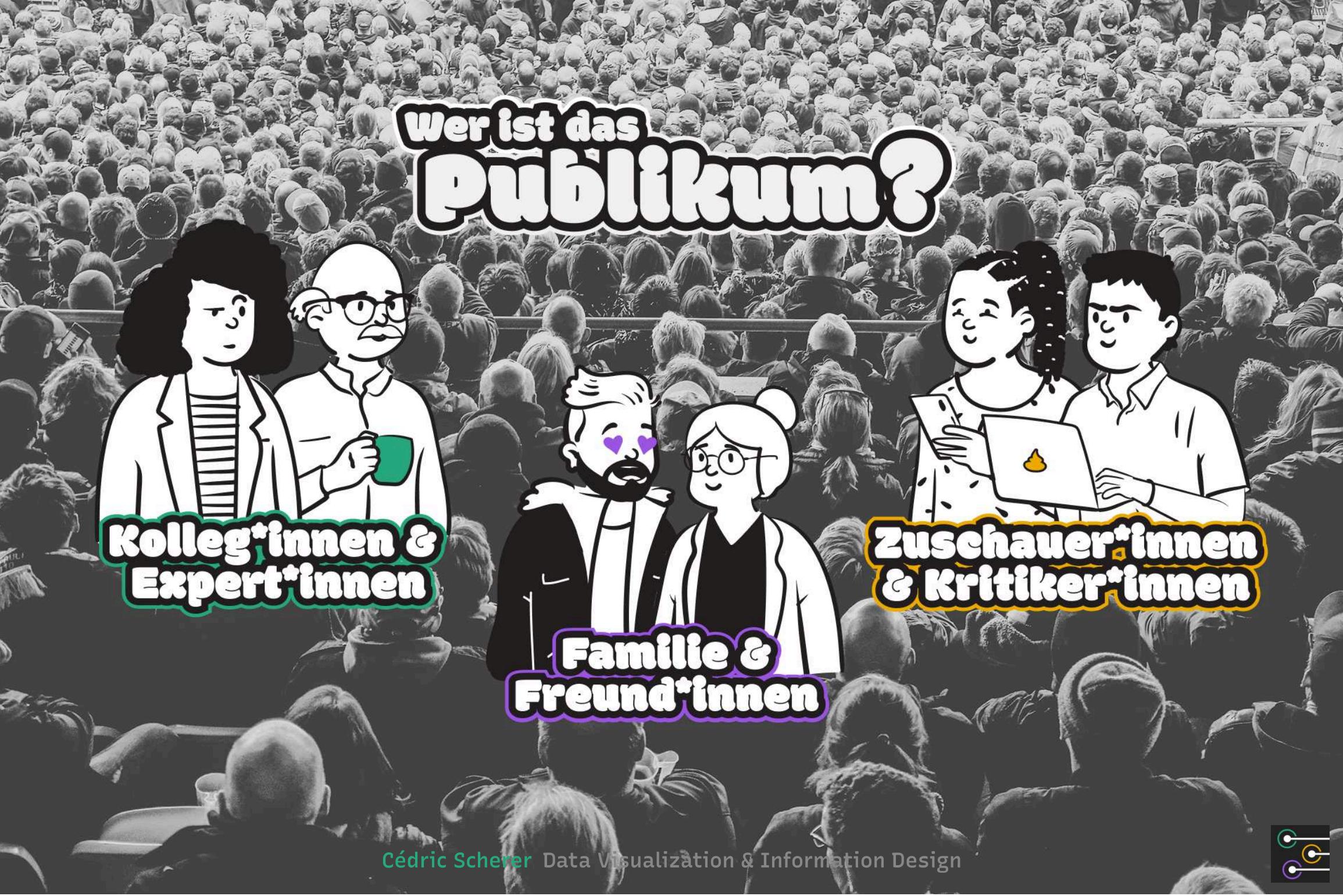
Erzählung

Bedeutsamkeit für das Publikum



➡ **Wer ist mein Publikum?**





Wer ist das Publikum?



Kolleg*innen &
Expert*innen



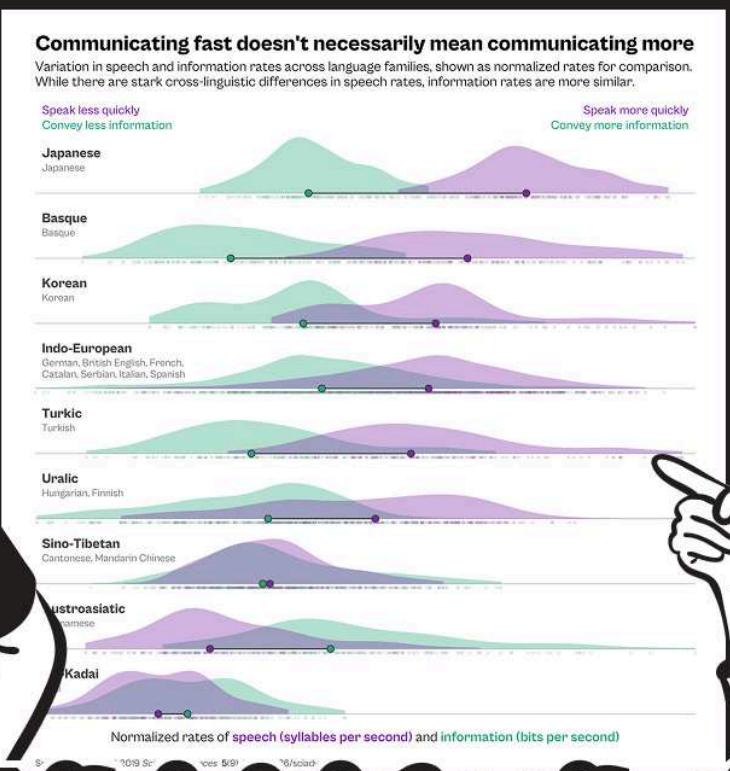
Familie &
Freund*innen



Zuschauer*innen
& Kritiker*innen



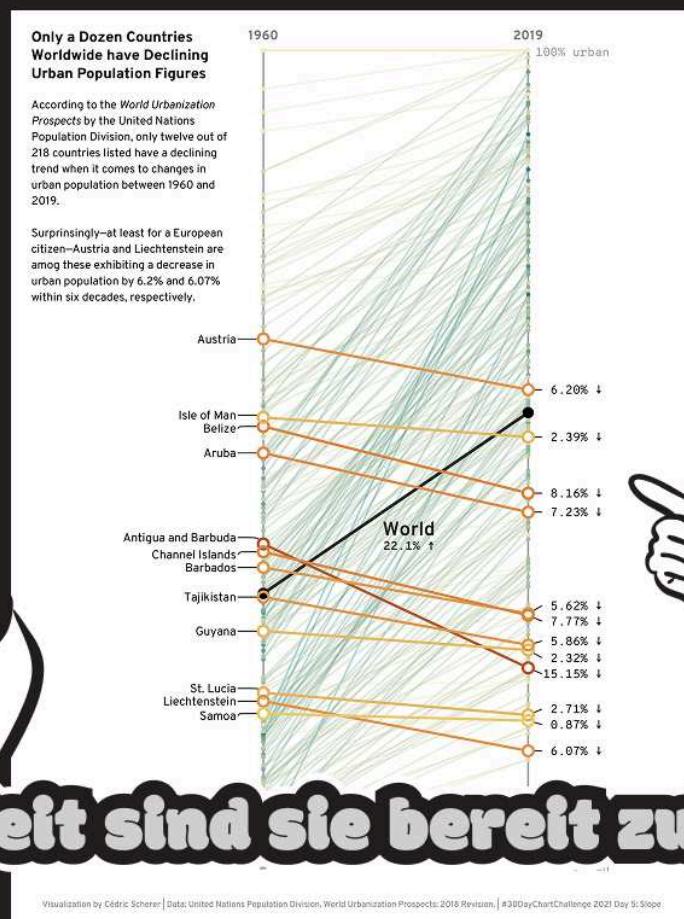
...und wie ausgeprägt ist Ihre Datenkompetenz?



(Oder: Wie viel Mühe und Zeit sind Sie bereit zu investieren?)



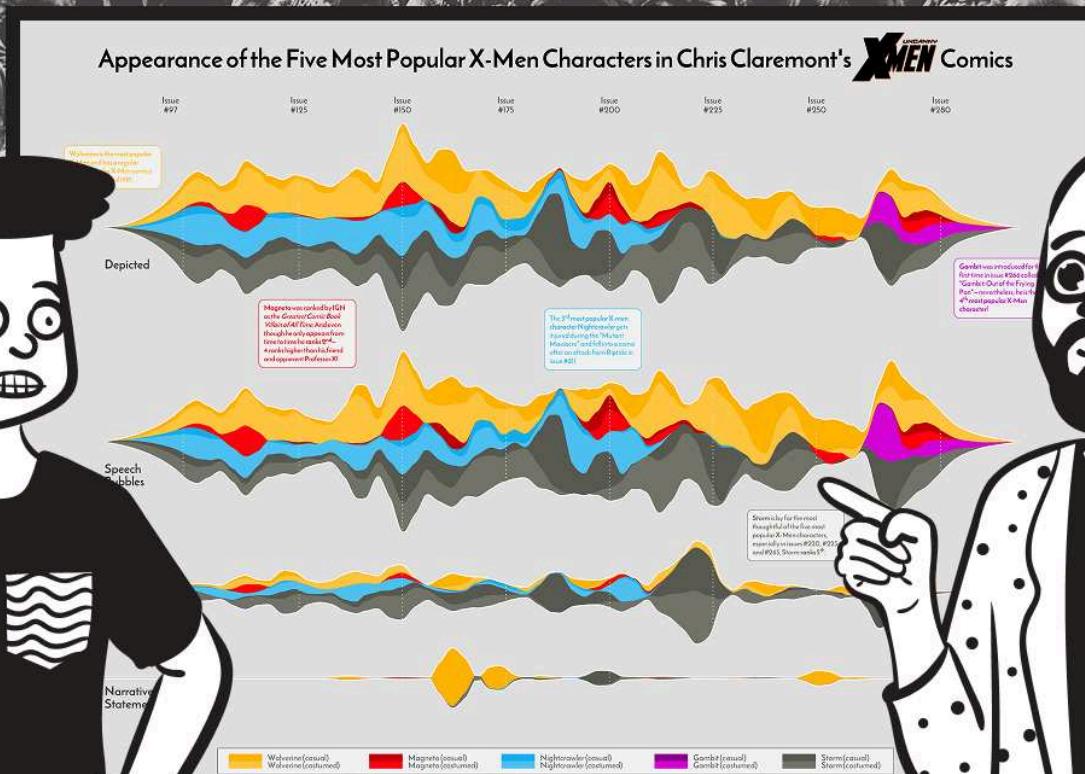
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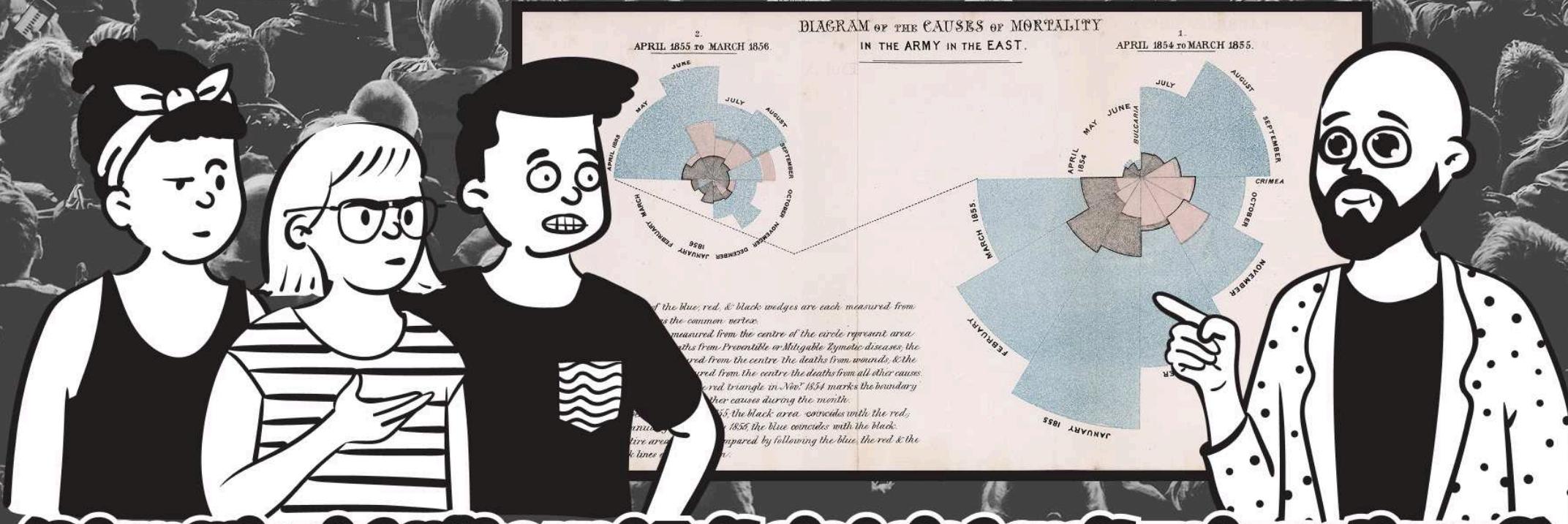
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- » **Wer** ist mein Publikum?
- » **Was** möchte ich vermitteln?



„Was“

Handlung

- zentrale Botschaft klar formulieren
- Verständnis fördern und/oder Reaktionen anstoßen

Mechanismus

- primäre Kommunikationsmethode bestimmen

Tonfall

- gewünschte Stimmung der Kommunikation bedenken



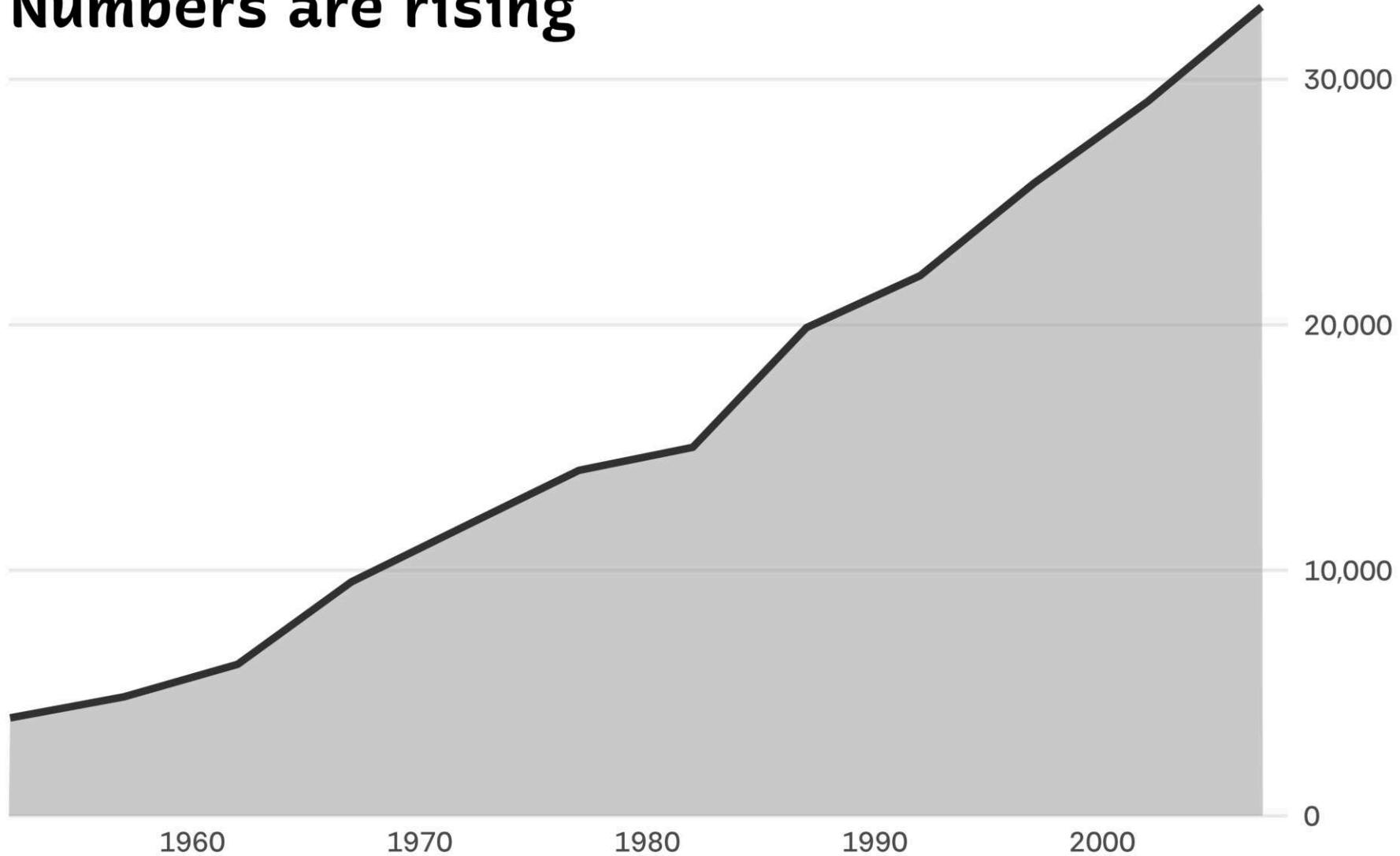
Konzept der “Big Idea”

Fasse deine Erkenntnisse in einem einzigen Satz zusammenfassen, der vermittelt, **was sie interessant macht** und **wieso sie bedeutsam sind.**

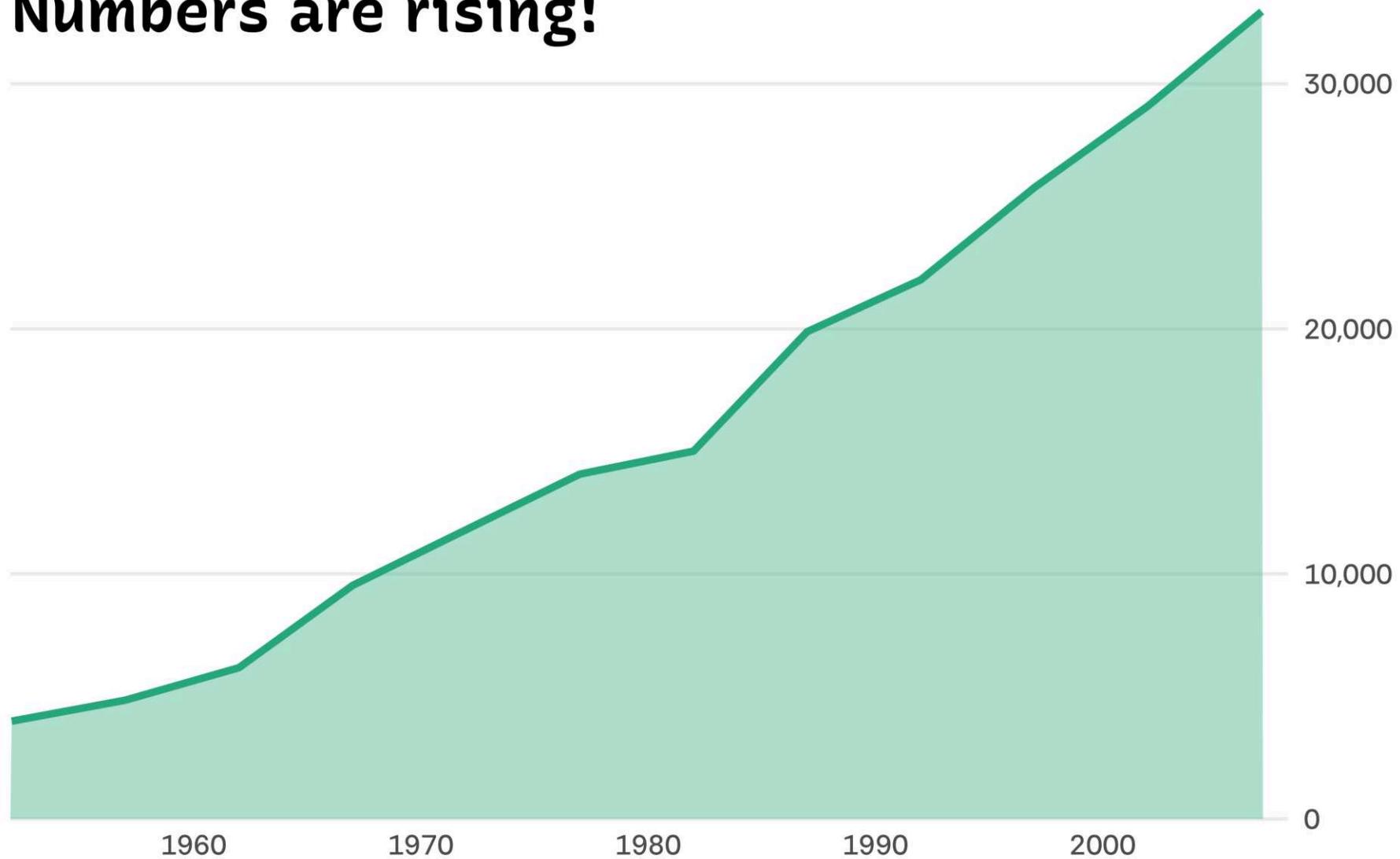
→ Nutze diesen Satz als Titel zur zielgerichteten Entwicklung!



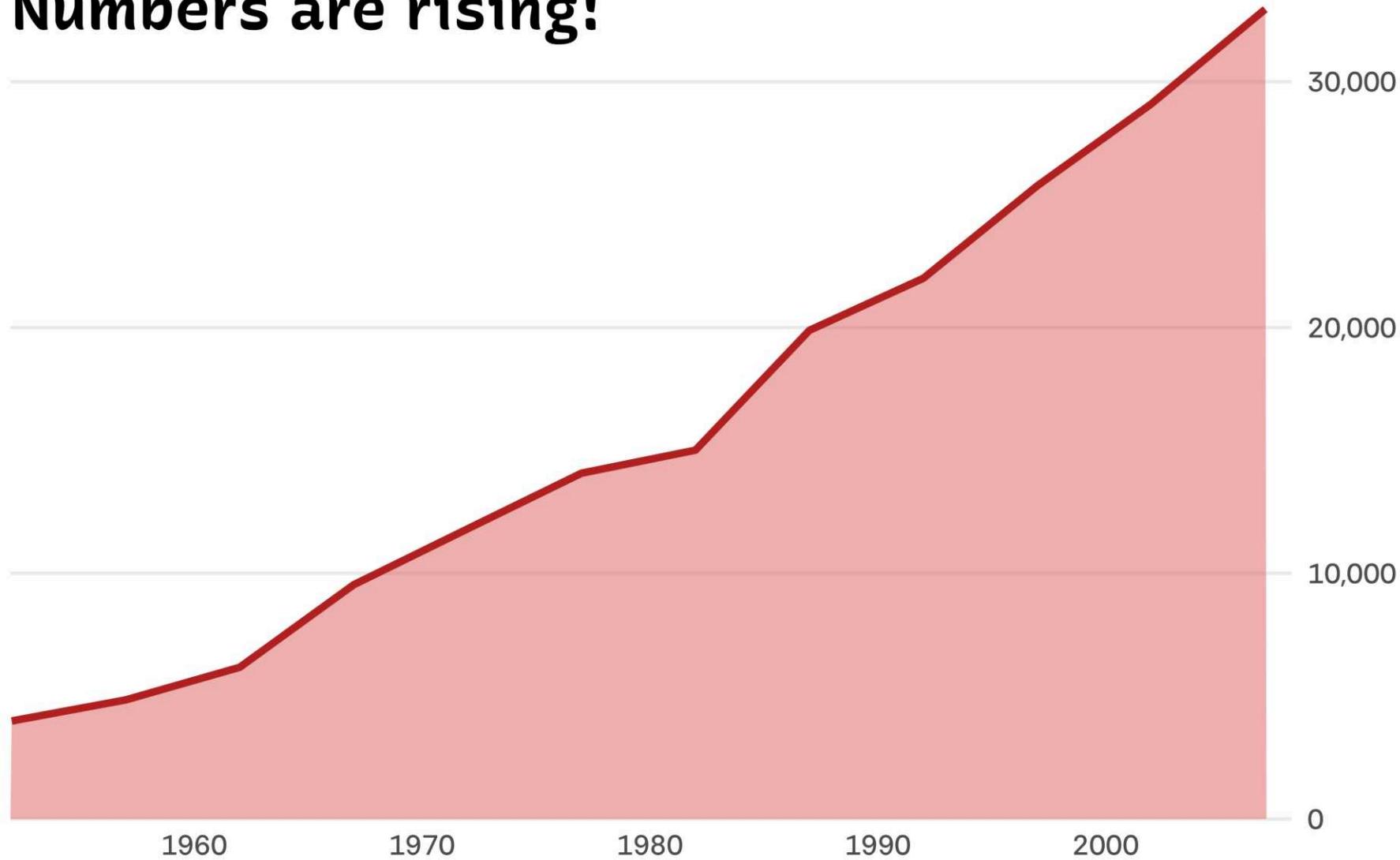
Numbers are rising



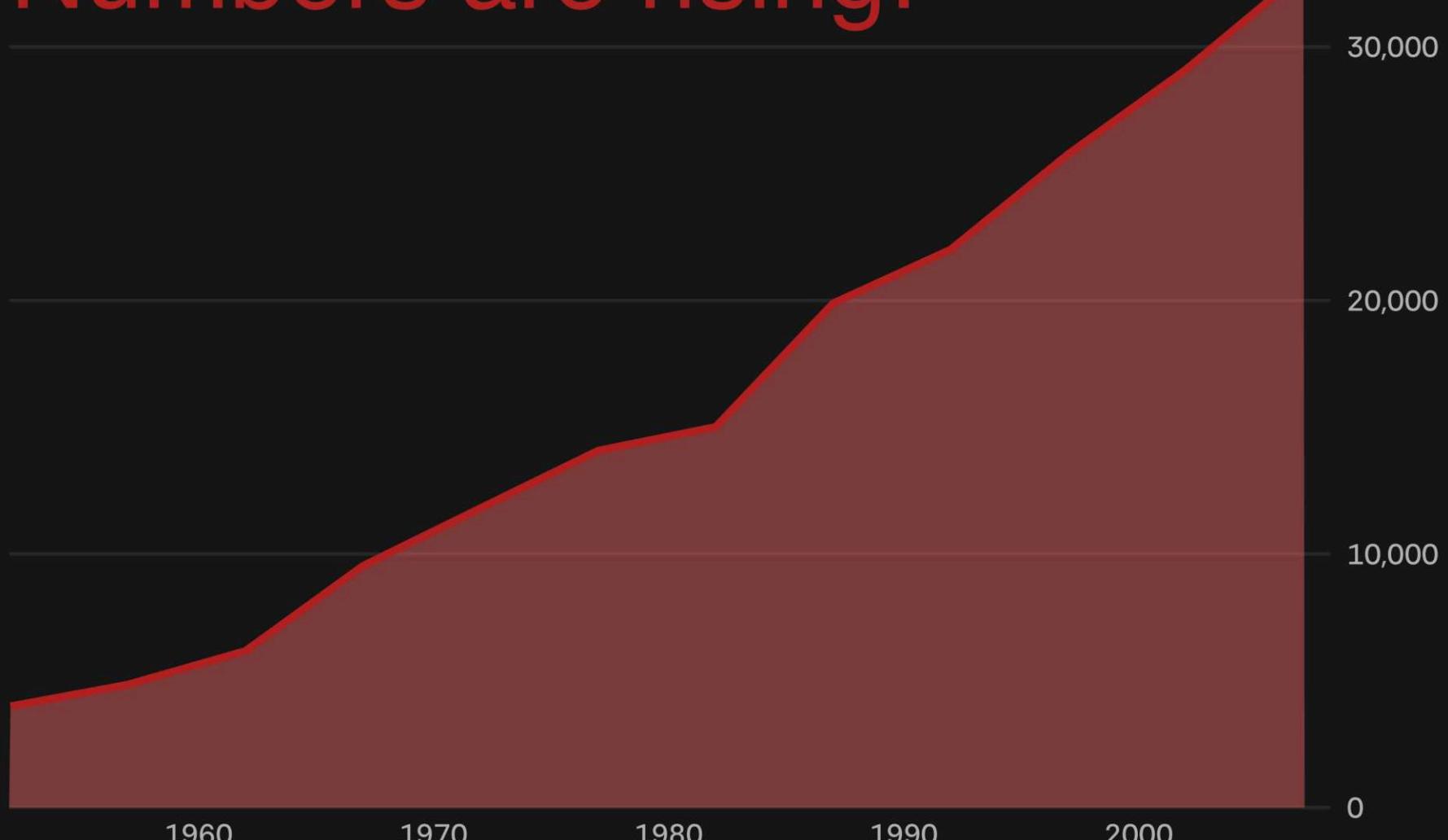
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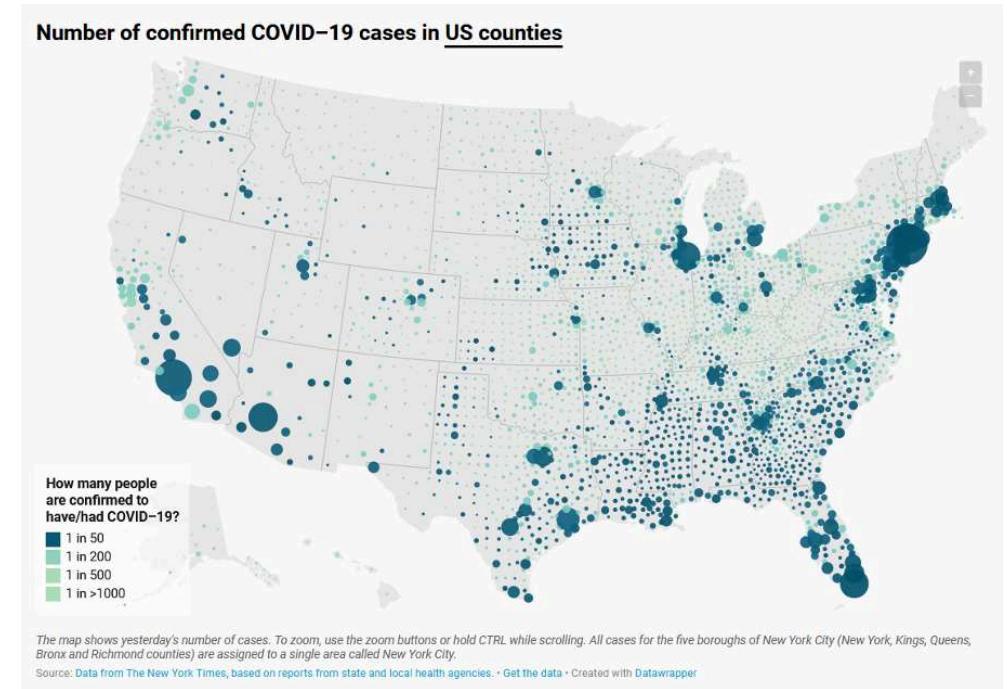
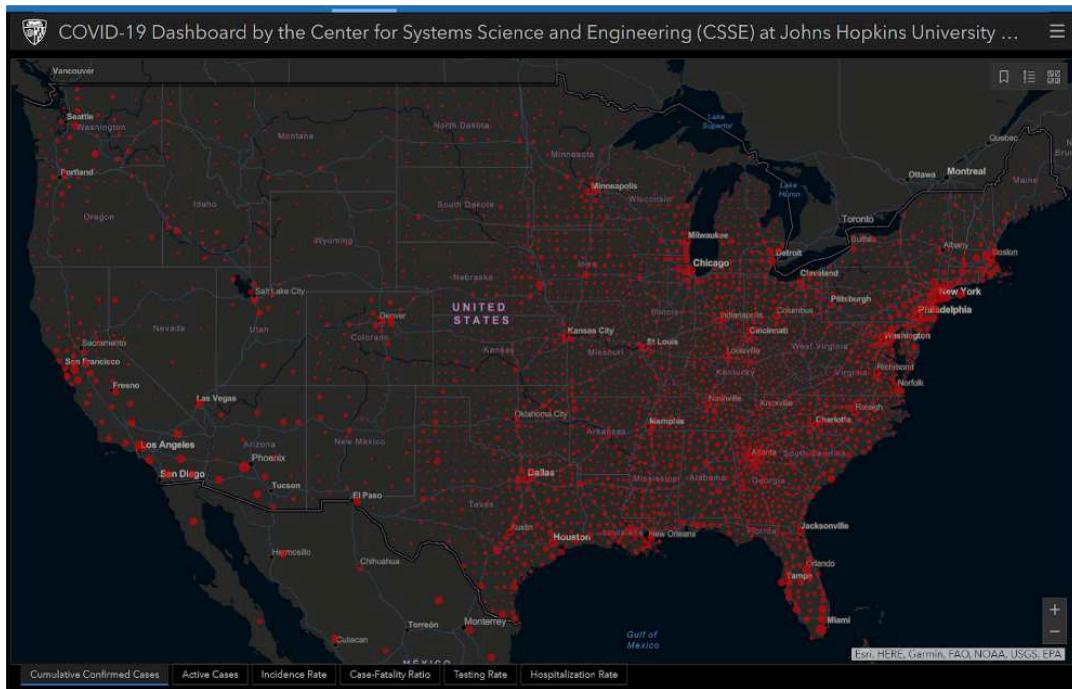


Numbers are rising!



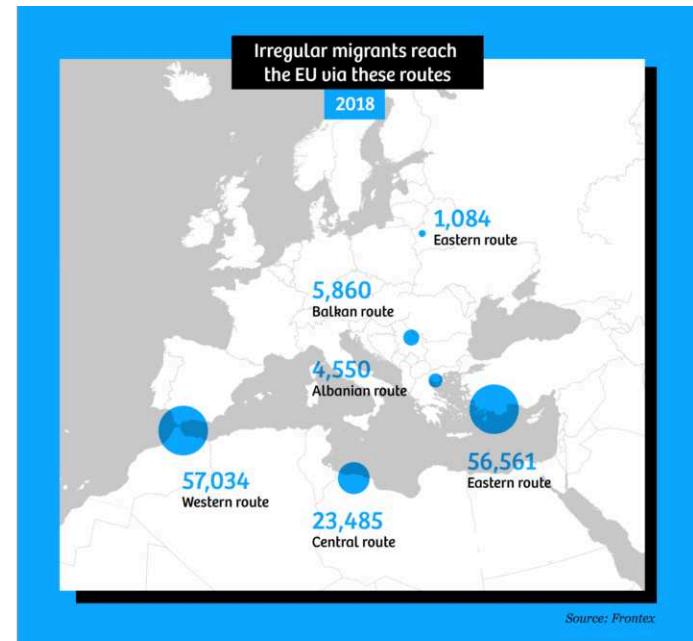
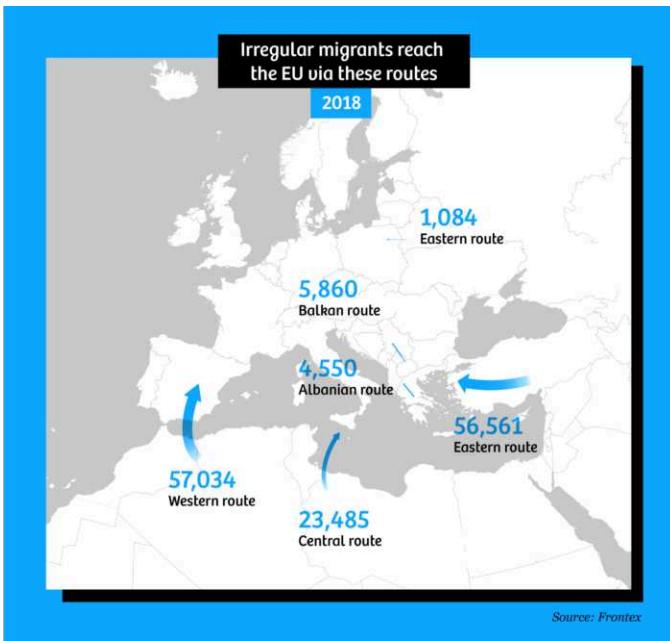
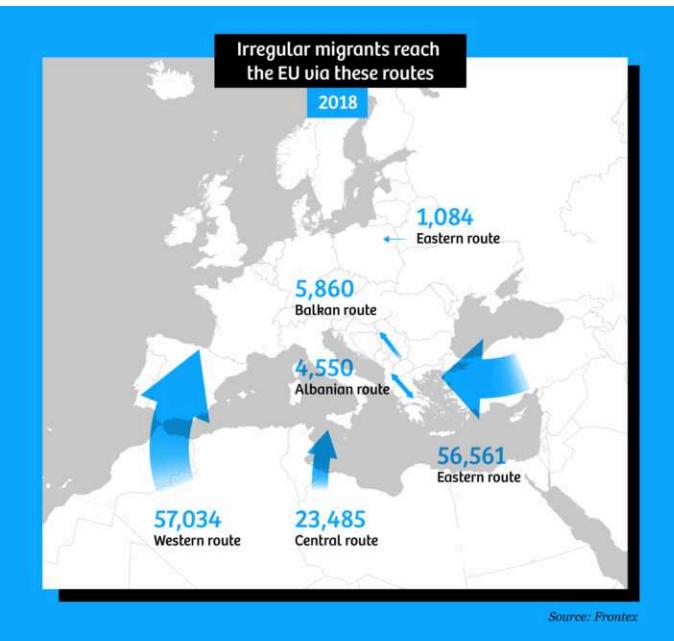
Numbers are rising!





The famous [COVID-19 tracker by the John Hopkins University](#) using an “alien-death-blood visual identity” (Screenshot 2020-07-27) next to a [map of confirmed COVID-19 cases by Datawrapper](#) using more decent colors to avoid an emotion of fear (Screenshot 2020-07-27).



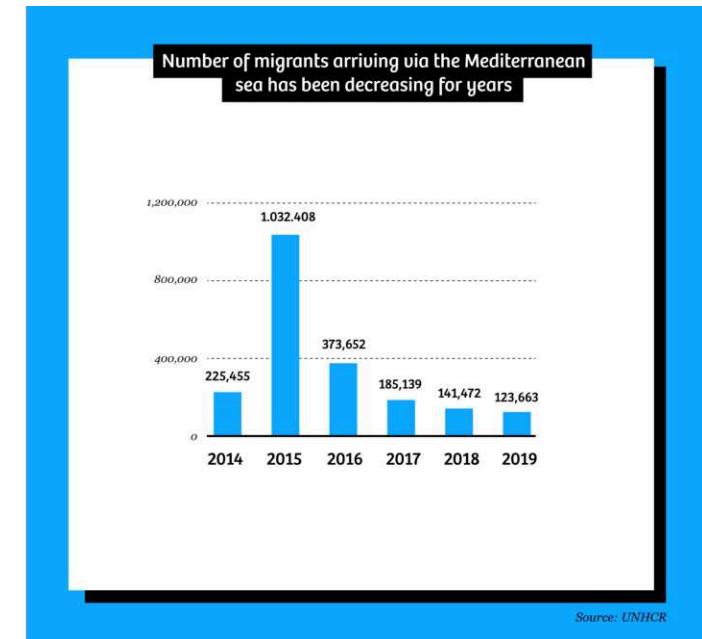
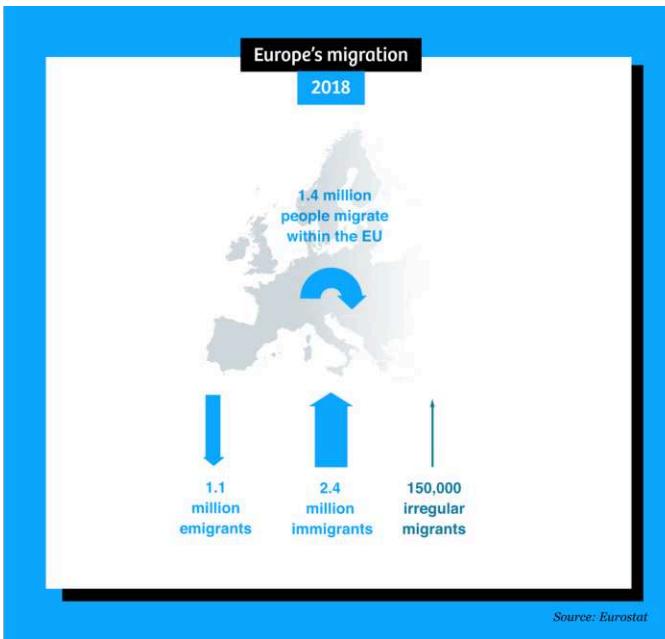
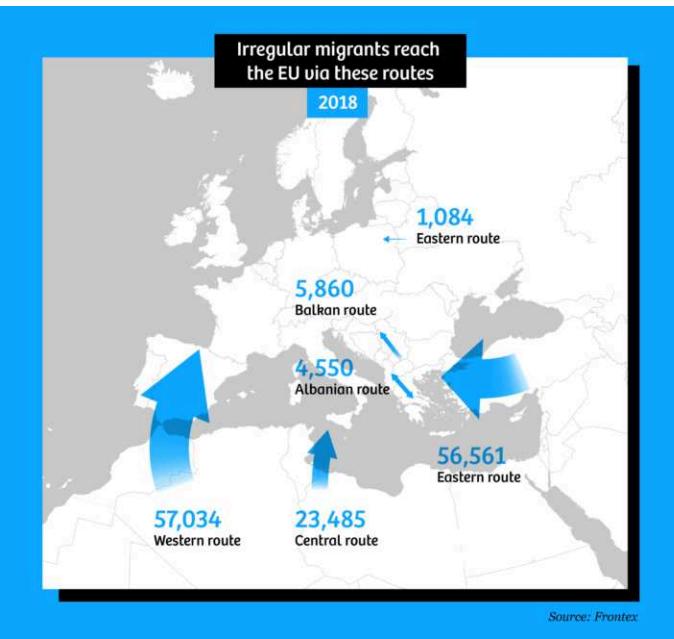


"How maps in the media make us more negative about migrants" von Maite Vermeulen, Leon de Korte & Henk van Houtum



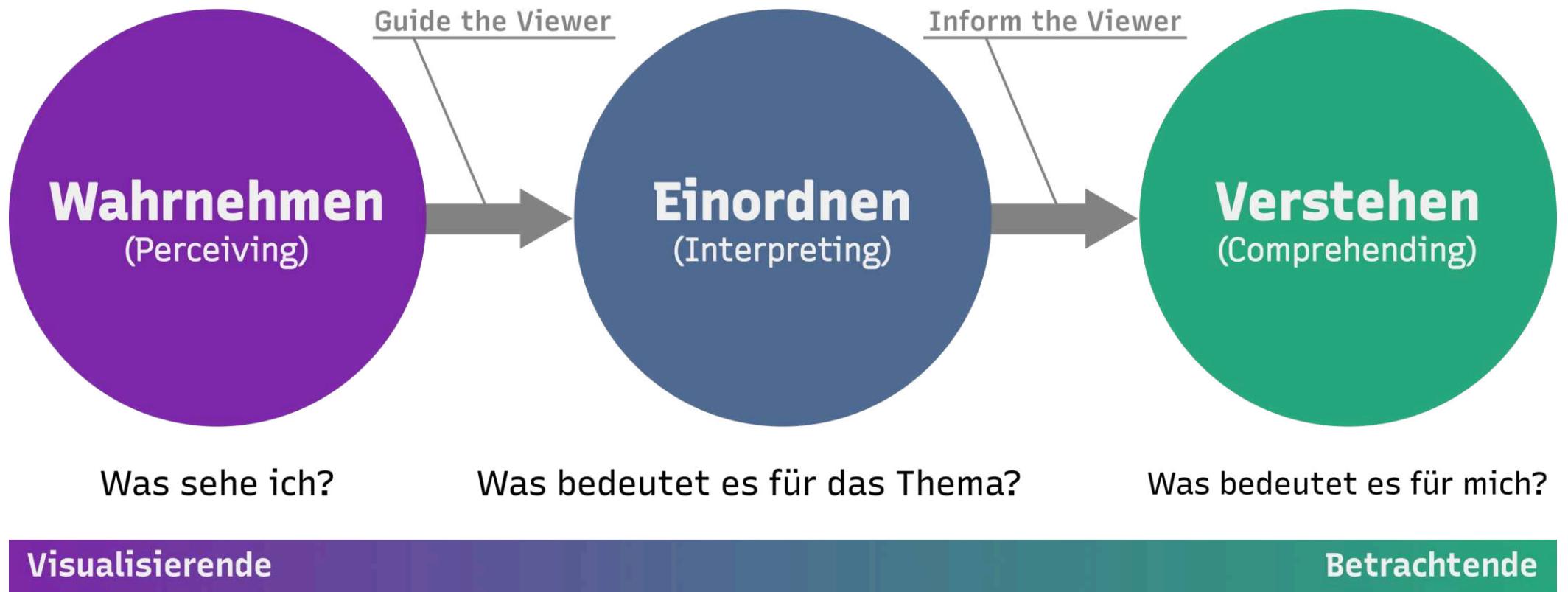
- » **Wer** ist mein Publikum?
- » **Was** möchte ich vermitteln?
- » **Wie** kann ich die Botschaft untermauern?





"How maps in the media make us more negative about migrants" von Maite Vermeulen, Leon de Korte & Henk van Houtum





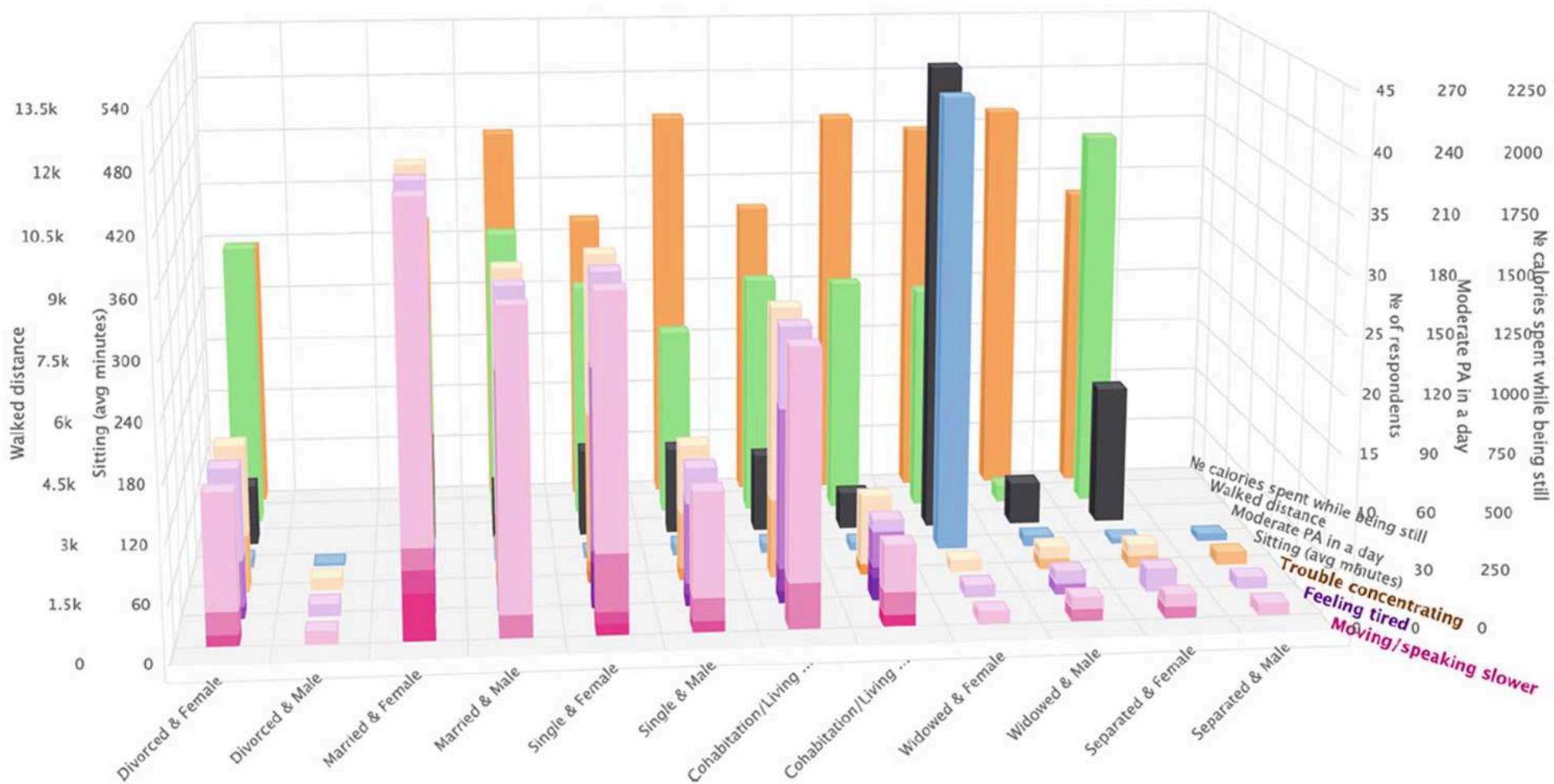
Überarbeitet und erweitert nach einem Originalschema von Andy Kirk



ziel

Zweckmäßigkeit der Darstellung





Quelle: Gonzalez-Martinez et al. (2022)

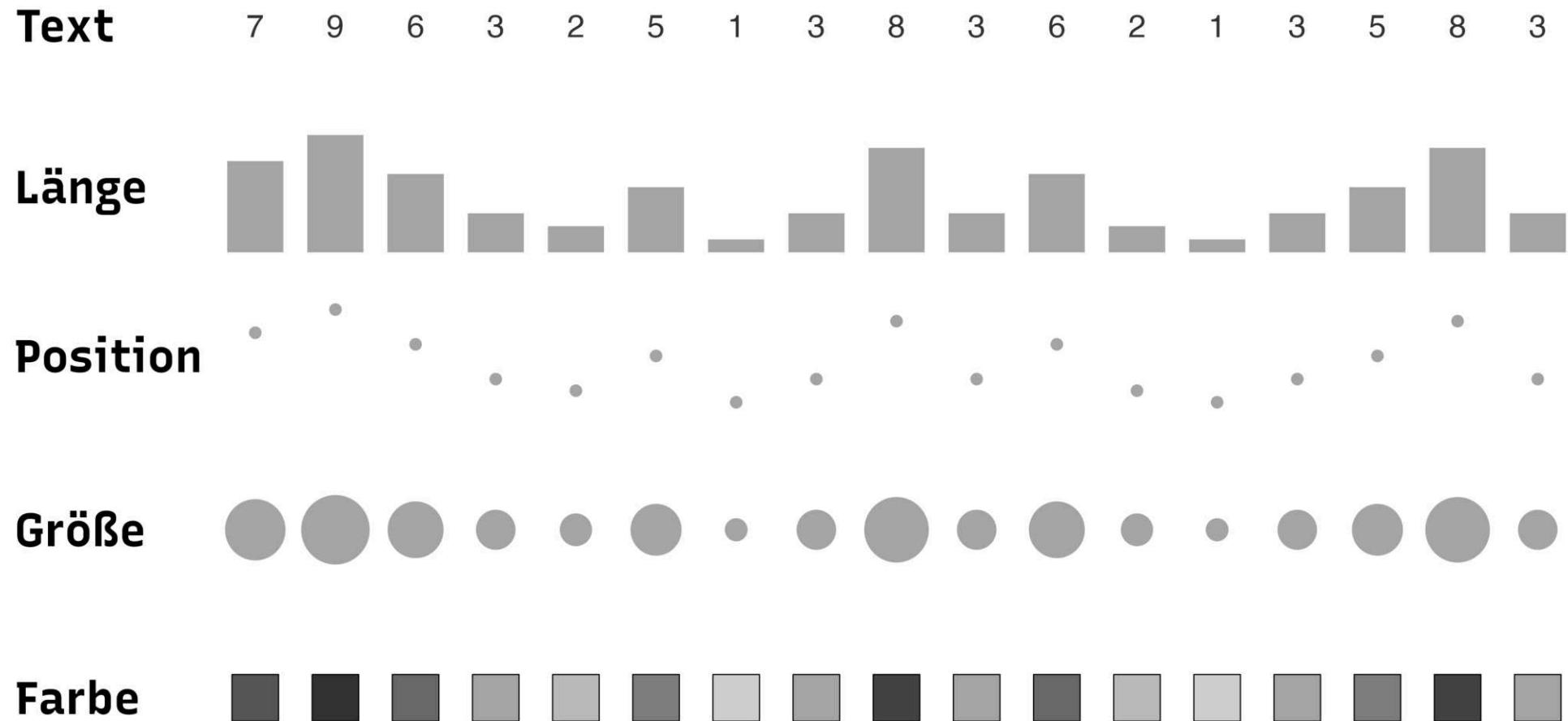


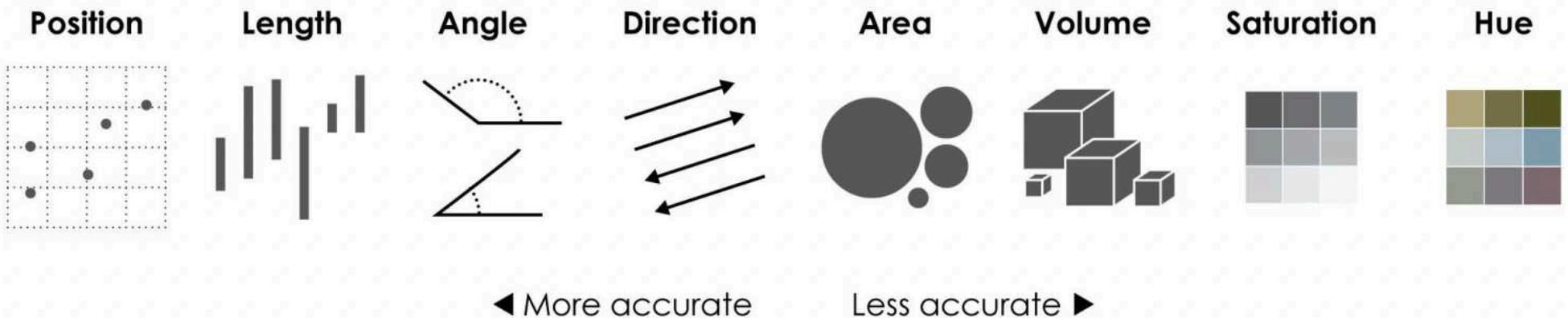
Kodierungen

Zuordnung von Datenwerten
zu visuellen Eigenschaften.



Gleiche Werte, andere Kodierung

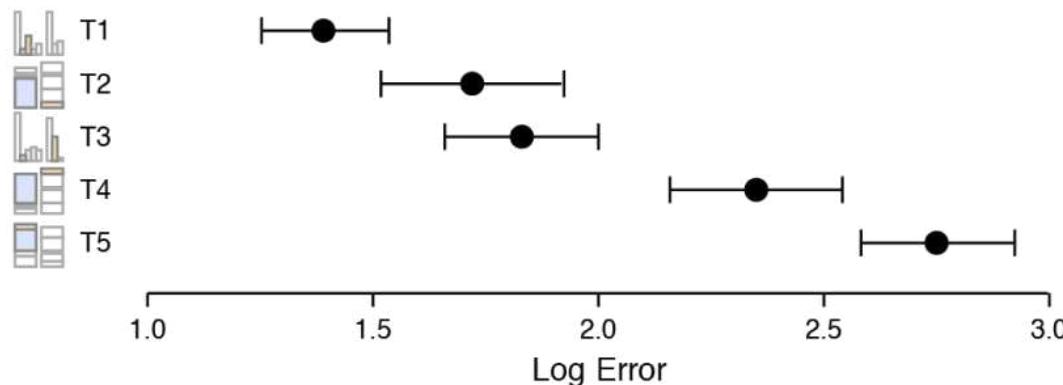




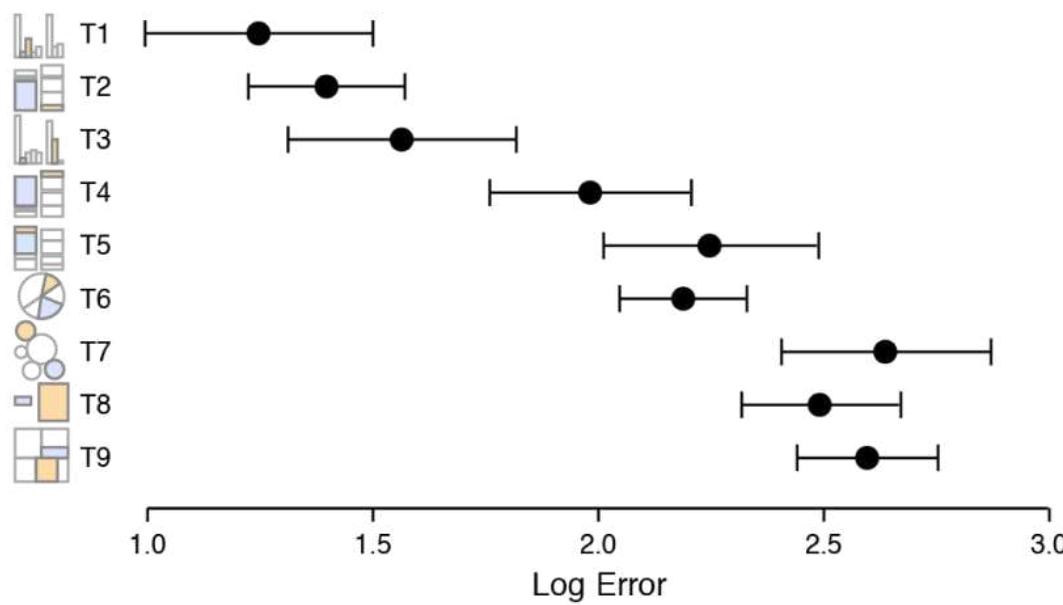
Quelle: "Data Points" von Nathan Yau (S. 104)



Cleveland & McGill's Results



Crowdsourced Results



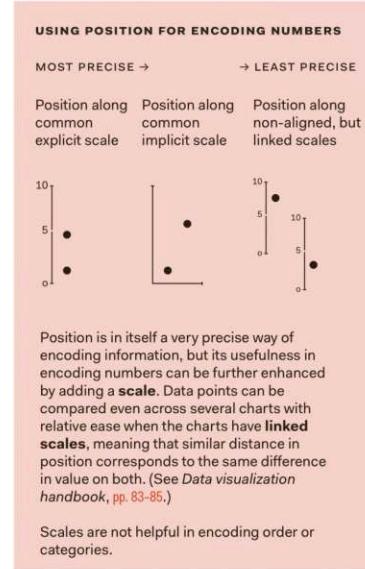
Quelle: "Data Visualization: A Practical Introduction" von Kieran Healy
Ergebnisse basierend auf Cleveland & McGill (1984, 1987) und Heer & Bostock (2010)



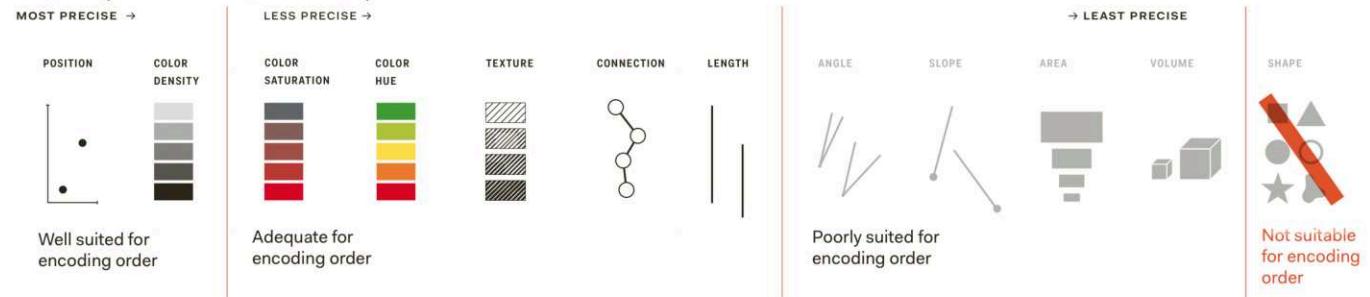
VISUAL VARIABLES

Organized by how well they are suited
for representing data measured on each type of scale

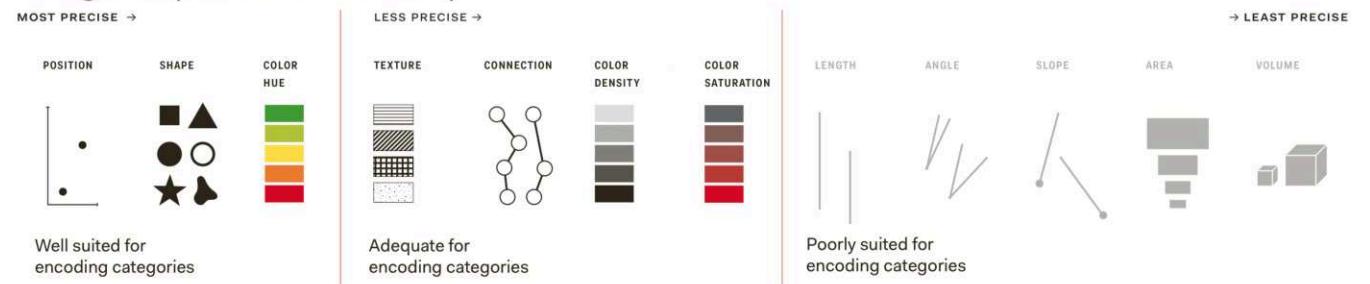
Numbers (data on ratio or interval scale)



Order (data on ordinal scale)



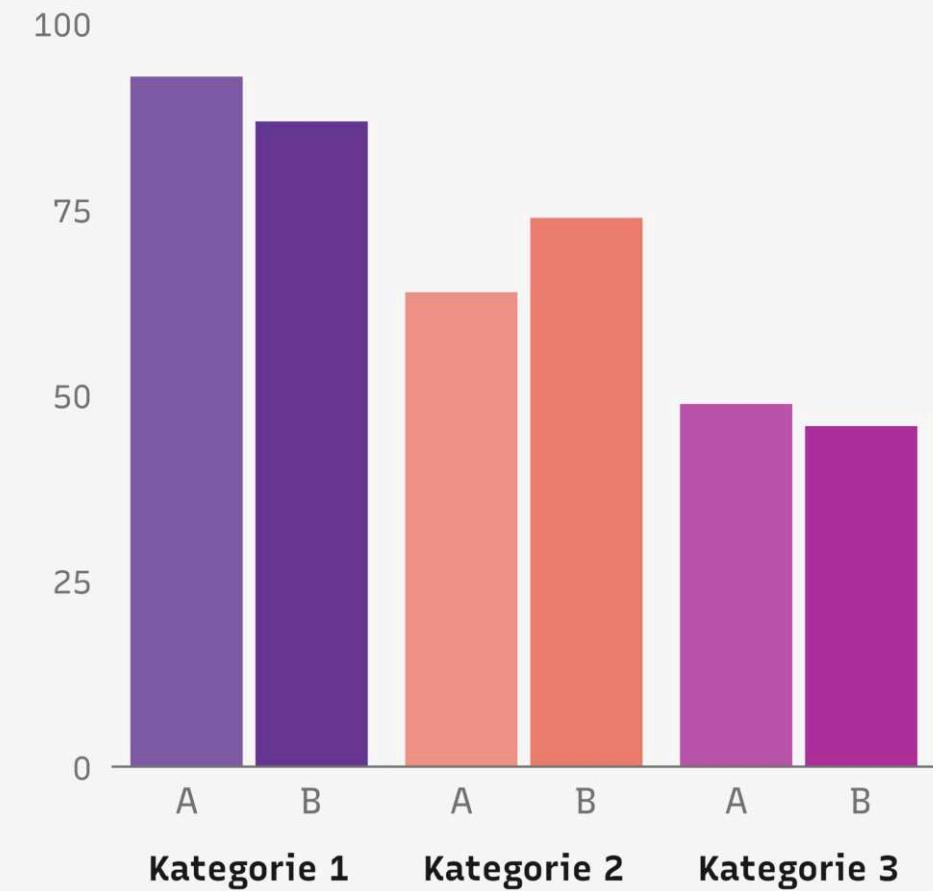
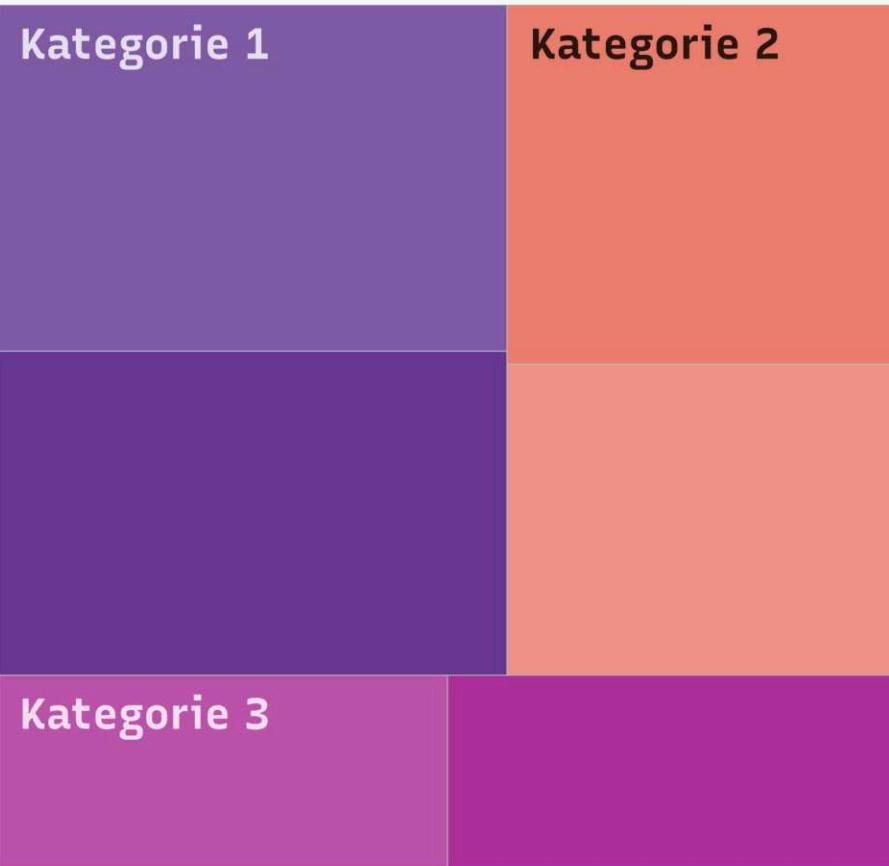
Categories (data on nominal scale)



Quelle: "Data Visualization Handbook" von Juuso Koponen & Jonatan Hildén (2020), Seite 58–62 (verfügbar als [Poster](#))



■ Gruppe A ■ Gruppe B

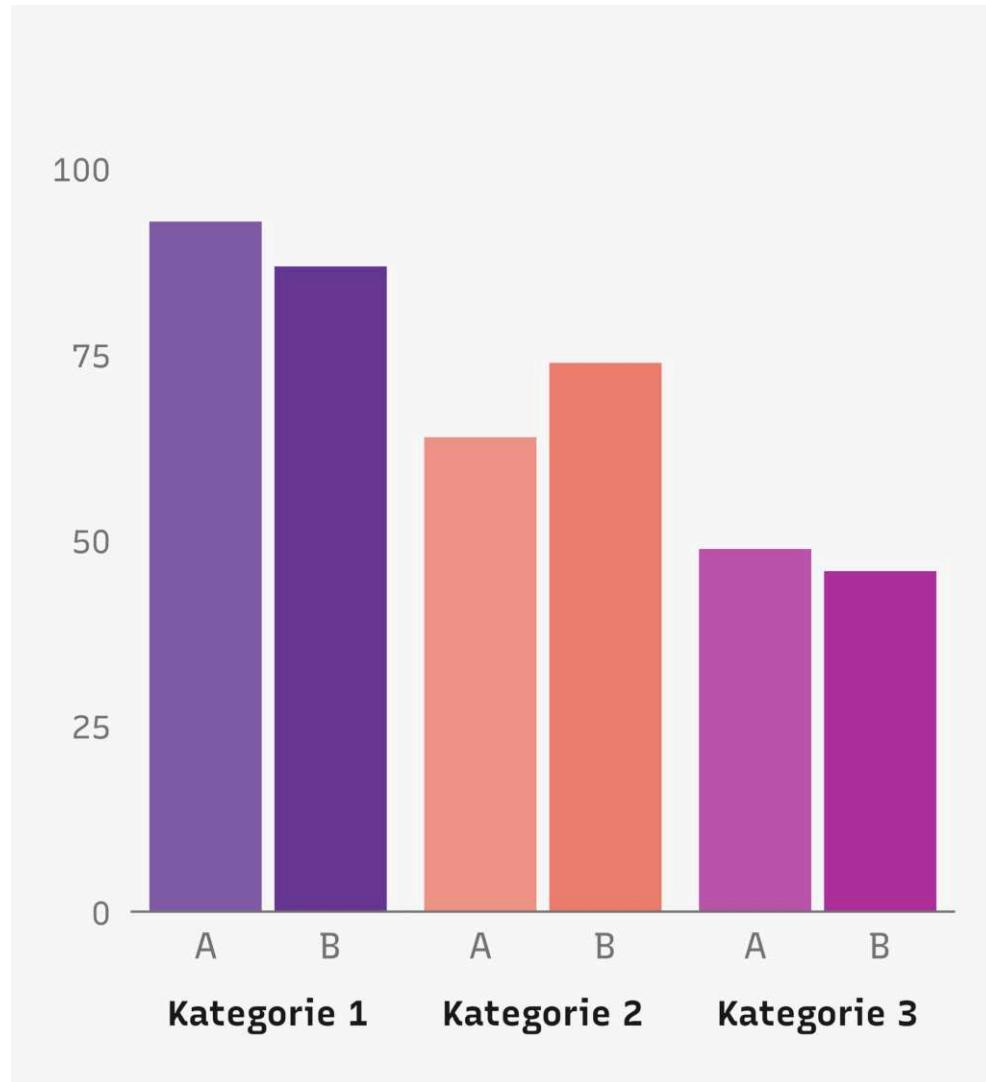
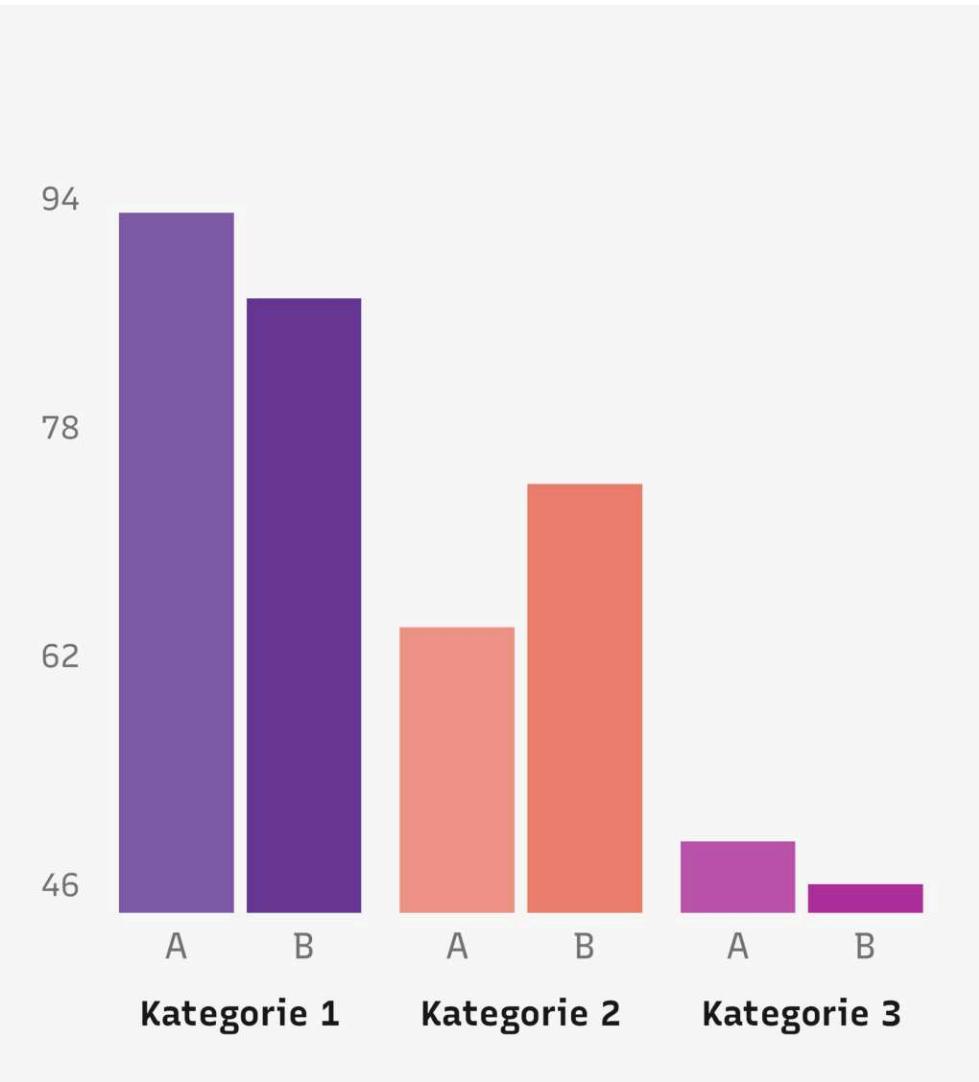


“There’s a strand of the data viz world that argues that **everything could be a bar chart**.

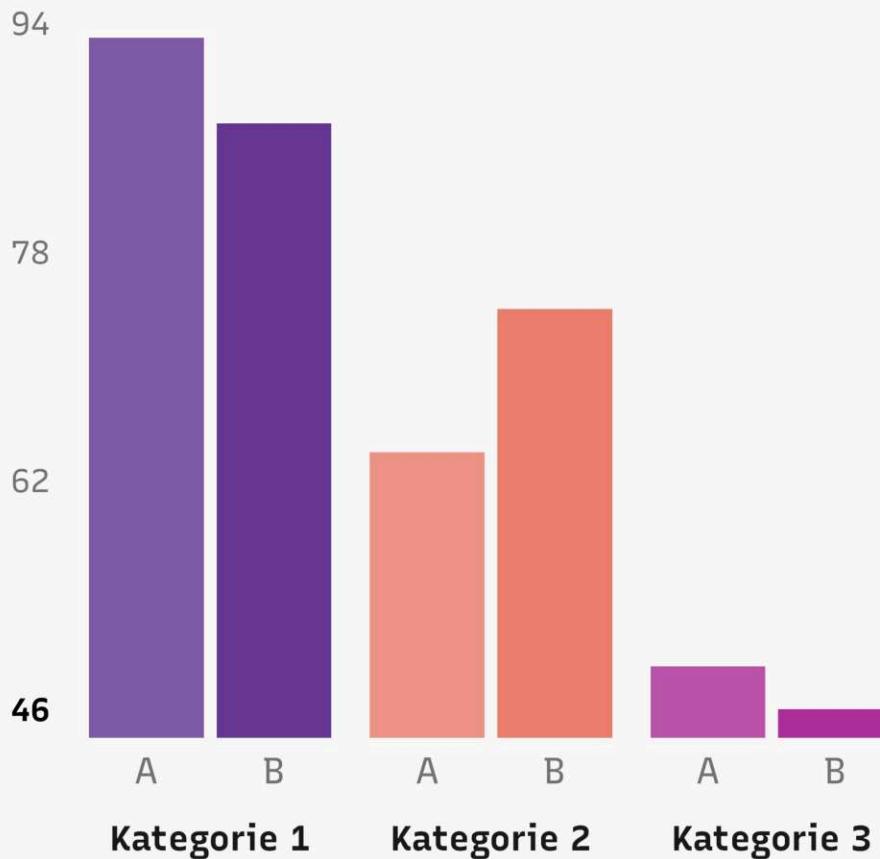
That’s possibly true but also possibly **a world without joy**.”

Amanda Cox (2013)

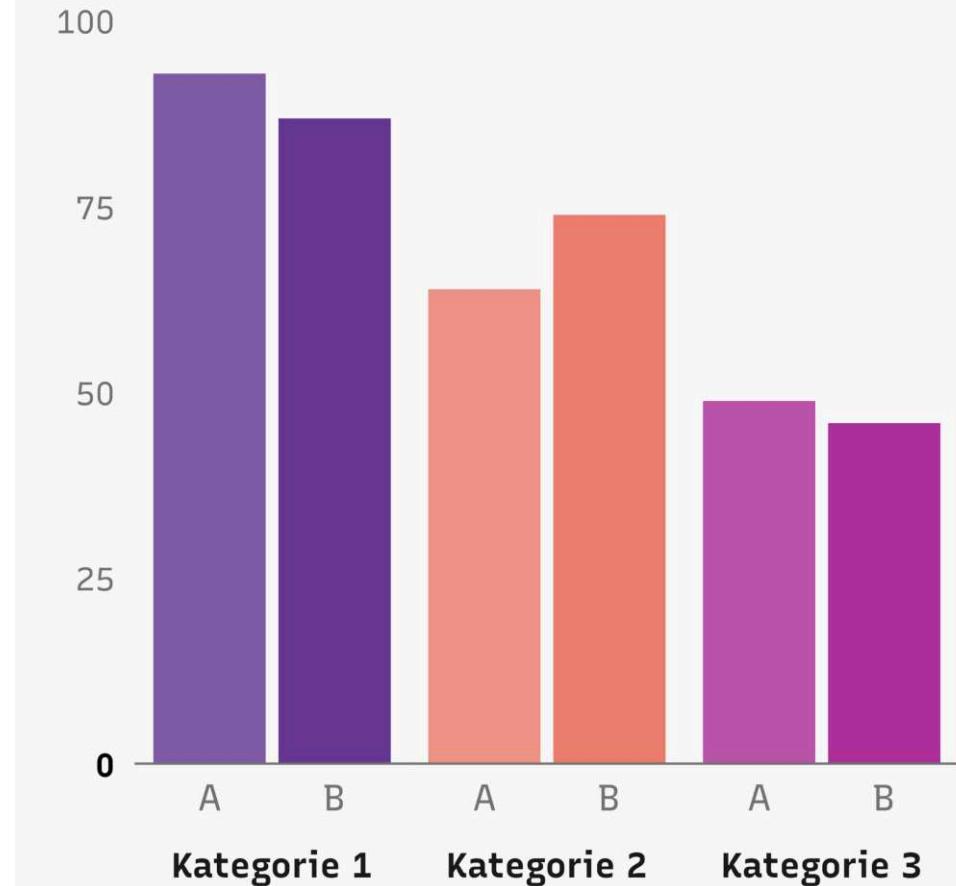




IRREFÜHREND ✗



UNPROBLEMATISCH ✓

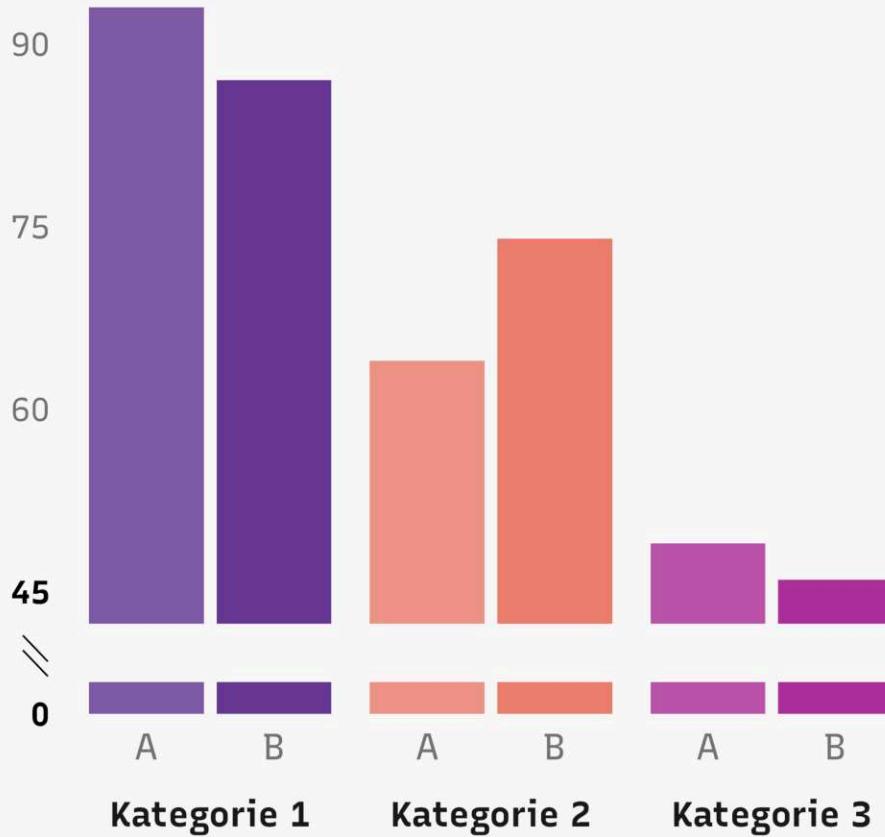




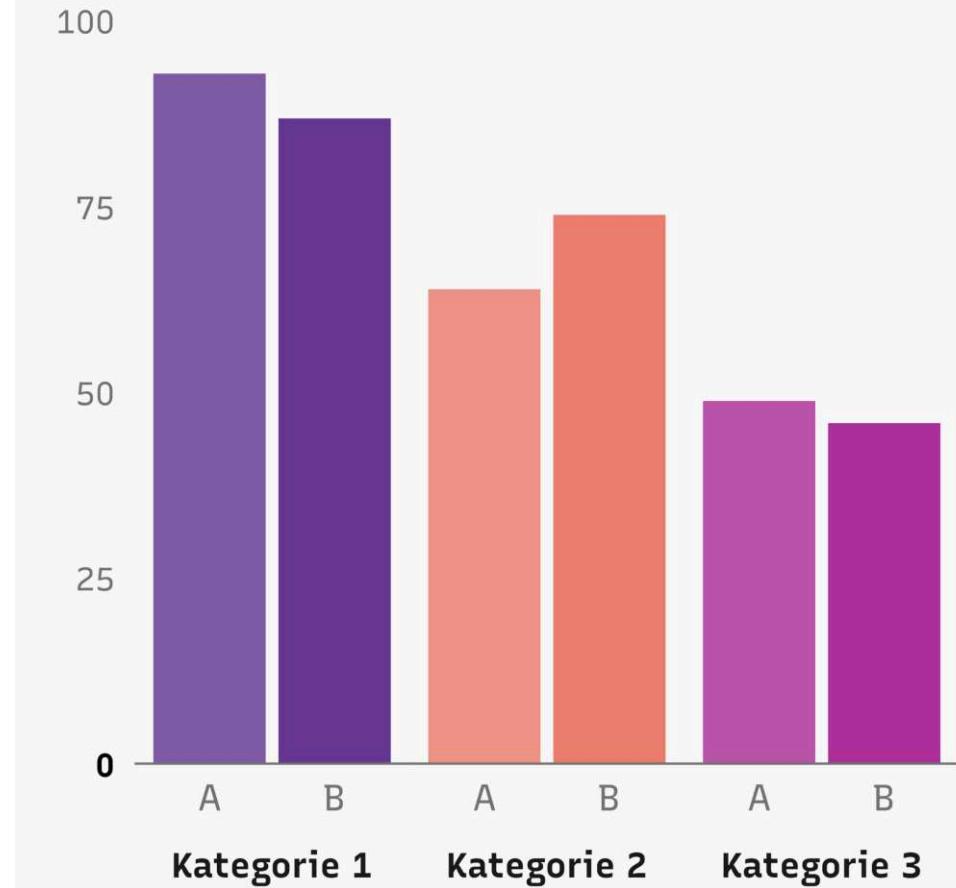
mehr dazu: z.B. Witt (2019) und Correl, Bertini & Francoeri (2020)



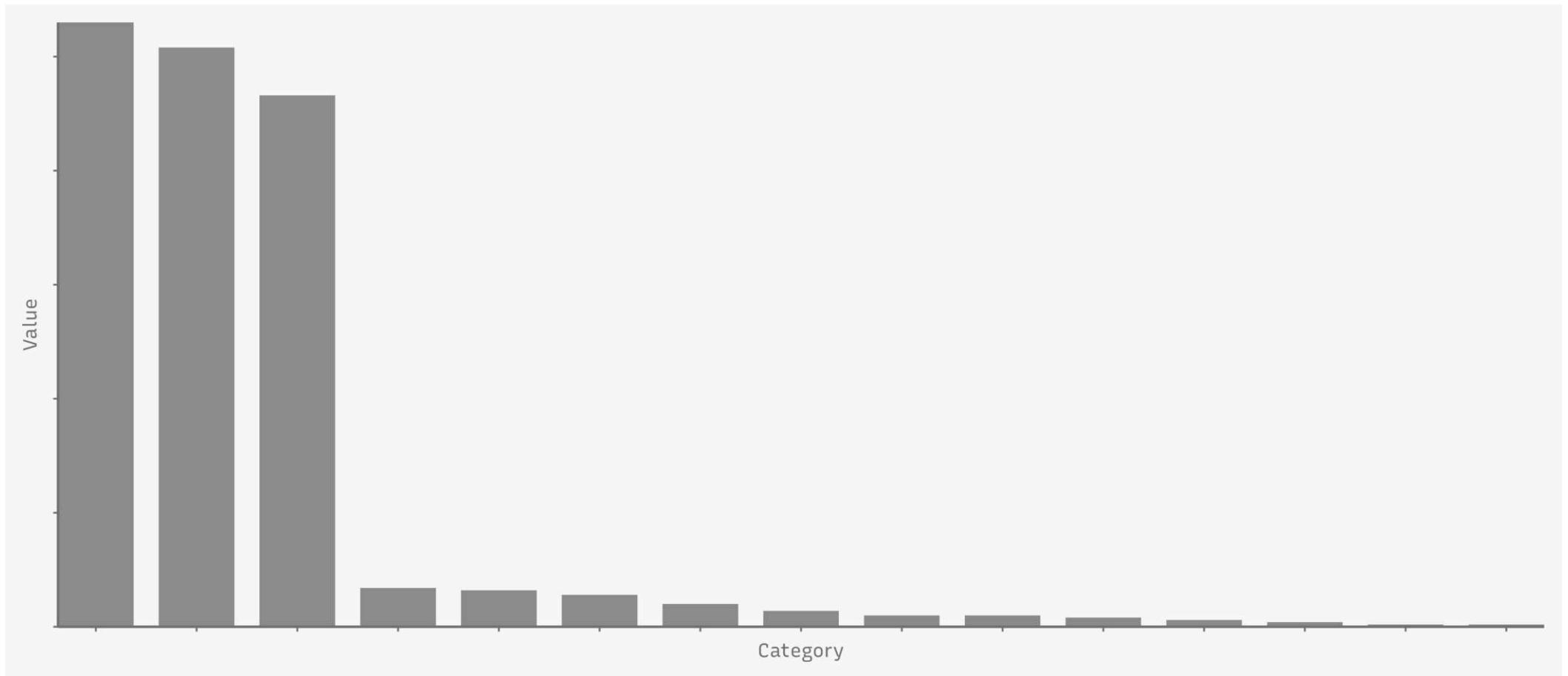
IRREFÜHREND X



UNPROBLEMATISCH ✓

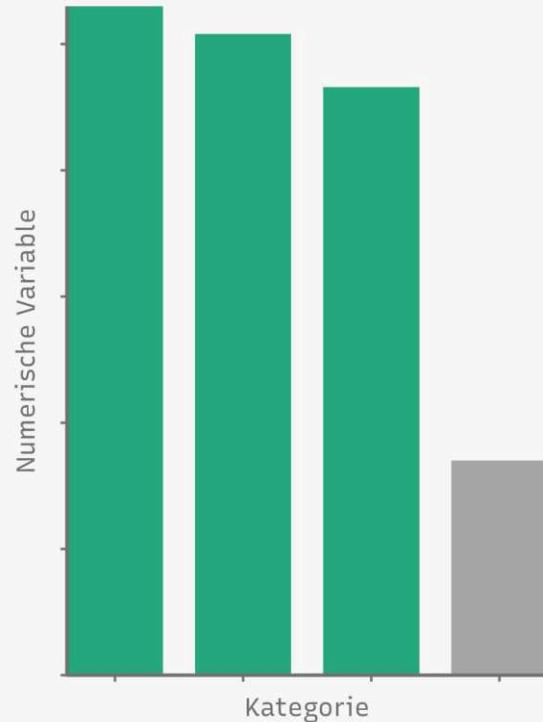


Schiefe Datenverteilung?

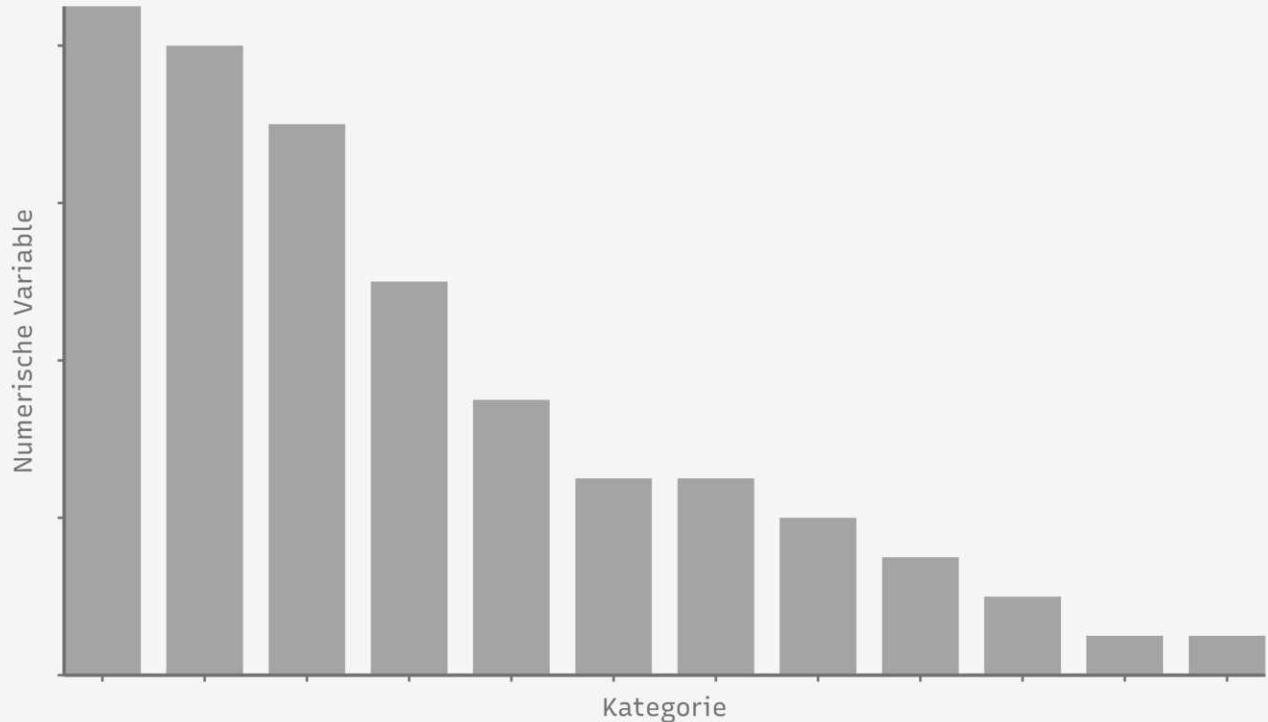


Schiefe Datenverteilung?

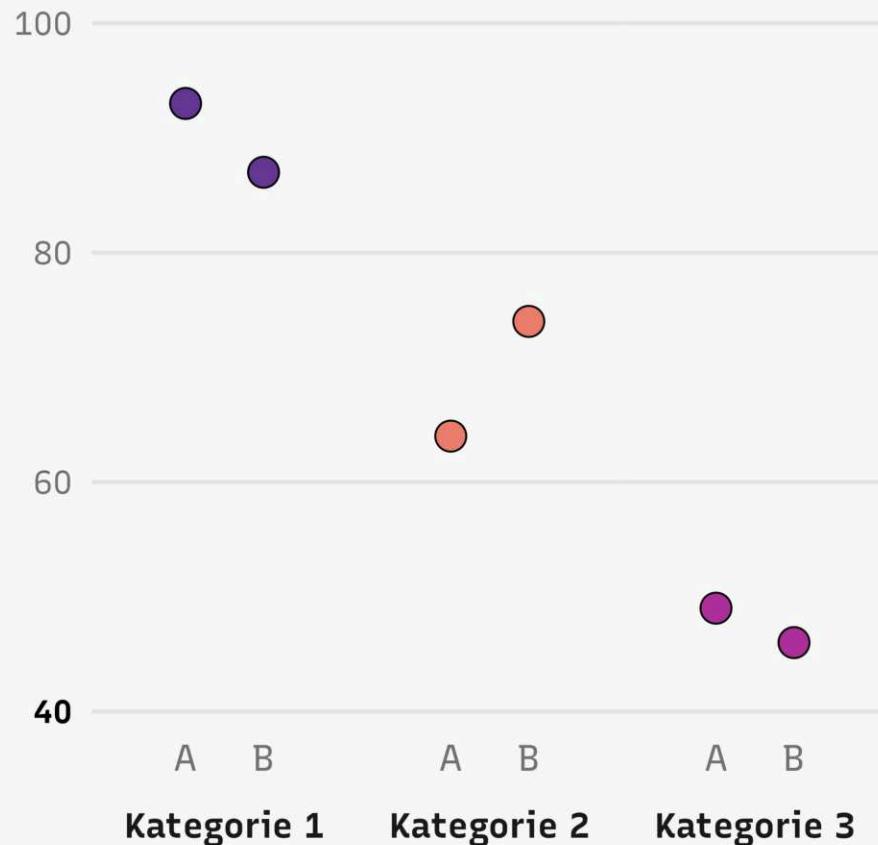
Hauptkategorien



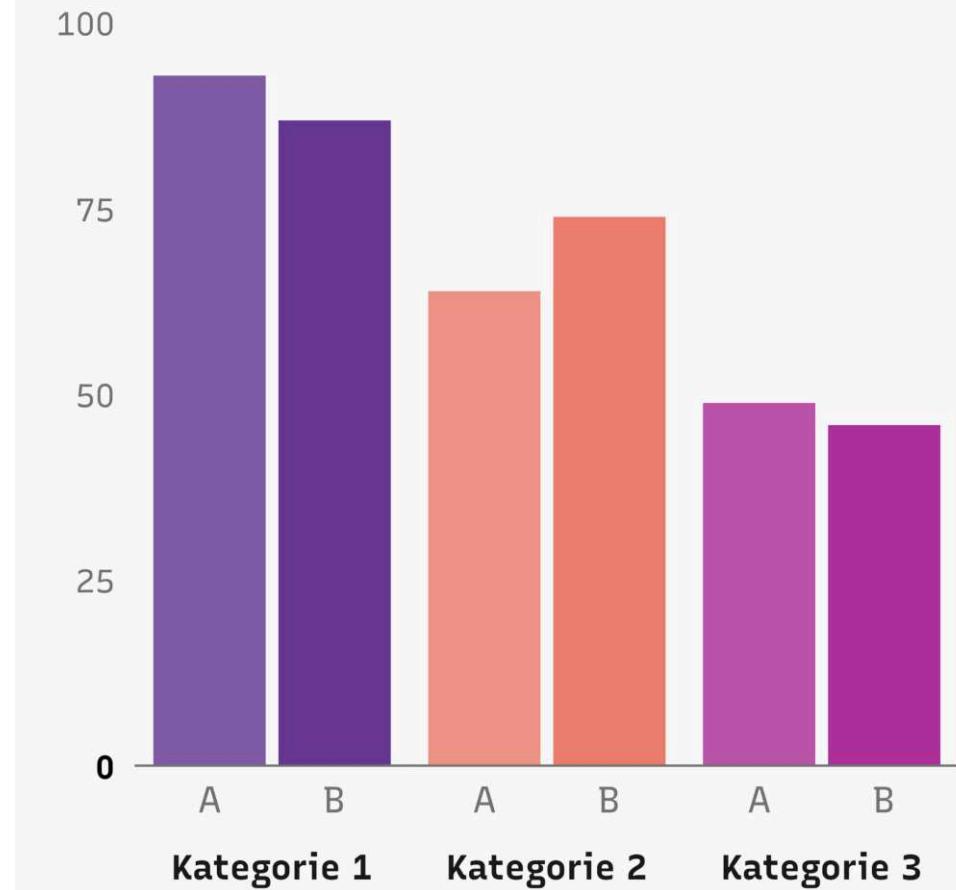
Andere Kategorien



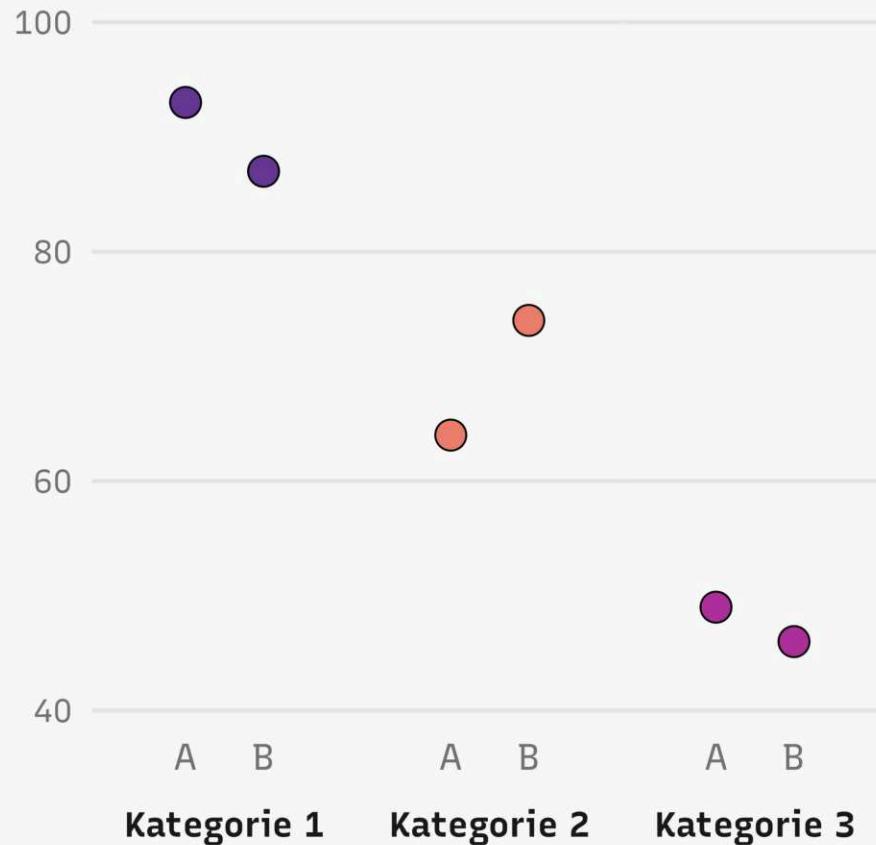
UNBEDENKLICH ✓



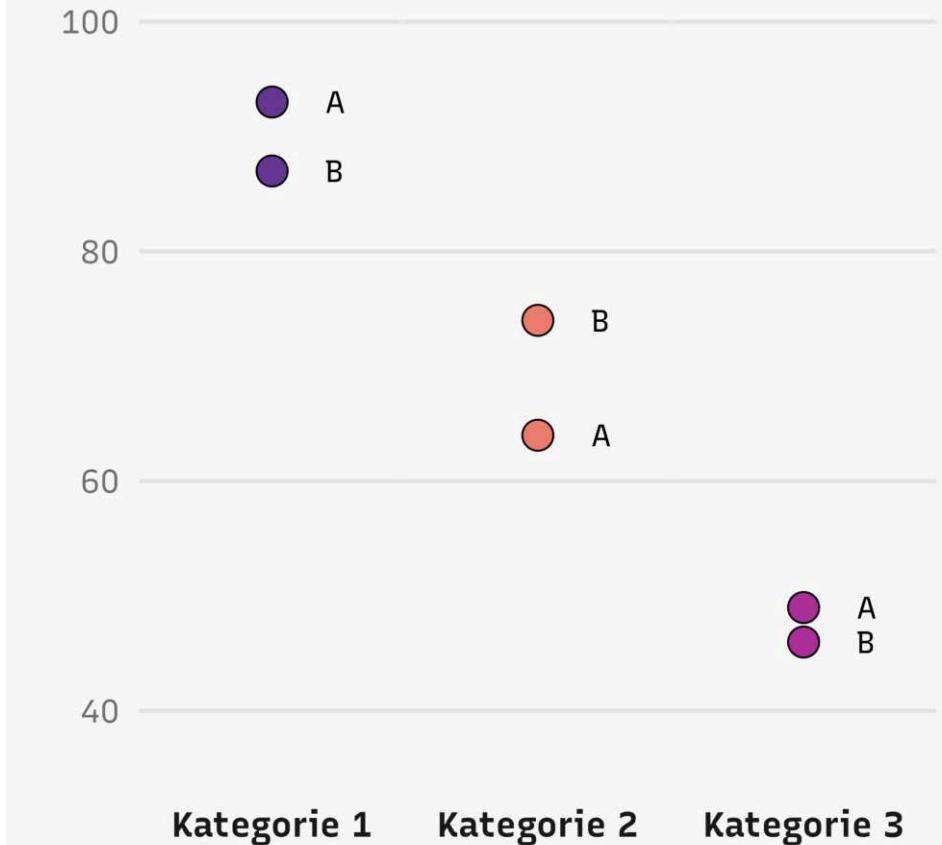
UNPROBLEMATISCH ✓



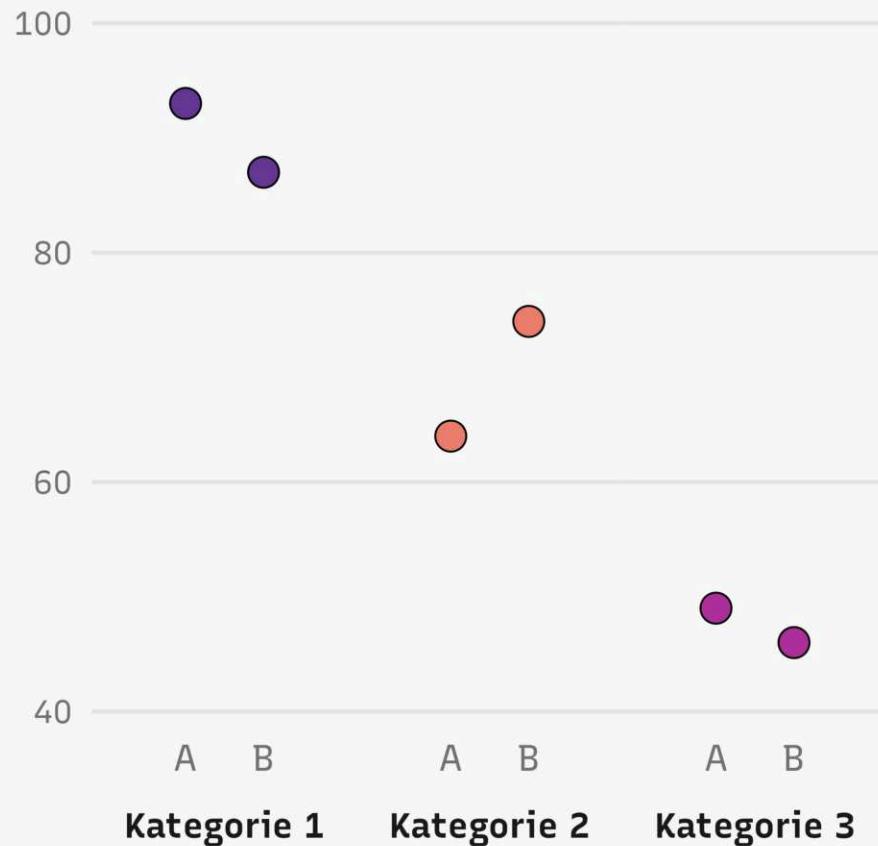
UNBEDENKLICH ✓



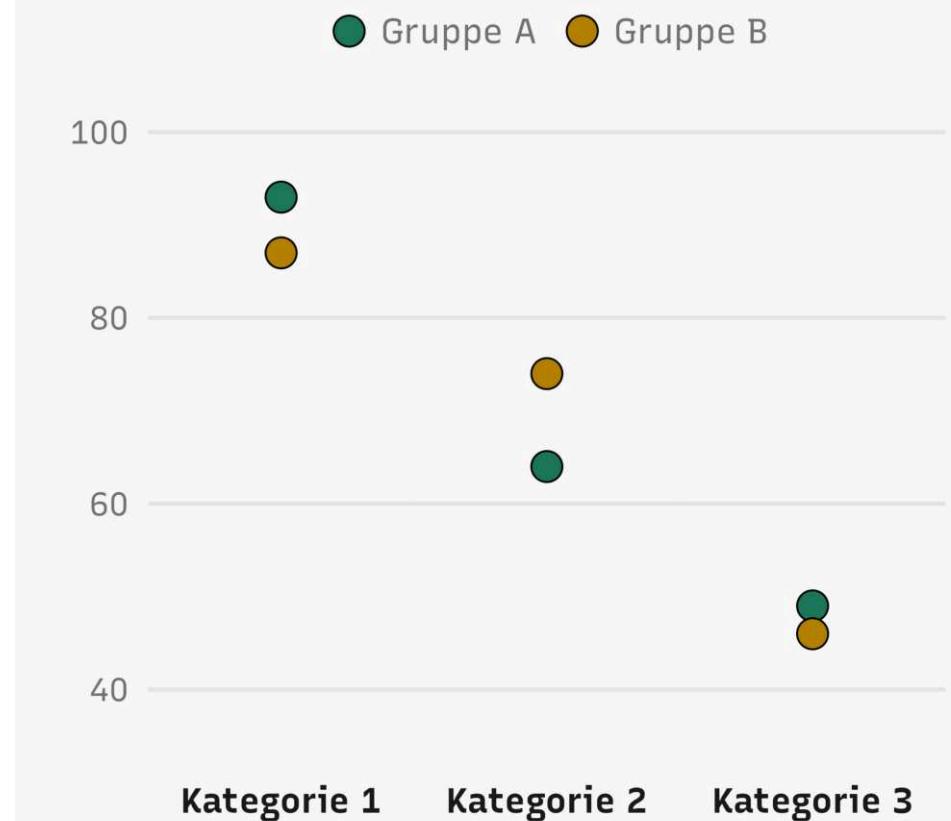
UNBEDENKLICH ✓



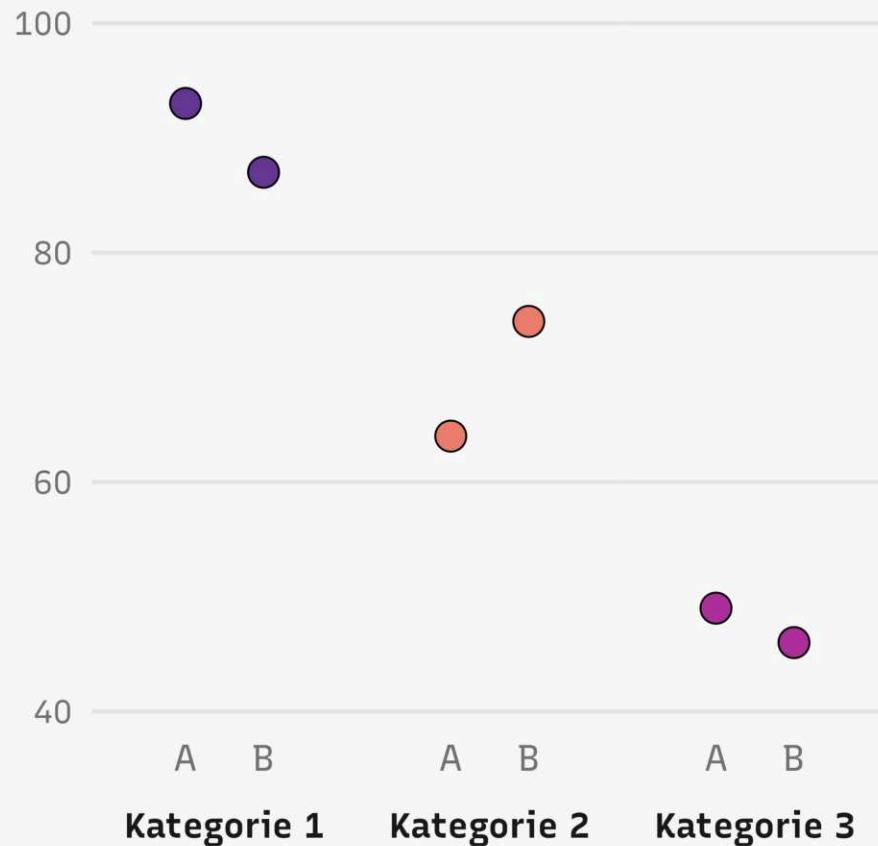
UNBEDENKLICH ✓



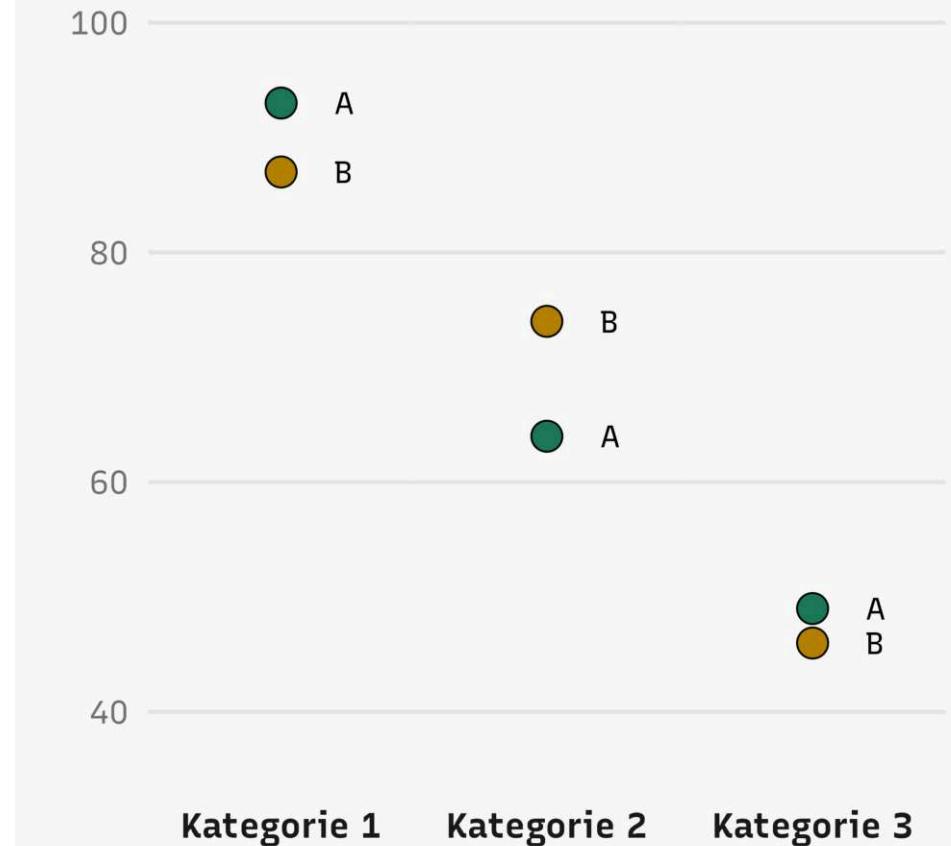
VERSTÄNDLICHER 🤝



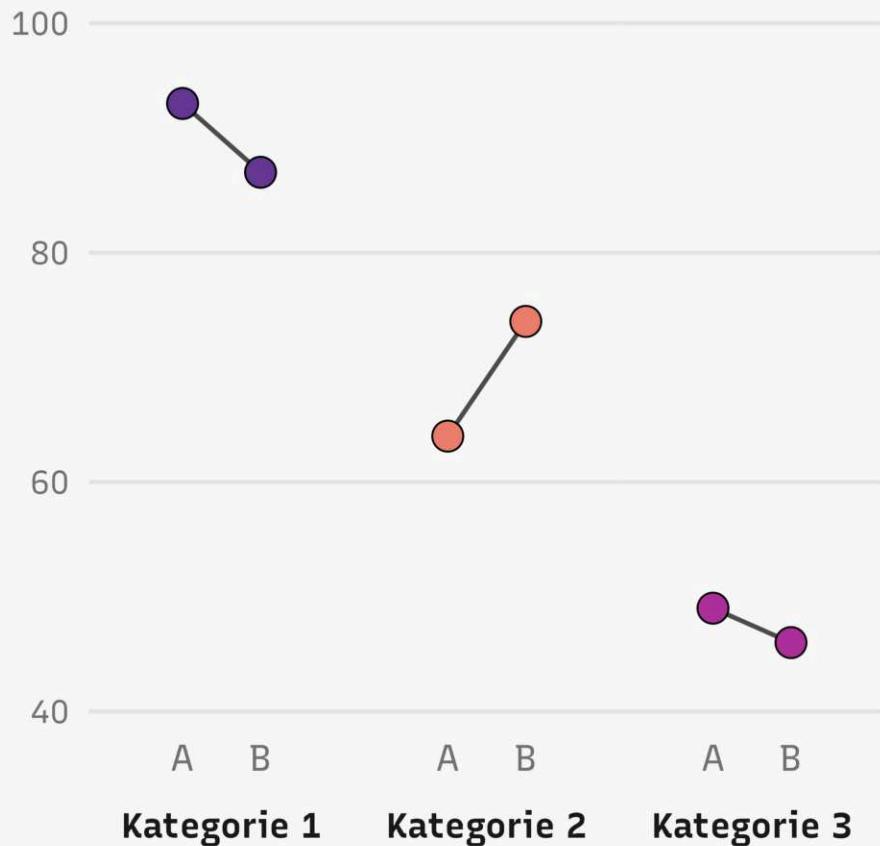
UNBEDENKLICH ✓



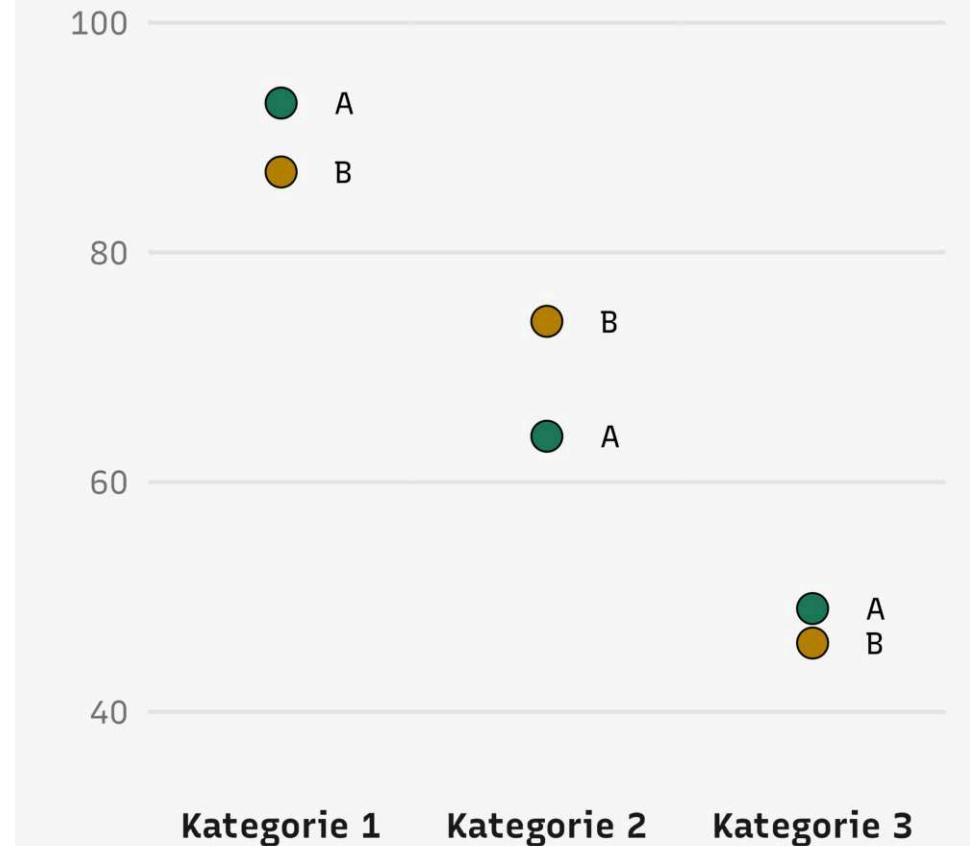
NOCH BESSER 🙌



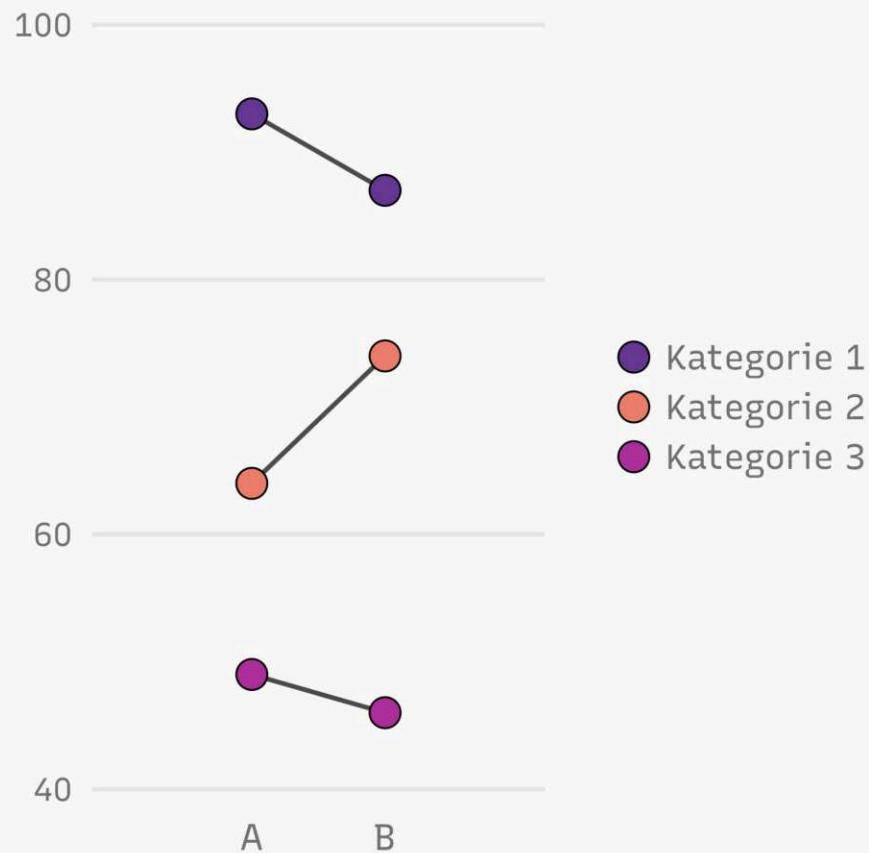
OFT SINNVOLL



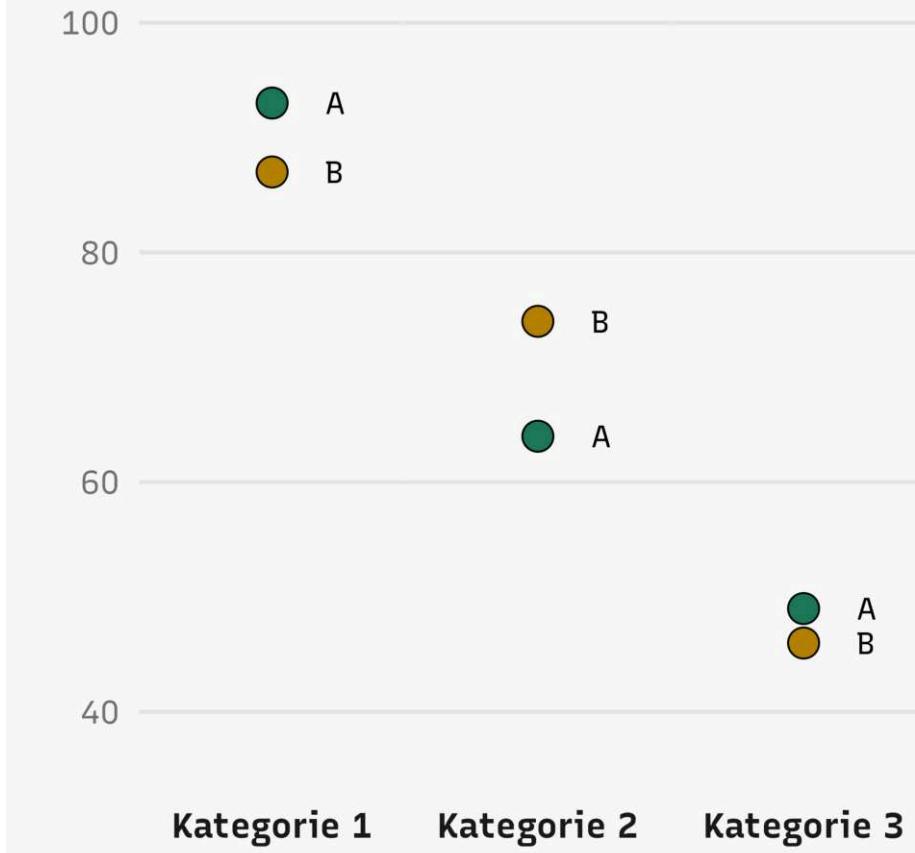
NOCH BESSER



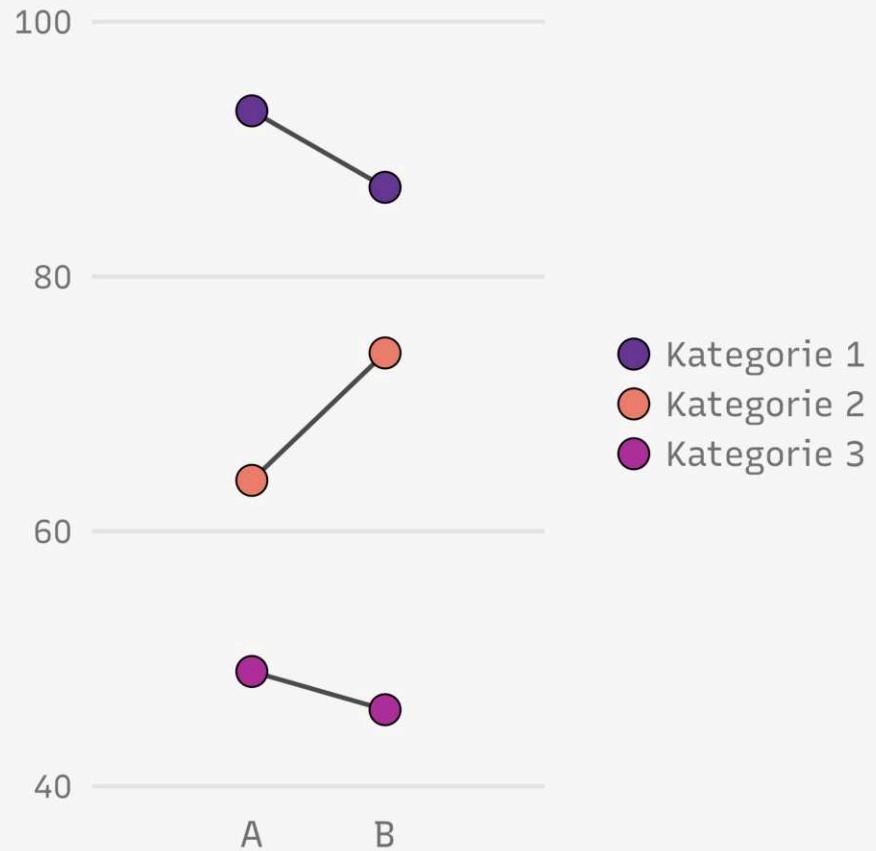
OFT SINNVOLL



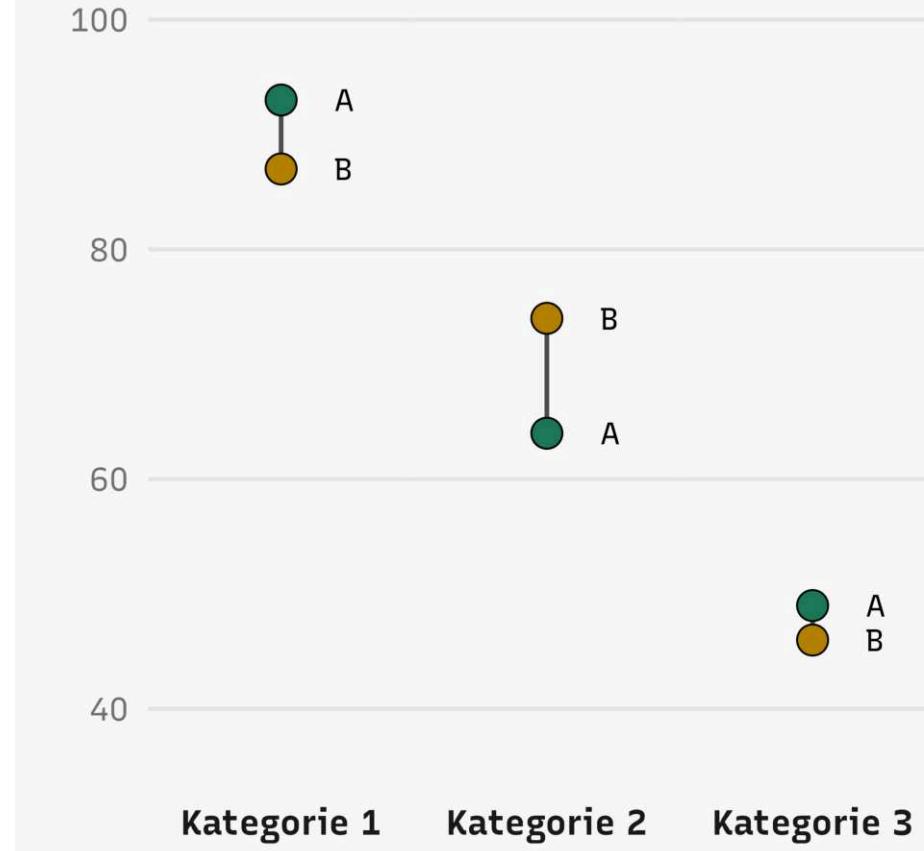
NOCH BESSER



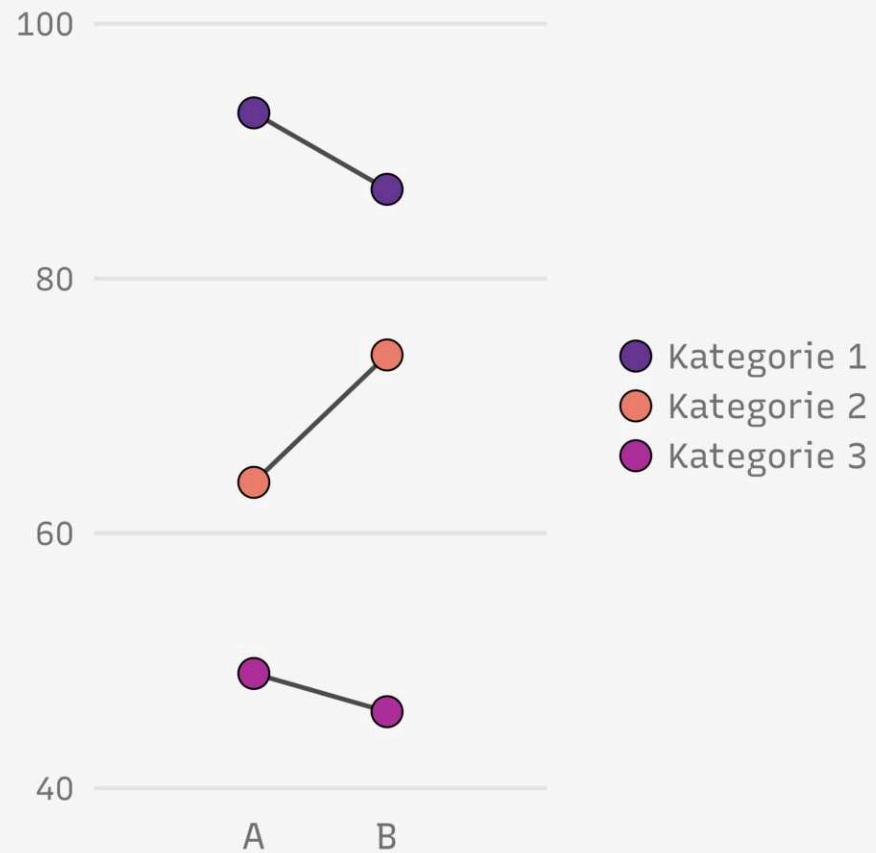
OFT SINNVOLL



OFT SINNVOLL



SLOPE CHART



DUMBBELL PLOT

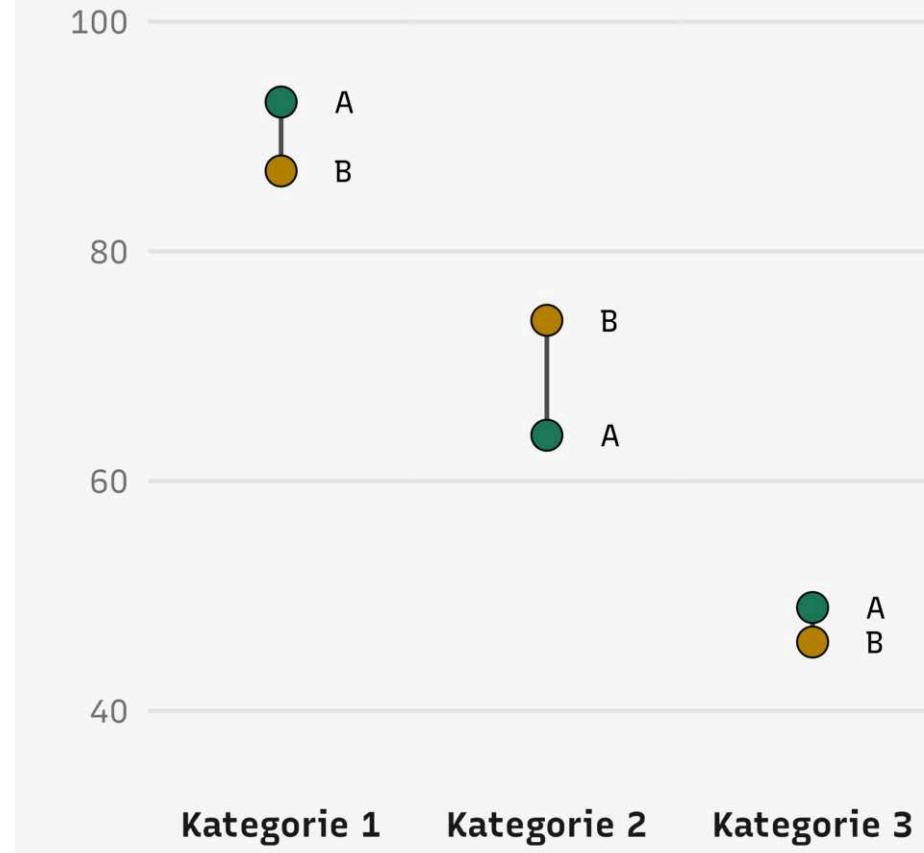
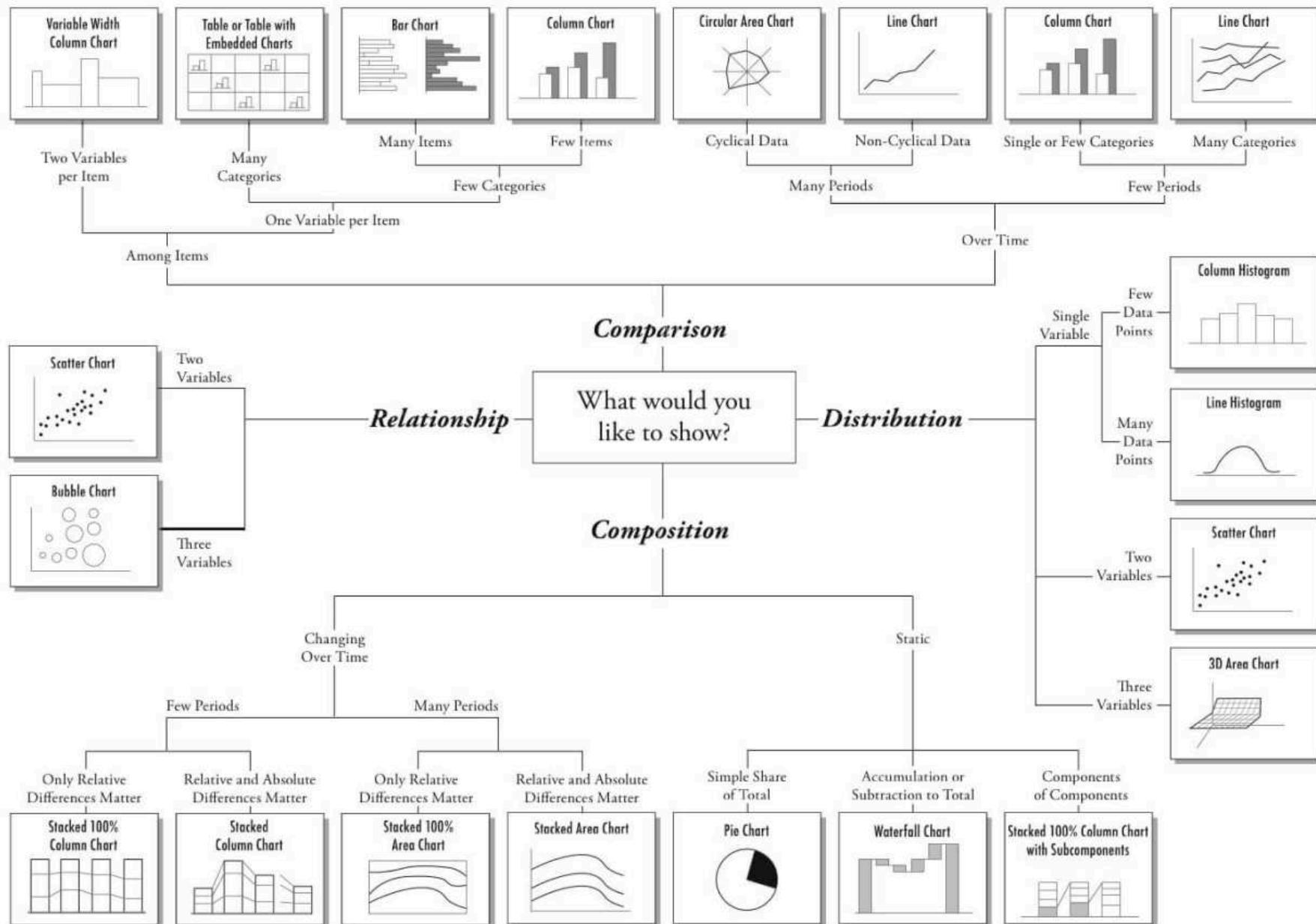


chart Type choice



Chart Suggestions—A Thought-Starter

www.ExtremePresentation.com
© 2009 A. Abela — a.abela@gmail.com





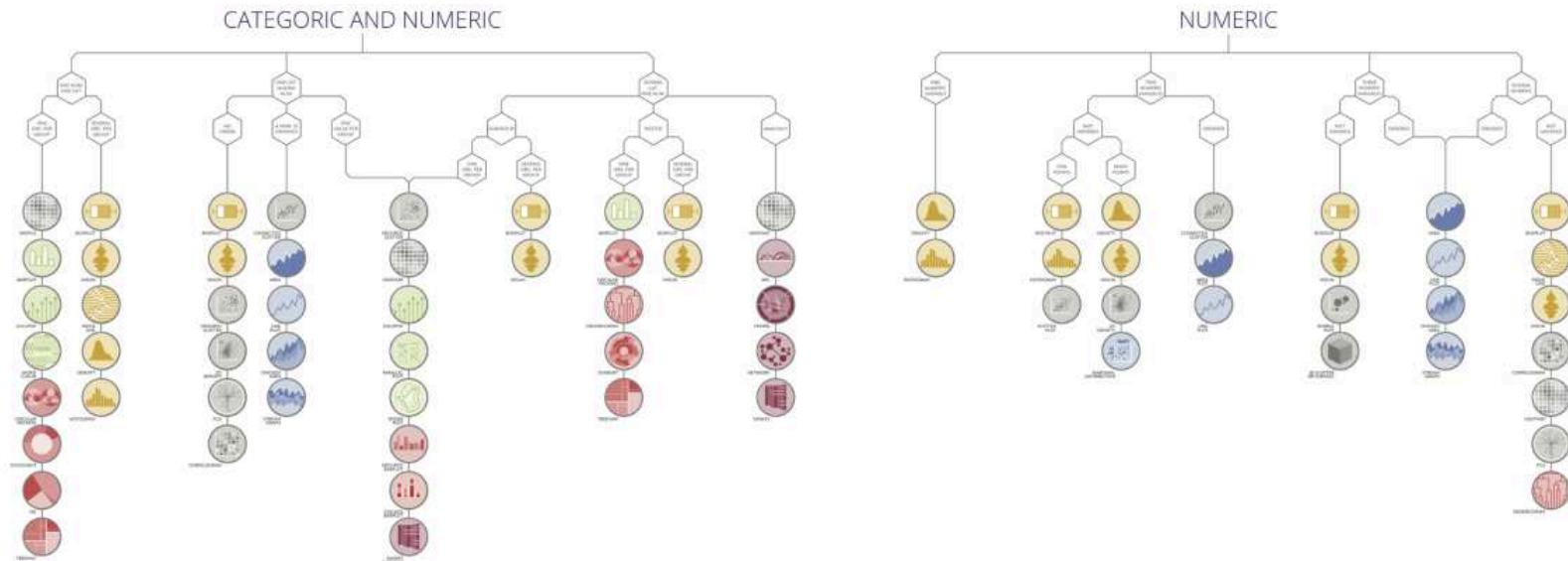
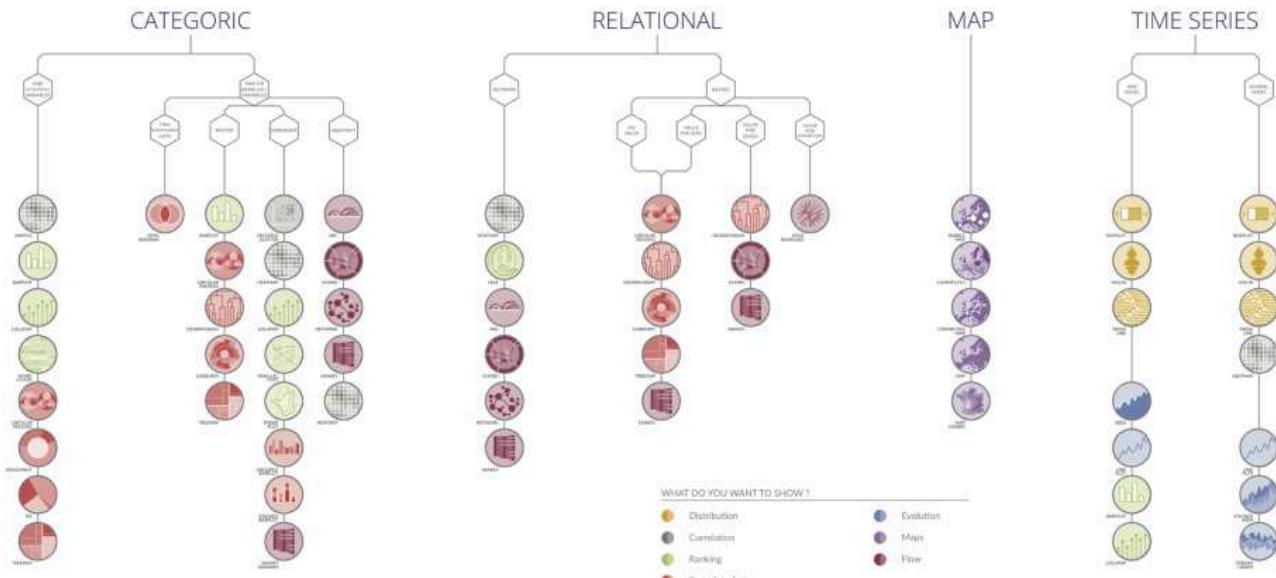
from Data to Viz

'From Data to Viz' is a classification of chart types based on input data format. It will help you find the perfect chart in three simple steps.

- ① Identify what type of data you have.
- ② Go to the corresponding decision tree and follow it down to a set of possible charts.
- ③ Choose the chart from the set that will suit your data and your needs best.

DataViz is a work in progress and this project does not claim to be exhaustive. However it should provide you with a good starting point. For an interactive version and much more, visit:

data-to-viz.com



Source: [From Data to Viz](http://data-to-viz.com)

Cédric Scherer Data Visualization & Information Design



The screenshot shows a modal window titled 'BOXPLOT' with a yellow circular icon containing a boxplot. Below the title is the subtitle 'Summarize the distribution of numeric variables'. The 'About' section contains a detailed description of what a boxplot is. The 'Common Mistakes' section lists three points: 'Boxplot hides the sample size of each group, show it with annotation or box width.', 'Boxplot hides the underlying distribution. Use jitter if low number of data points, or use violin with bigger data.', and 'Order your boxplot by median can make it more insightful.' Below this is a 'Code' section with links to R graph gallery, Python gallery, D3.js gallery, and Flourish. A 'Read More' link leads to a dedicated page. At the bottom, there are six small preview icons for other chart types: Venn diagram, Doughnut, Pie chart, Dendrogram, Circular packing, and Sunburst.

POSSIBILITIES

presented in this website.

Part of a whole Evolution Map Flow

Boxplot Ridgeline Scatter

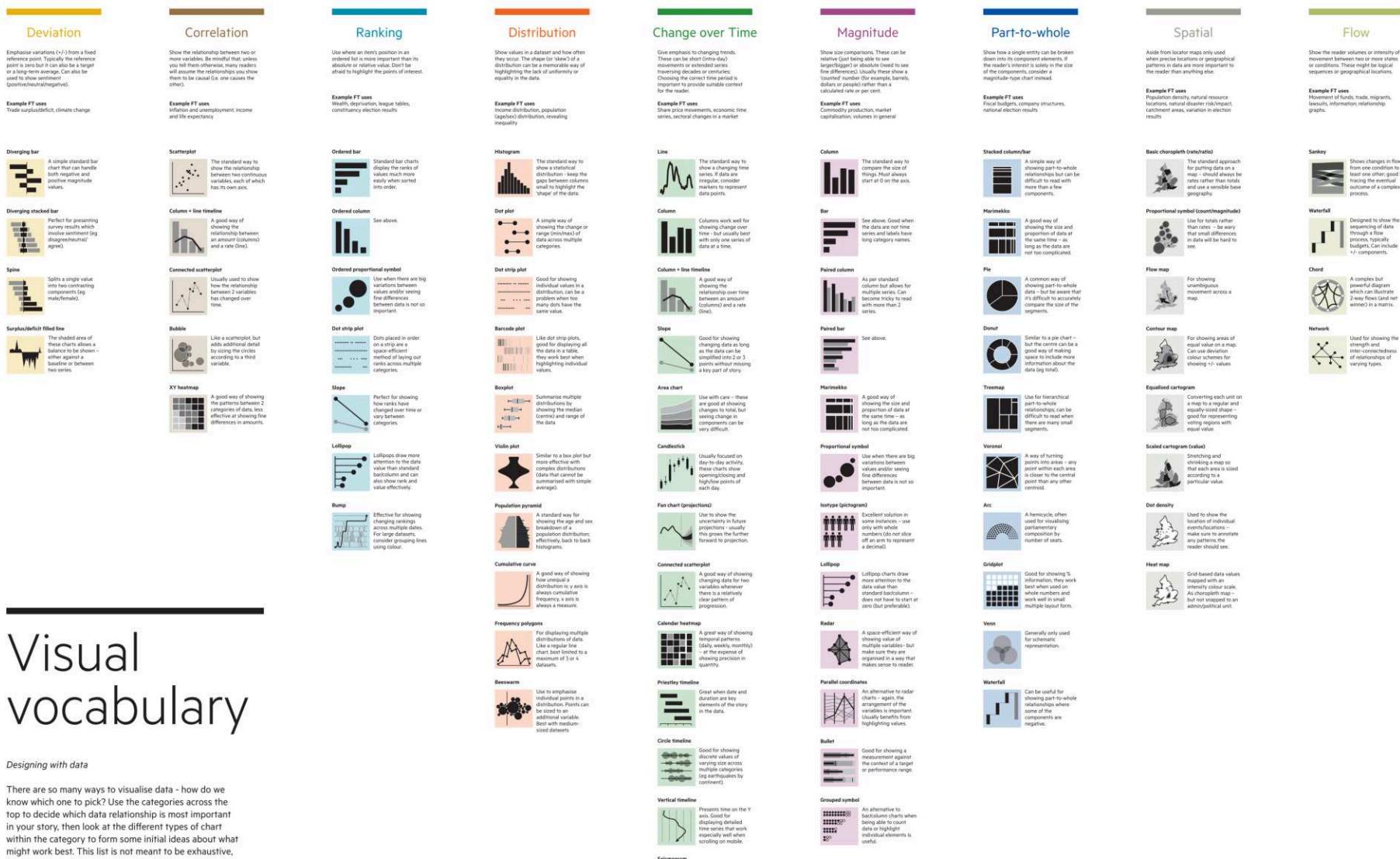
Connected scatter Density 2d Barplot

Lollipop Circular Barplot Treemap

Dendrogram Circular packing Sunburst

Source: [From Data to Viz](#)





Visual vocabulary

Designing with data

There are so many ways to visualise data - how do we know which one to pick? Use the categories across the top to decide which data relationship is most important in your story, then look at the different types of chart within the category to form some initial ideas about what might work best. This list is not meant to be exhaustive, nor a wizard, but is a useful starting point for making informative and meaningful data visualisations.

FT graphic: Alan Smith; Chris Curnutt; Ian Bent; Liz Farmer; Graham Paraskev; Billy Etherington; Shannen; Paul McCalman; Martin Edols
Inspired by the Graphic Continuum by Jon Schwabish and Steven Wolfson

ft.com/vocabulary



"FT Visual Vocabulary" by Alan Smith et al. ([Posters](#))

Cédric Scherer Data Visualization & Information Design



THE GRAPHIC CONTINUUM

The Graphic Continuum shows several ways that data can be illustrated individually or combined to show relationships. Use of various shapes, chart types, and colors can help identify patterns, tell stories, and reveal relationships between different sets and types of data. Bar charts, or histograms, for example, can illustrate a distribution of data over time, but they also can show categorical or geographic differences. Scatterplots can illustrate data from a single instance or for a period, but they also can be used to identify a distribution around a mean.

This set of charts does not constitute an exhaustive list, nor do the connections represent every possible pathway for linking data and ideas; instead, the Graphic Continuum identifies some presentation methods, and it illustrates some of the connections that can bind different representations together. The six groups do not define all possibilities. Many other useful, overlapping data types and visualization techniques are possible.

This chart can guide graphic choices, but your imagination can lead the way to other effective ways to present data.

COMPARING CATEGORIES

Compare values across categories



DISTRIBUTION

Graphical representations of the distribution of data



A Histogram presents relative frequency of data points with respect to their value.

A Box & Whisker illustrates a box representing the median and quartiles, with whiskers extending to minimum and maximum values.

TIME

Track changes over time



A Histogram presents relative frequency of data points with respect to their value.

A Line tracks changes over time.

A Sparkline summarizes a series of data points.

A Timeline tracks changes over time.

A Stacked Area illustrates the cumulative total of multiple data points.

A Stream tracks data flow over time.

A Water Flow tracks data flow over time.

A Gantt tracks tasks over time.

A Cause Effect tracks cause and effect over time.

A Timeline tracks changes over time.

A Flow Chart illustrates a process flow over time.

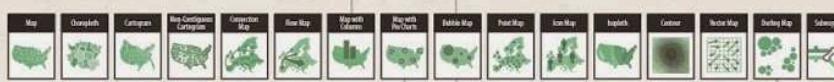
A Calendar tracks events over time.

A Connected Scatterplot illustrates how variables correlate over time.

An Arc Flow tracks data flow along a circular path over time.

GEOSPATIAL

Relate data to its geography



PART-TO-WHOLE

Visualizations that relate the part of a variable to its total



RELATIONSHIP

Illustrates correlations or relationships between variables



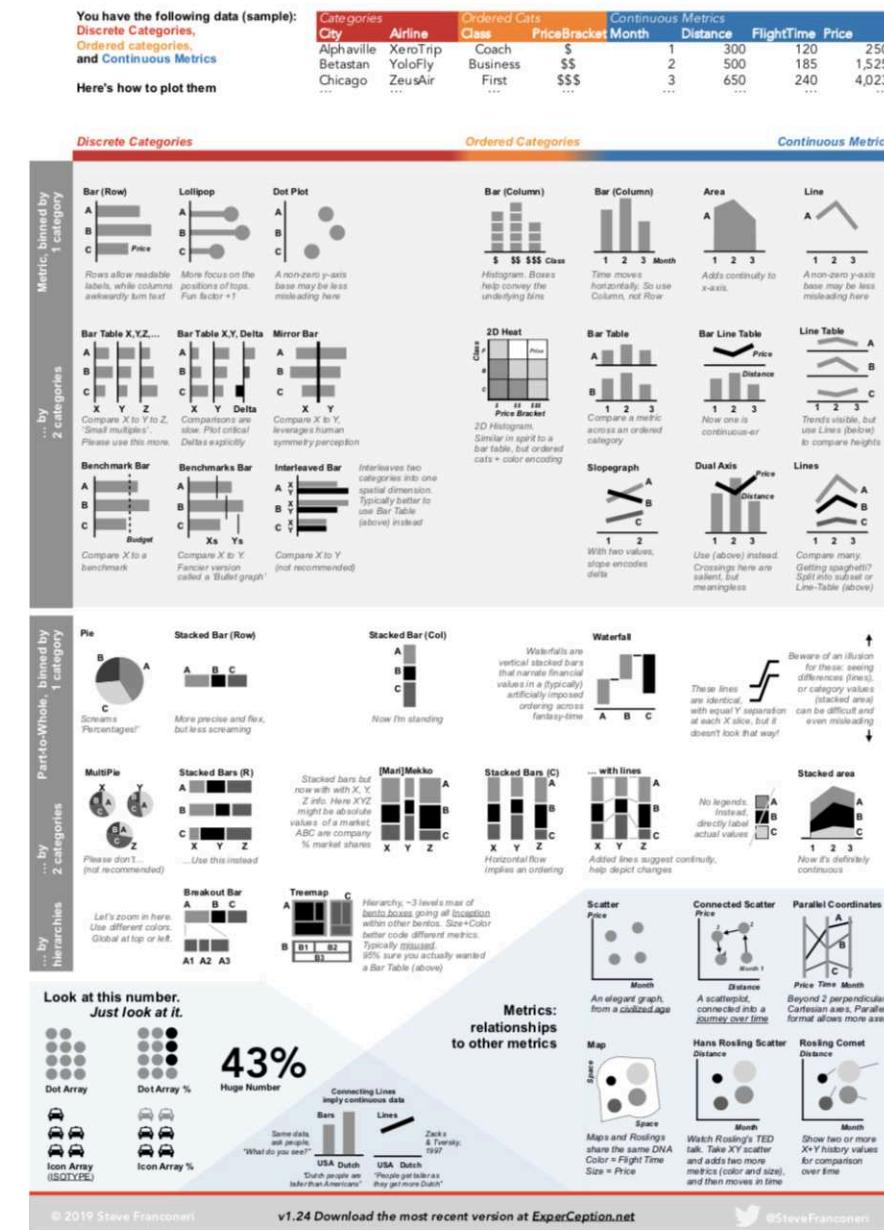
© Jonathan Schwabish & Sverino Ribecca
@jonschwabish QSR_Vizual_Inf

"The Graphic Continuum" by Jon Schwabish & Sverino Ribecca

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Which Visualization? A Quick Reference



"Which Visualization? A Quick Reference" by Steven Franconeri

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1 dataset 100 visualizations

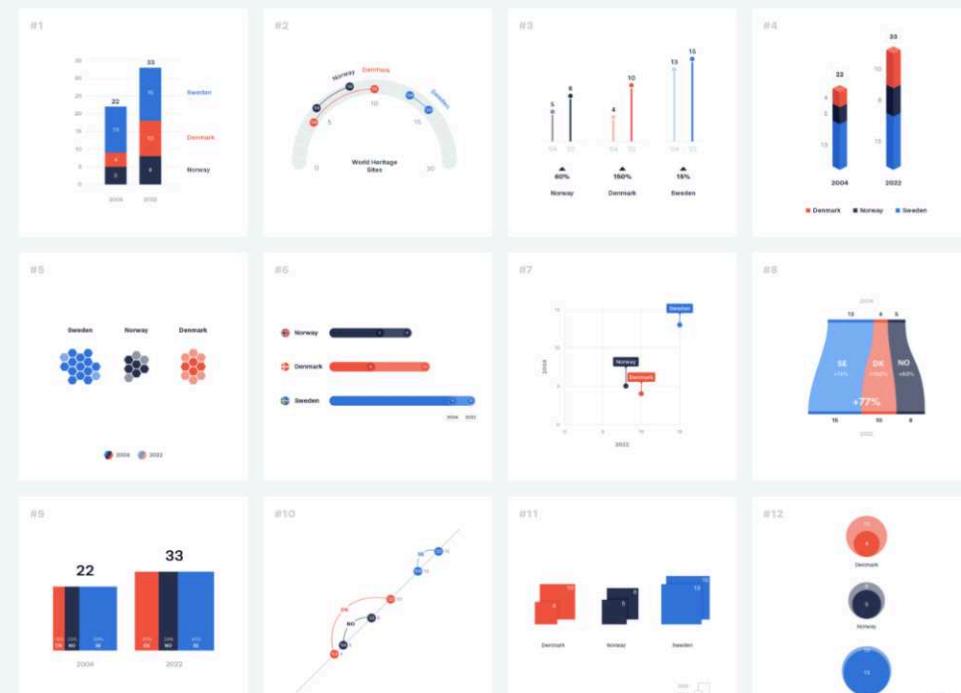
Can we come up with 100 visualizations from one simple dataset?

As an information design agency working with data visualization every day, we challenged ourselves to accomplish this using insightful and visually appealing visualizations.

We wanted to show the diversity and complexity of data visualization and how we can tell different stories using limited visual properties and assets.

	Number of World Heritage Sites		
	Norway	Denmark	Sweden
2004	5	4	13
2022	8	10	15

[Learn more](#)



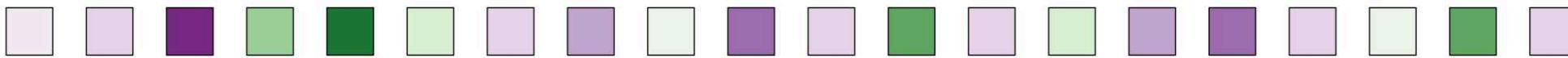
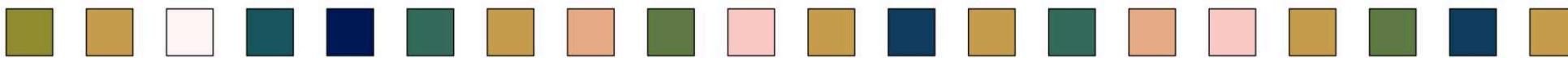
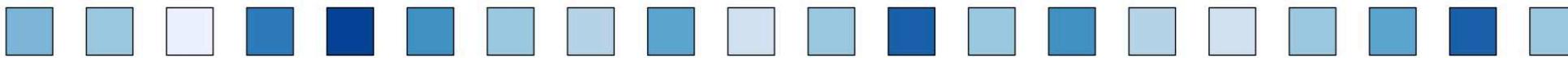
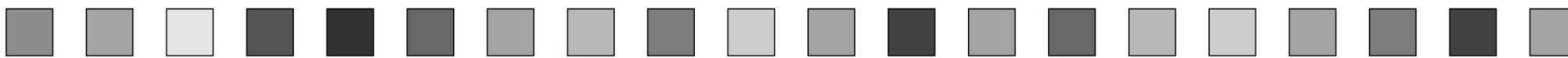
DataVizProject "1 Dataset 100 Visualizations"

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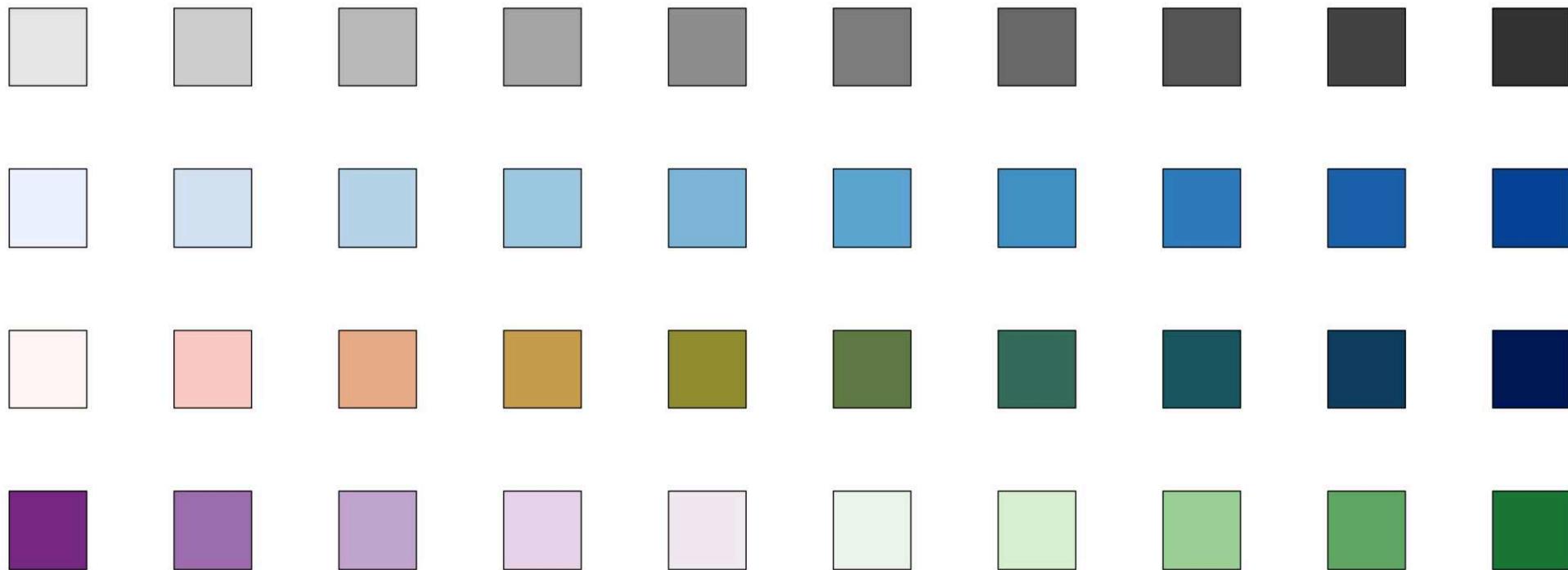
Same Data, Different Palettes

4 3 0 7 9 6 3 2 5 1 3 8 3 6 2 1 3 5 8 3



Same Data, Different Palettes

0 1 2 3 4 5 6 7 8 9



Typen von Farbpaletten

Sequentiell

Beispiel



Grautöne



Werte mit geordneter Skala
(numerisch oder ordinal)

*verwende den höchsten Kontrast
für die wichtigsten Informationen*

*entweder einfarbige oder
mehrfarbige Farbpaletten*

Divergierend

Beispiel



Grautöne



Werte mit bedeutsamen Mittelpunkt
(numerisch oder ordinal)

*verwende einen bedeutsamen Mittelpunkt
und nutze ausgewogene Extremwerte*

*Kombination von zwei
sequentiellen Farbpaletten*

Qualitativ

Beispiel



Grautöne



Gleichwertige Gruppen
(kategoriall)

*verwende verschiedene Farben mit
ähnlichem "Wahrnehmungsgewicht"*

*Anzahl auf 5 bis 8
Kategorien begrenzen*



color choice



VIZ PALETTE

By: Elijah Meeks & Susie Lu

PICK

Use Chroma.js



Add

Replace

Use ColorGorical

Use ColorBrewer

EDIT

6 Colors

#hex

rgb hsl

- ≡ 1 ● #1dabe6 ↗ ×
- ≡ 2 ● #1c366a ↗ ×
- ≡ 3 ● #c3ced0 ↗ ×
- ≡ 4 ● #e43034 ↗ ×
- ≡ 5 ● #fc4e51 ↗ ×
- ≡ 6 ● #af060f ↗ ×

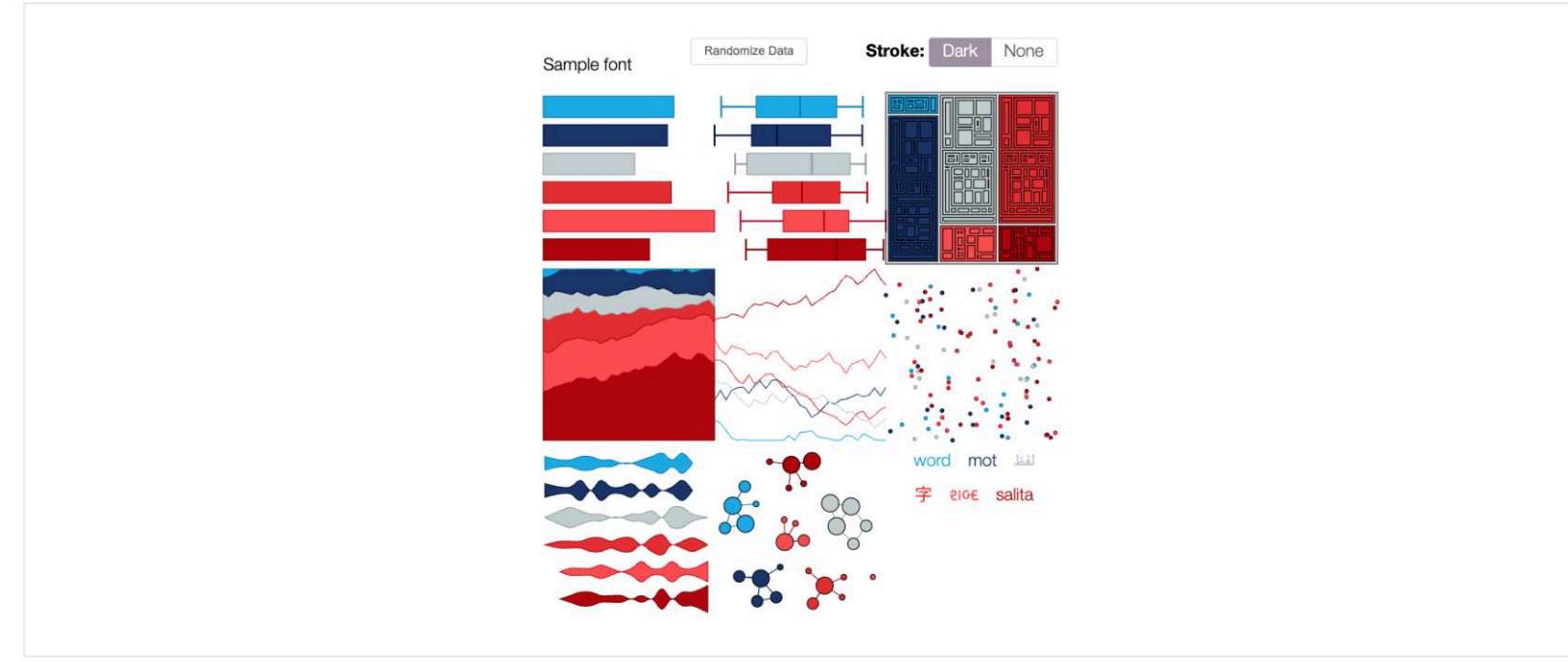
GET

String quotes
 Object with metadata

```
[ "#1dabe6",
  "#1c366a",
  "#c3ced0",
  "#e43034",
  "#fc4e51",
  "#af060f" ]
```

COLORS IN ACTION

Color Population: No Color Deficiency - 96% Deutanomaly - 2.7% Protanomaly - 0.66% Protanopia - 0.59% Deutanopia - 0.56% Greyscale



COLOR REPORT

Arcs link colors difficult to tell apart as:

- Lines or small points
- Medium areas
- Large areas

- | | |
|---|--|
| #E43034 red
#FC4E51 dark red
#AF060F dark red
#1DABE6 blue | ● Minimize name conflicts for categorical palettes |
|---|--|

projects.susielu.com/viz-palette

Background color: #ffffff ↗

Font color: ● #000000 ↗

Charts made with [Semitic](#)



Konsistent



Quelle: Lisa Charlotte Muth, [DataWrapper Blog](#)



Intuitiv



GOOD
BAD



FOREST
LAKE



FEMALE
MALE



GOOD
BAD



FOREST
LAKE



FEMALE
MALE

Quelle: Lisa Charlotte Muth, [DataWrapper Blog](#)

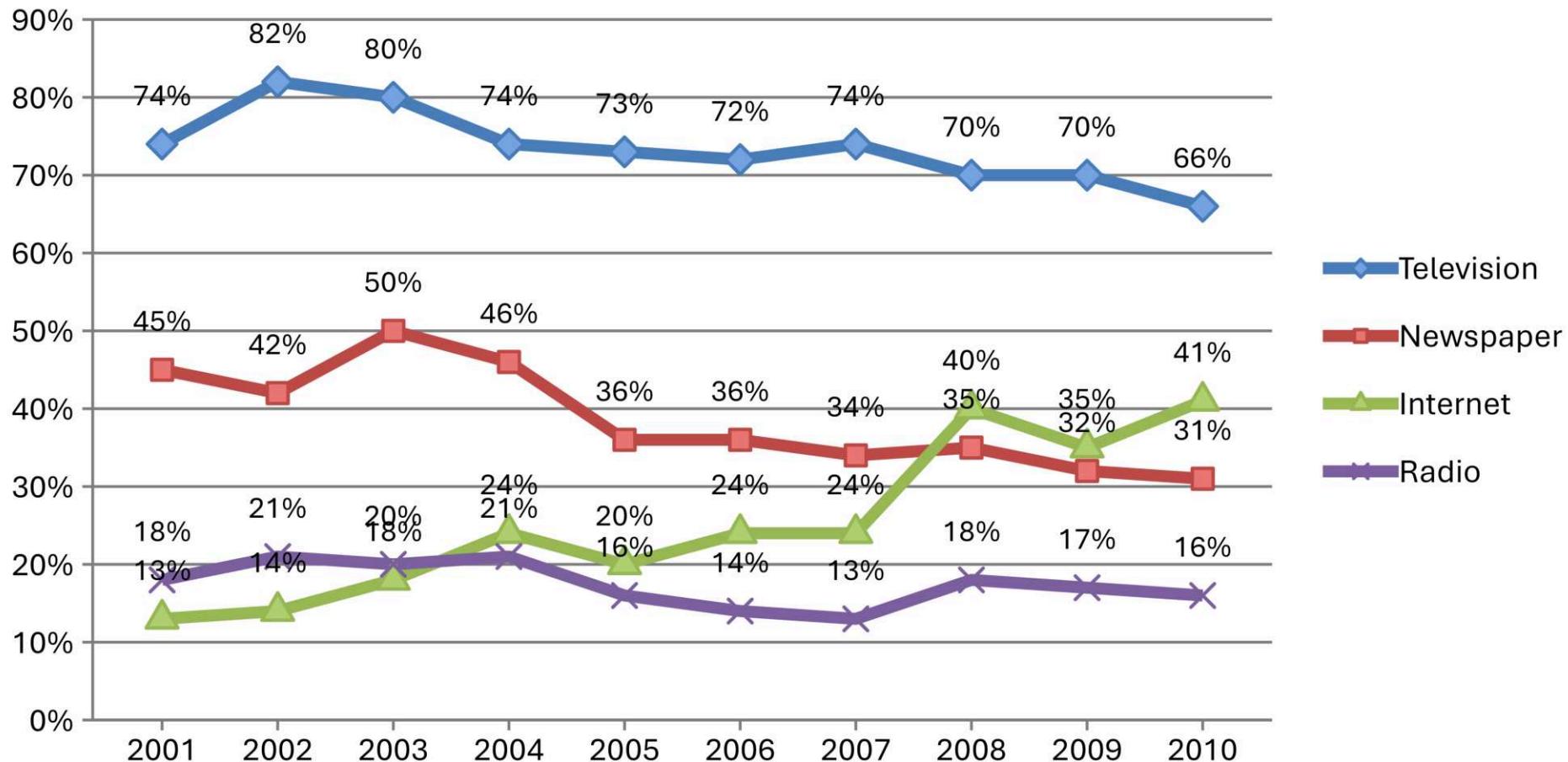


Visuelle Form

Eleganz der Grafik



How People Get Their News



AN INCREASING PROPORTION CITE THE INTERNET AS THEIR PRIMARY NEWS SOURCE.

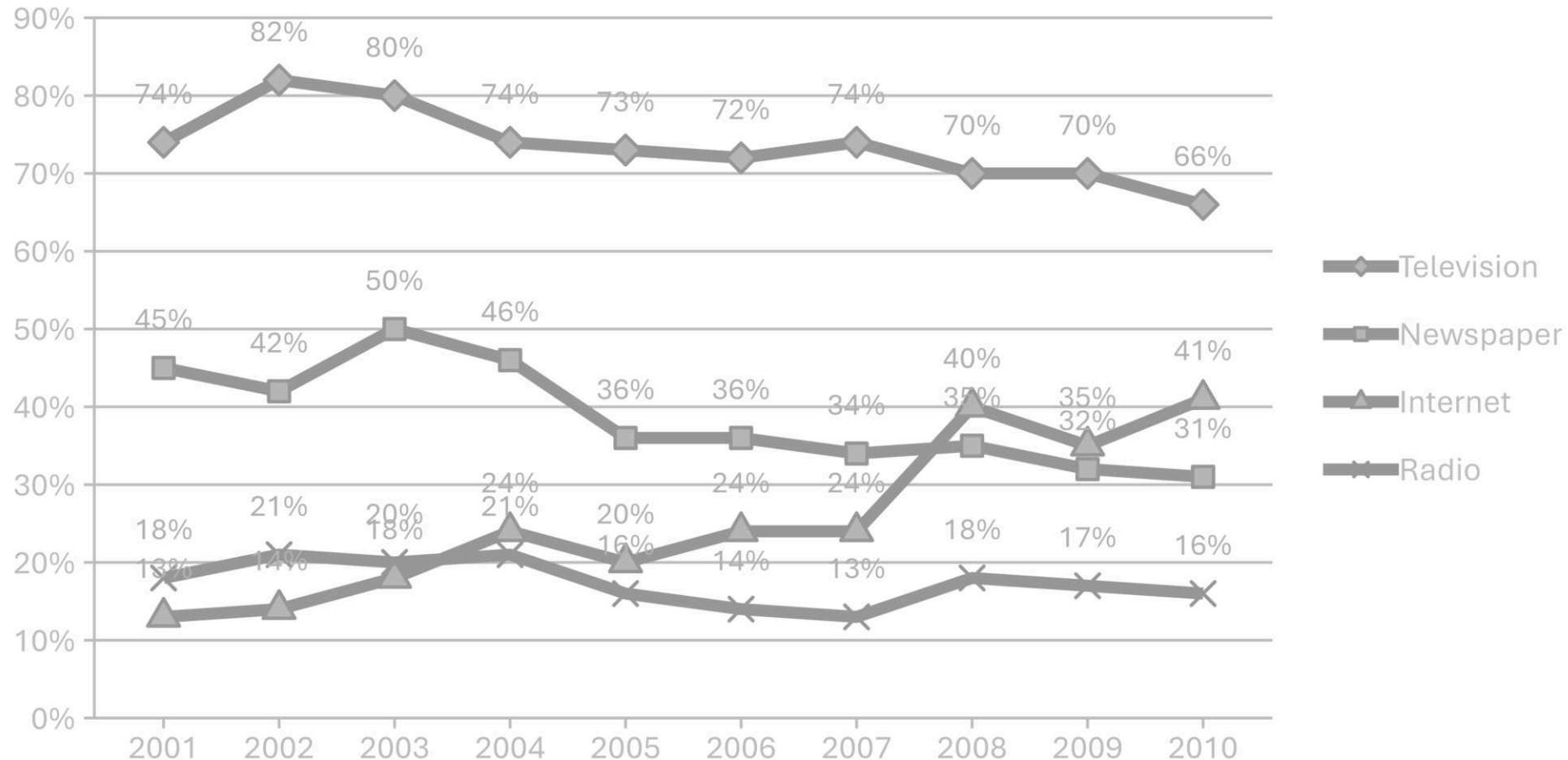
DATA SOURCE: PEW RESEARCH CENTER. REPRESENTS RESPONSES TO THE QUESTION "WHERE DO YOU GET MOST OF YOUR NEWS ABOUT NATIONAL AND INTERNATIONAL ISSUES? FIGURES SUM TO MORE THAN 100% BECAUSE RESPONDENTS COULD VOLUNTEER UP TO TWO MAIN SOURCES.



"Decluttering"



How People Get Their News

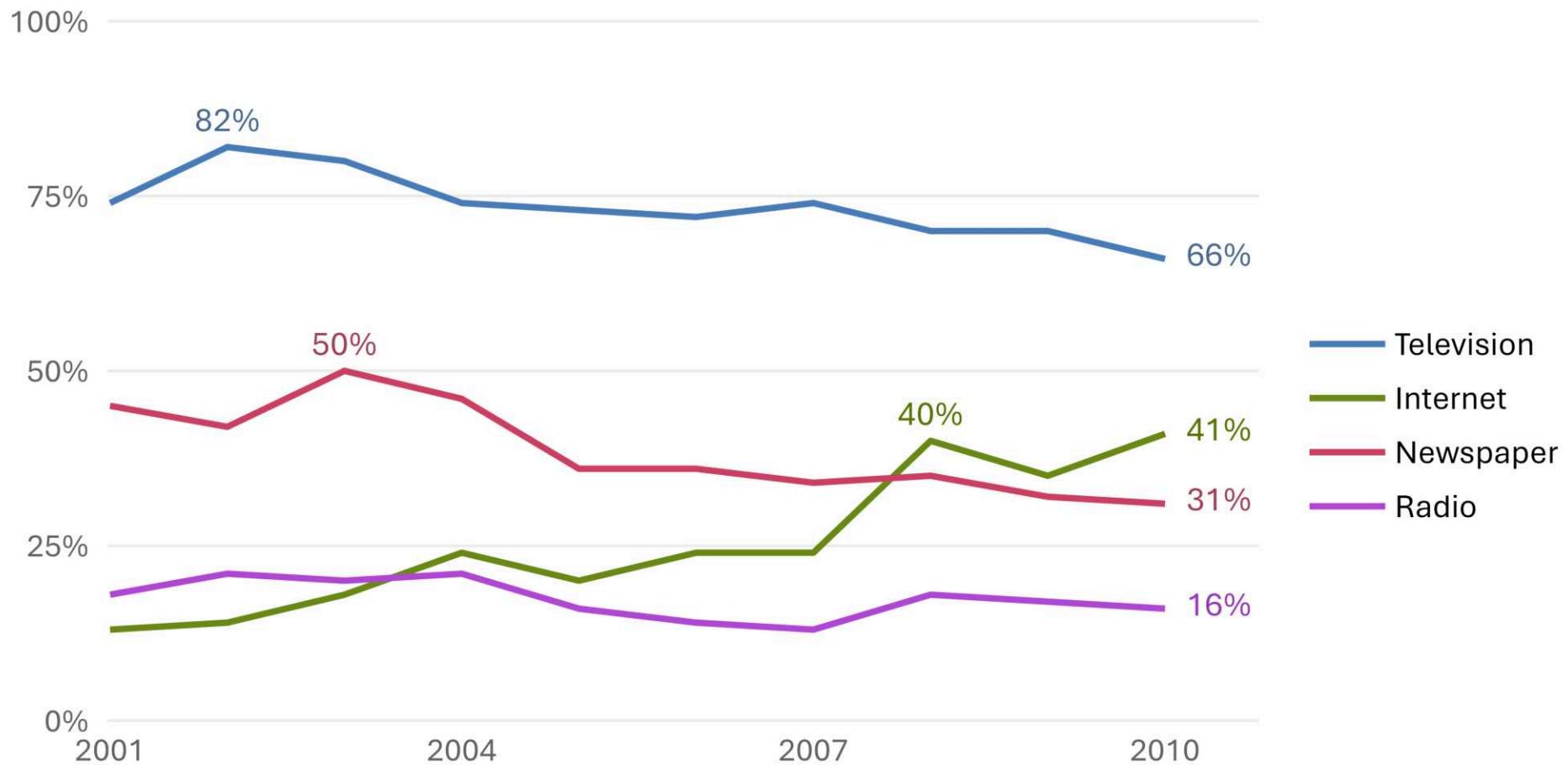


AN INCREASING PROPORTION CITE THE INTERNET AS THEIR PRIMARY NEWS SOURCE.

DATA SOURCE: PEW RESEARCH CENTER. REPRESENTS RESPONSES TO THE QUESTION "WHERE DO YOU GET MOST OF YOUR NEWS ABOUT NATIONAL AND INTERNATIONAL ISSUES? FIGURES SUM TO MORE THAN 100% BECAUSE RESPONDENTS COULD VOLUNTEER UP TO TWO MAIN SOURCES.



How People Get Their News

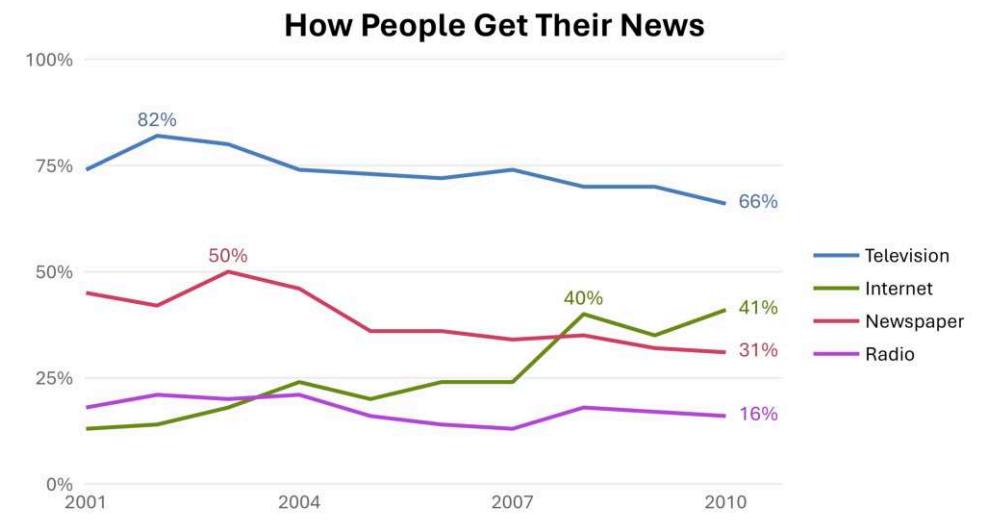
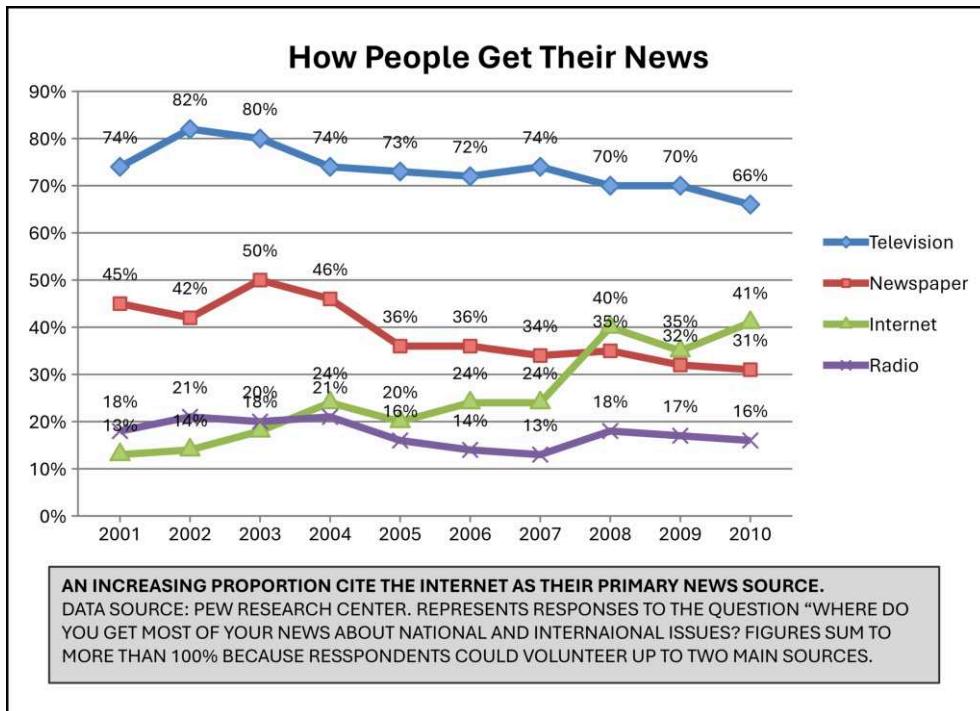


An increasing proportion cite the internet as their primary news source.

Data source: Pew Research Center. Represents responses to the question “where do you get most of your news about national and international issues?” Figures sum to more than 100% because respondents could volunteer up to two main sources.



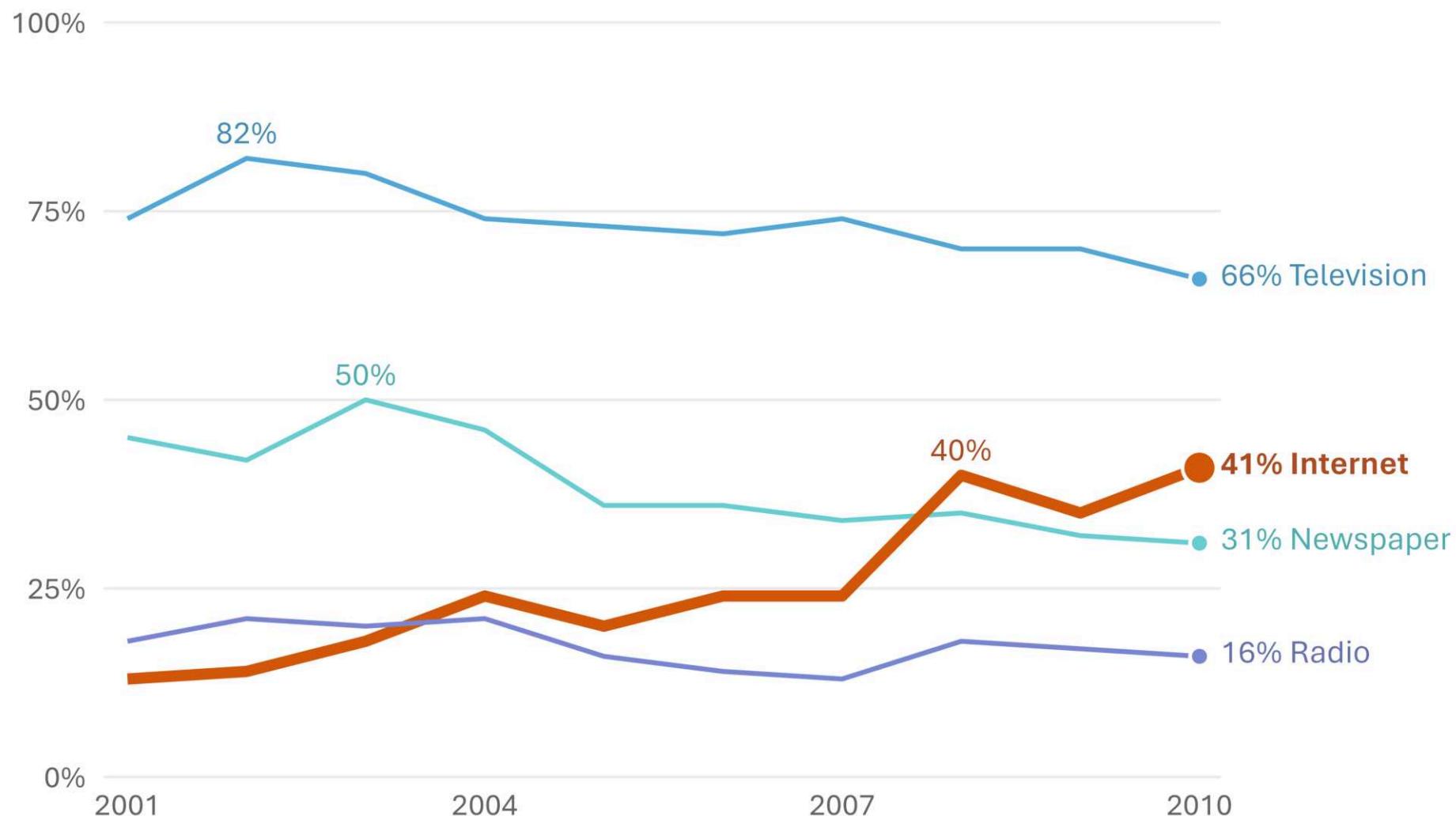
Vorher & Nachher





An increasing proportion cite the internet as their primary news source.

Responses to the question “where do you get most of your news about national and international issues?”



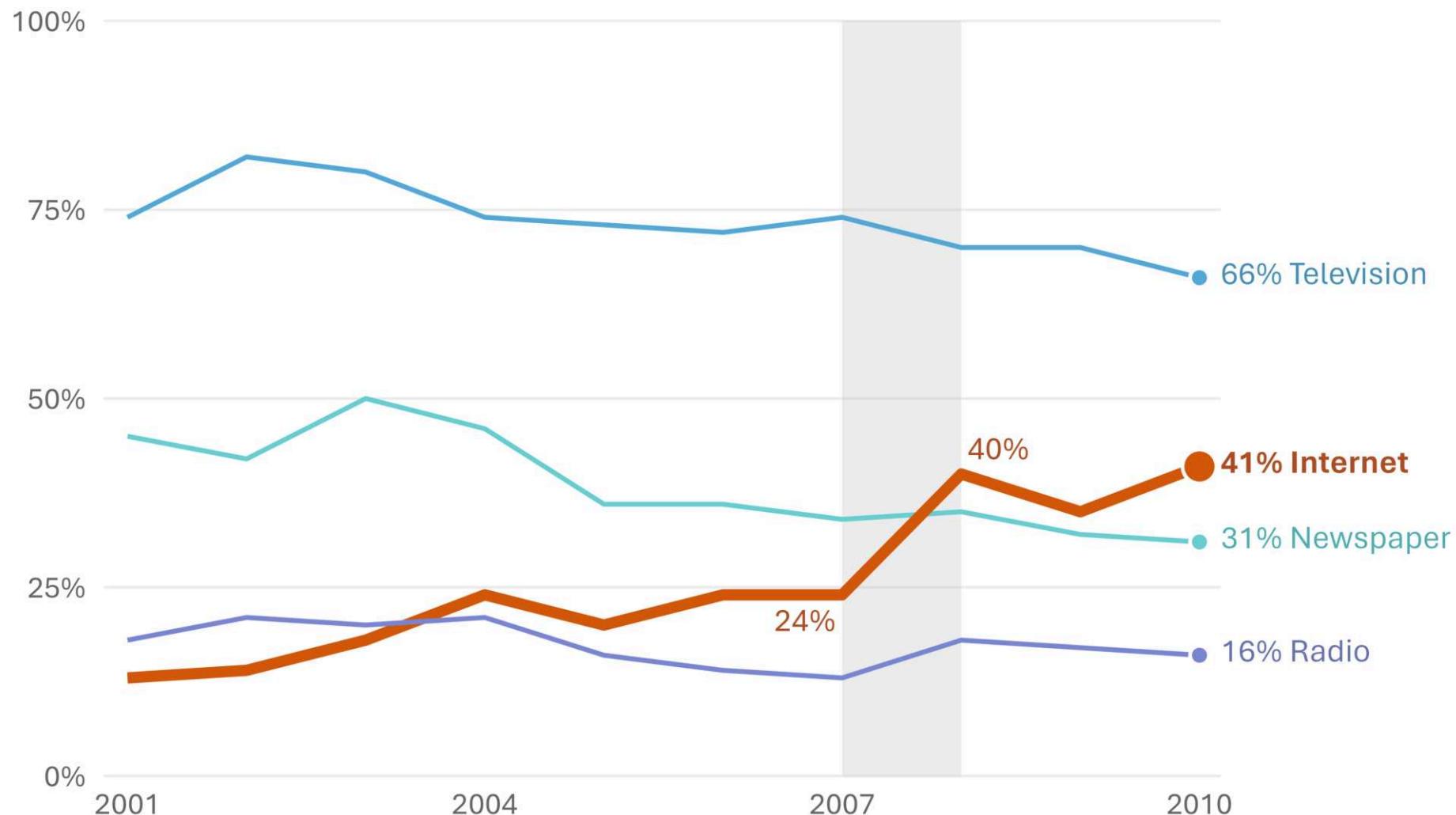
Data source: Pew Research Center

Figures sum to more than 100% because respondents could volunteer up to two main sources.



An increasing proportion cite the **internet** as their primary news source.

Responses to the question “where do you get most of your news about national and international issues?”

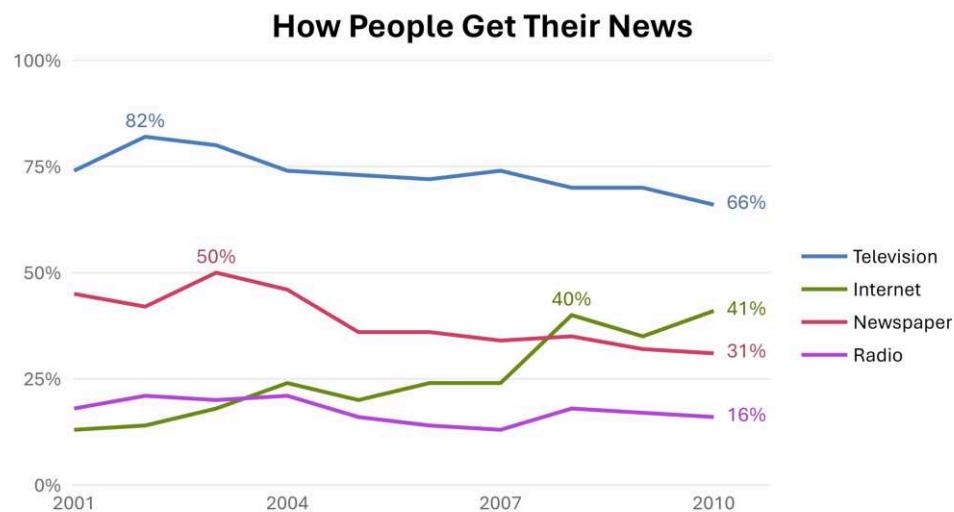


Data source: Pew Research Center

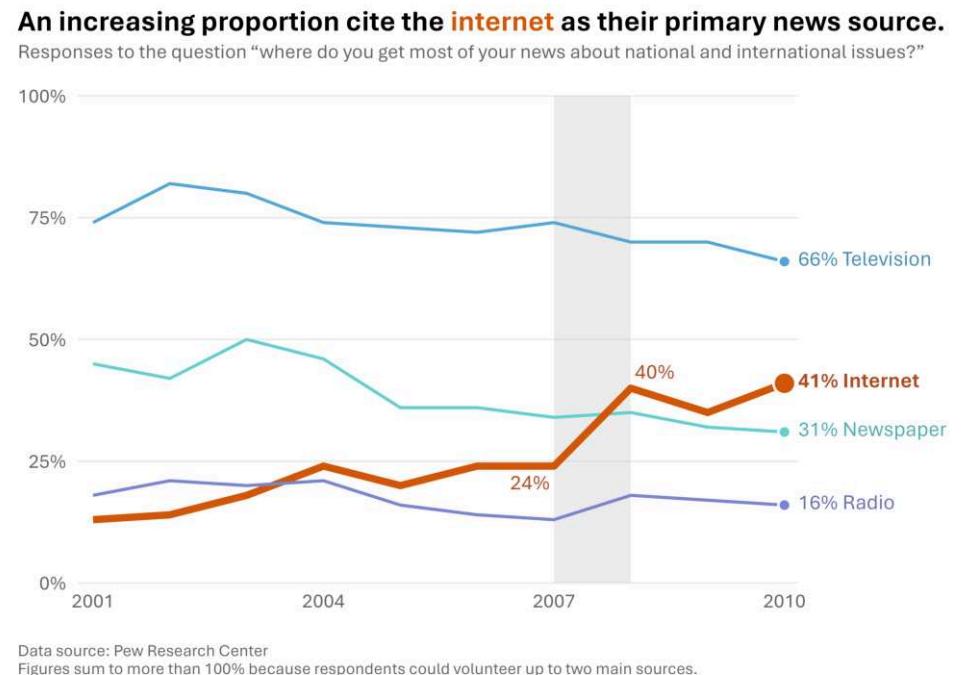
Figures sum to more than 100% because respondents could volunteer up to two main sources.



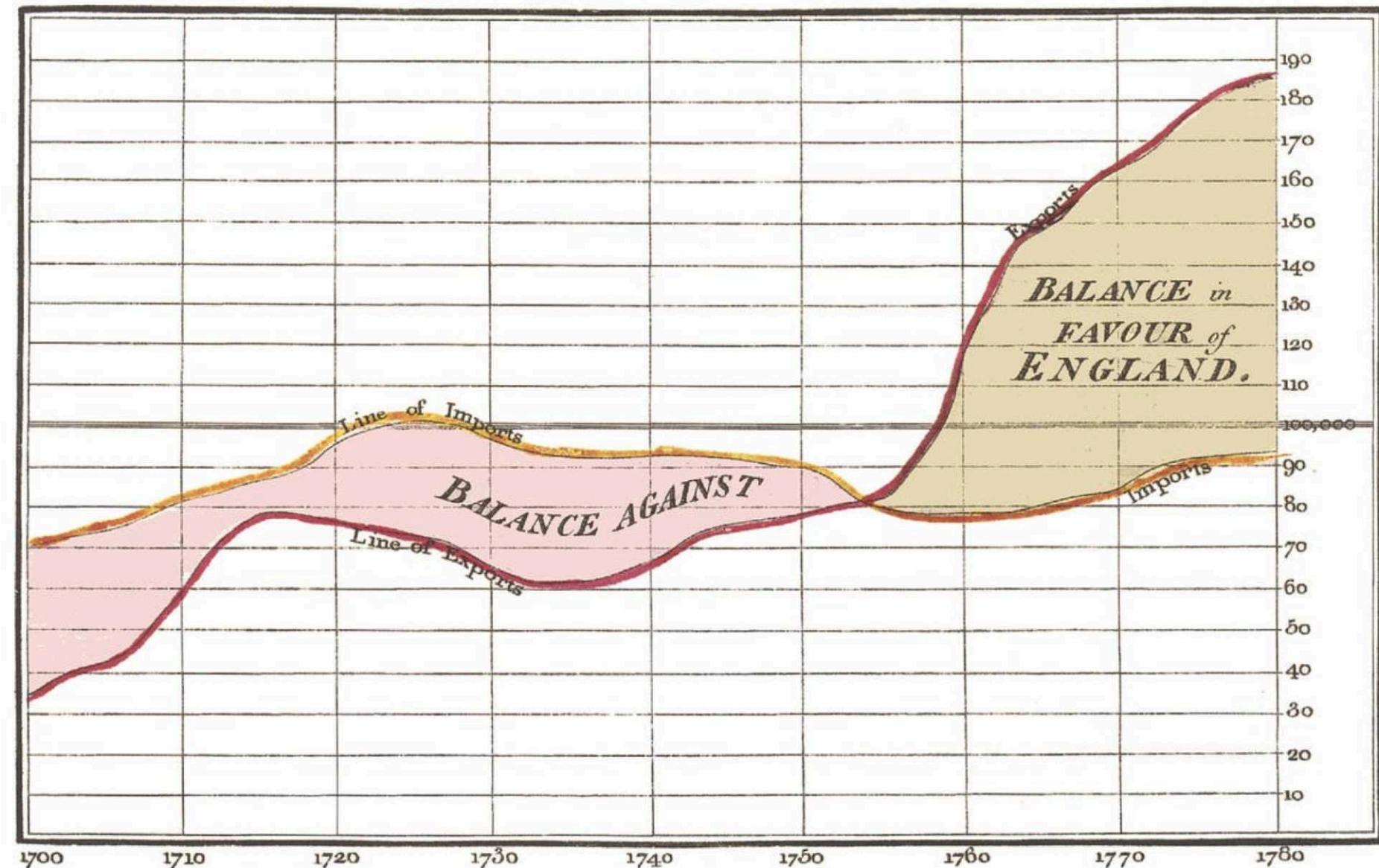
Vorher & Nachher



An increasing proportion cite the internet as their primary news source.
Data source: Pew Research Center. Represents responses to the question "where do you get most of your news about national and international issues?" Figures sum to more than 100% because respondents could volunteer up to two main sources.



Exports and Imports to and from DENMARK & NORWAY from 1700 to 1780.



Time series with annotations by William Playfair from "The Commercial and Political Atlas and Statistical Breviary" (1786)



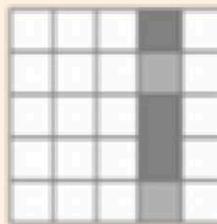
The Brexit banking matrix: The contenders lining up for London's crown

Bank

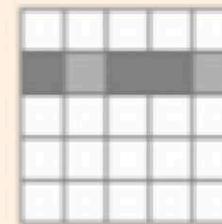
Branch

Other*

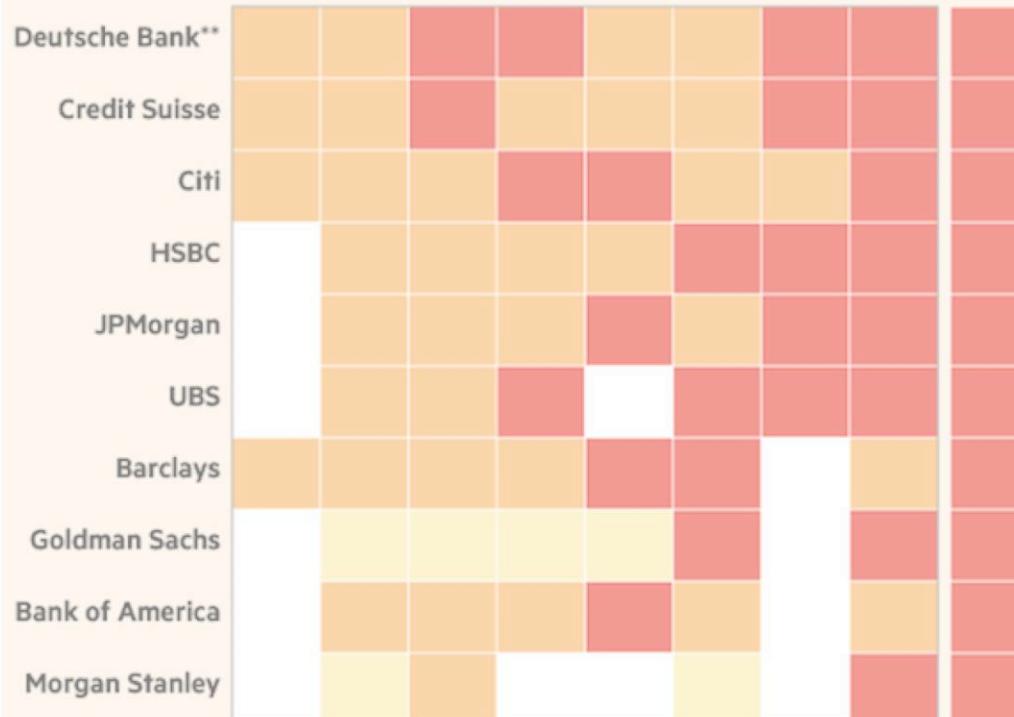
The highest level
of presence in
each city



Darker columns
indicate strong
presence in
a city



Darker rows
indicate broad
presence of
a bank



* Broker dealer branches are included for Morgan Stanley and Goldman Sachs as they are a significant part of their European network

** Deutsche Bank has a London subsidiary but its main entity is a branch

FT graphic Alan Smith, Laura Noonan Source: FT research

FT

"Frankfurt vies for UK banking jobs post-Brexit" by Alan Smith & Laura Noonan (Financial Times)

Cédric Scherer Data Visualization & Information Design



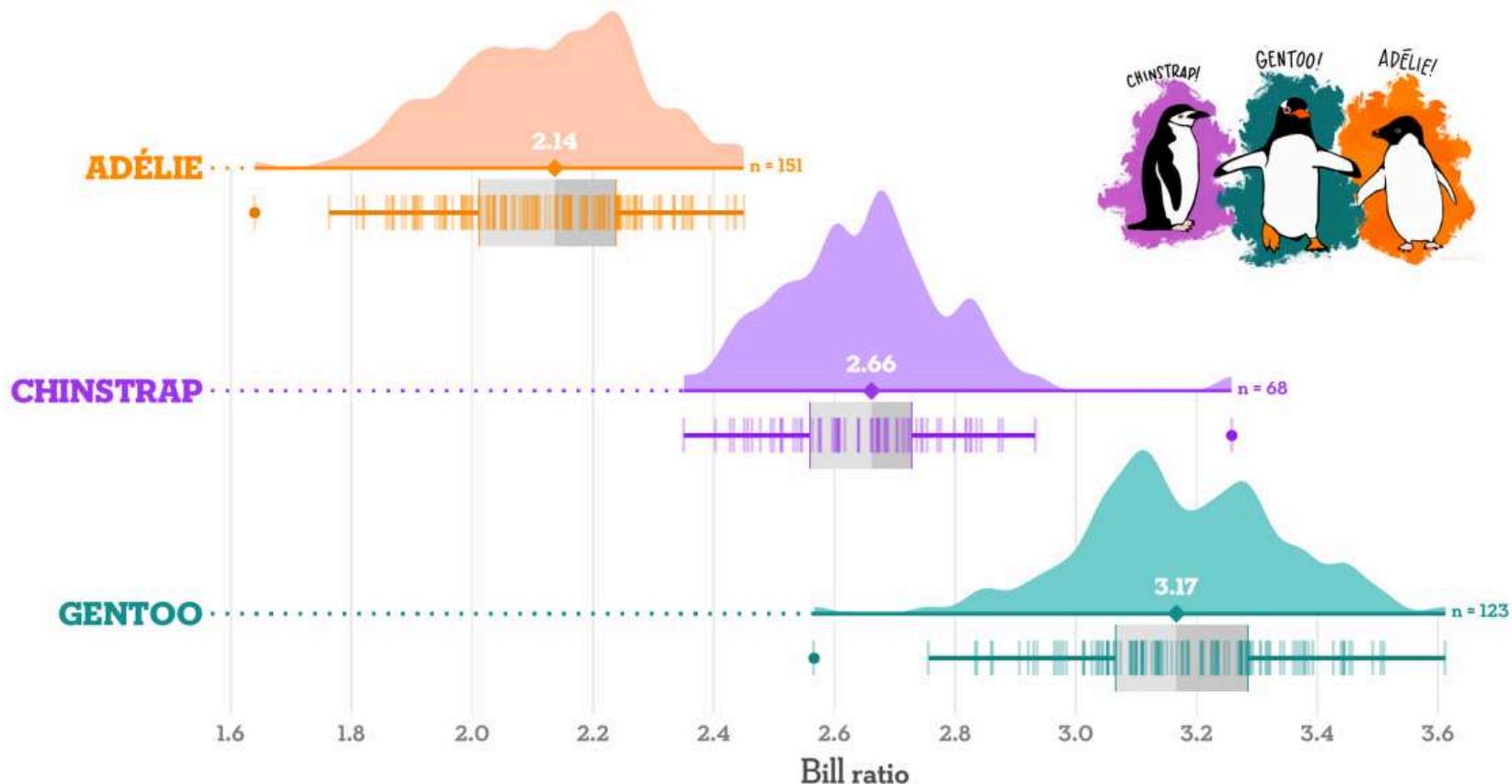
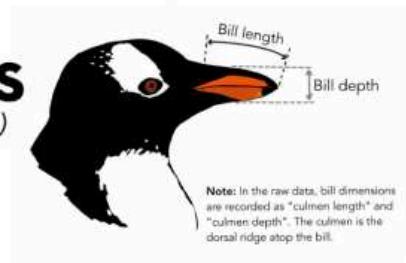
Supplementary supermarket shopping



BILL DIMENSIONS OF BRUSH-TAILED PENGUINS

Pygoscelis adélieae (Adélie penguin) • *P. antarctica* (Chinstrap penguin) • *P. papua* (Gentoo penguin)

Distribution of the bill ratio, estimated as bill length divided by bill depth



Note: In the original data, bill dimensions are recorded as "culmen length" and "culmen depth". The culmen is the dorsal (upper) ridge of a bird's bill.
Visualization: Cédric Scherer • Data: Gorman, Williams & Fraser (2014) DOI: [10.1371/journal.pone.0090081](https://doi.org/10.1371/journal.pone.0090081) • Illustrations: Allison Horst

Modified #TidyTuesday Contribution | Images: Allison Horst

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Not my cup of coffee...

Each dot depicts one coffee bean rated by Coffee Quality Institute's trained reviewers. In addition, the multiple interval stripes show where 25%, 50%, 95%, and 100% of the beans fall along the rating gradient from 0 to 100 points. The rated coffee beans range from 59.8 points (Guatemala) to 89.9 (Ethiopia). Only countries of origin with 25 or more tested beans are shown. The red empty triangle marks the minimum rating, the black filled triangle indicates each country's median score.

Visualization by Cédric Scherer

60 POINTS

70 POINTS

80.3 POINTS

85.1 POINTS

The best coffee—in terms of both median and maximum rating—is shipped to you from Ethiopia!

GUATEMALA

△ 59.8 POINTS
The coffee bean with the lowest rating has its origin in Guatemala.



One bean from Nicaragua got a bad rating, too.

NICARAGUA

△ 63.1 POINTS

72.8 POINTS

COSTA RICA

△ 71.8 POINTS

80 POINTS

90 POINTS

HAWAII

△ 73.7 POINTS

82.8 POINTS

BRAZIL

△ 73.2 POINTS

82.4 POINTS

TANZANIA

△ 80.3 POINTS

82.2 POINTS

TAIWAN

△ 77.7 POINTS

81.9 POINTS

HONDURAS

△ 69.2 POINTS

MEXICO

△ 68.3 POINTS

TAIWAN

△ 77.7 POINTS

81.9 POINTS

With 218 tested beans, Mexico is the country with the most reviews.

MEXICO

△ 81.6 POINTS

81.6 POINTS

△ 80.8 POINTS

"Not my Cup of Coffee" (#TidyTuesday Contribution)

Cédric Scherer Data Visualization & Information Design



100 Years of Streamflow Droughts

These are the 1000 most severe streamflow droughts at gages from 1920 to 2020 by region and decade.

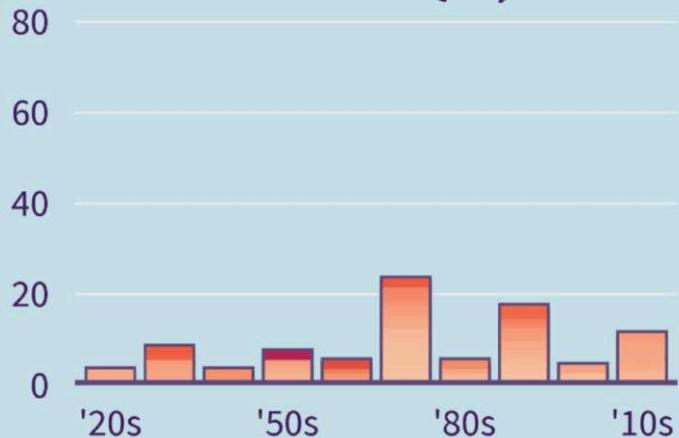
Northwest 

North Central 

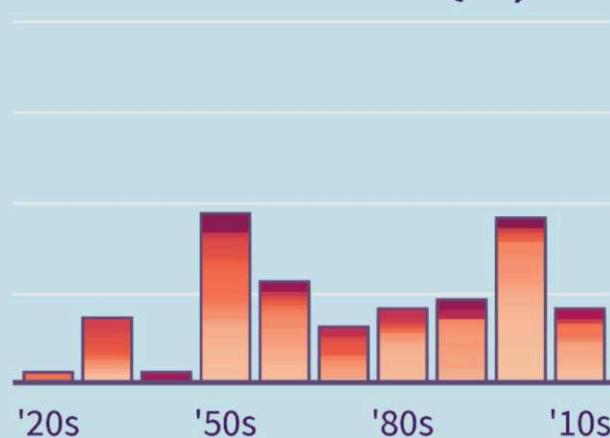
Midwest 

Northeast 

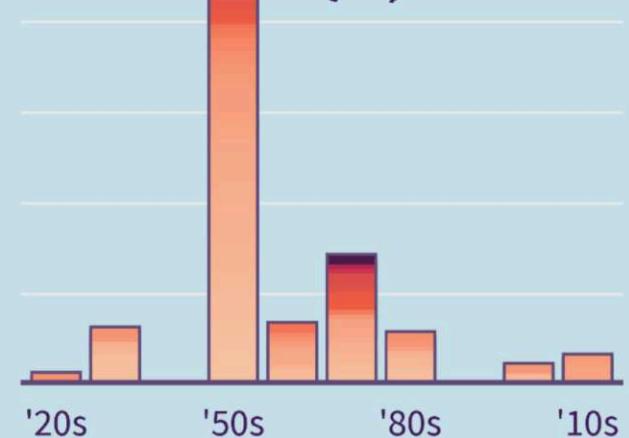
Northwest



North Central



Midwest

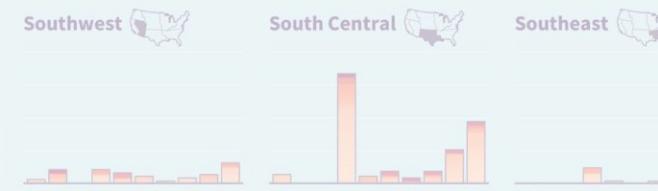


The most severe streamflow drought in this gage record happened in California. It was also the longest, lasting from March 10, 1924 to February 12, 1926.

California 



Southwest 



South Central 



Southeast 

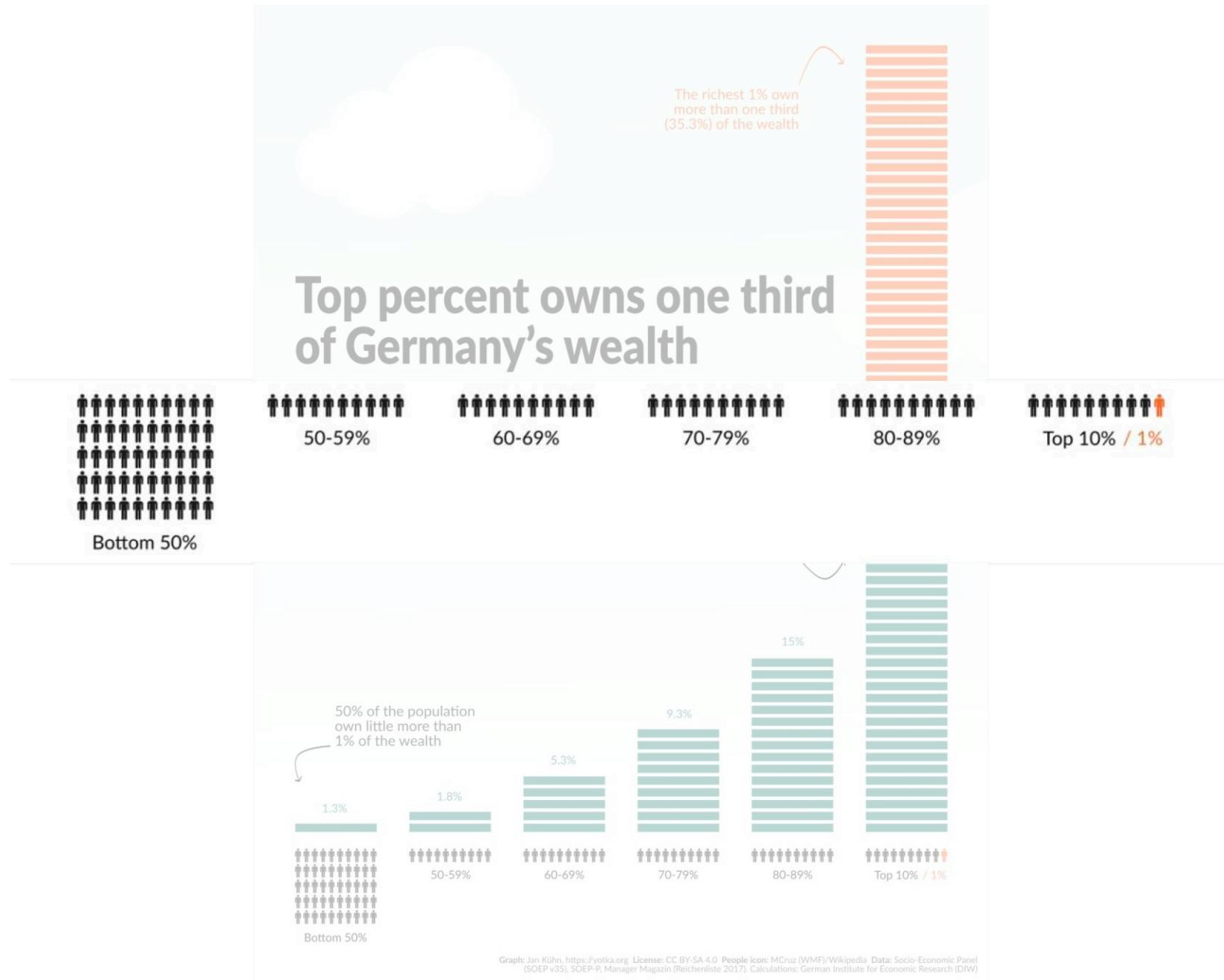


Chart by Cédric Scherer. Data based on streamflow gage records from 3,196 gauges (purple dots) assessed from 1920 to 2020: <https://doi.org/10.5066/P92FAASD>. Colored points represent gauges with the most severe streamflow droughts, which were defined with 2% variable 7-day thresholds.

"100 Years of Streamflow Drought", in collaboration with USGS

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Source: Jan Kühn

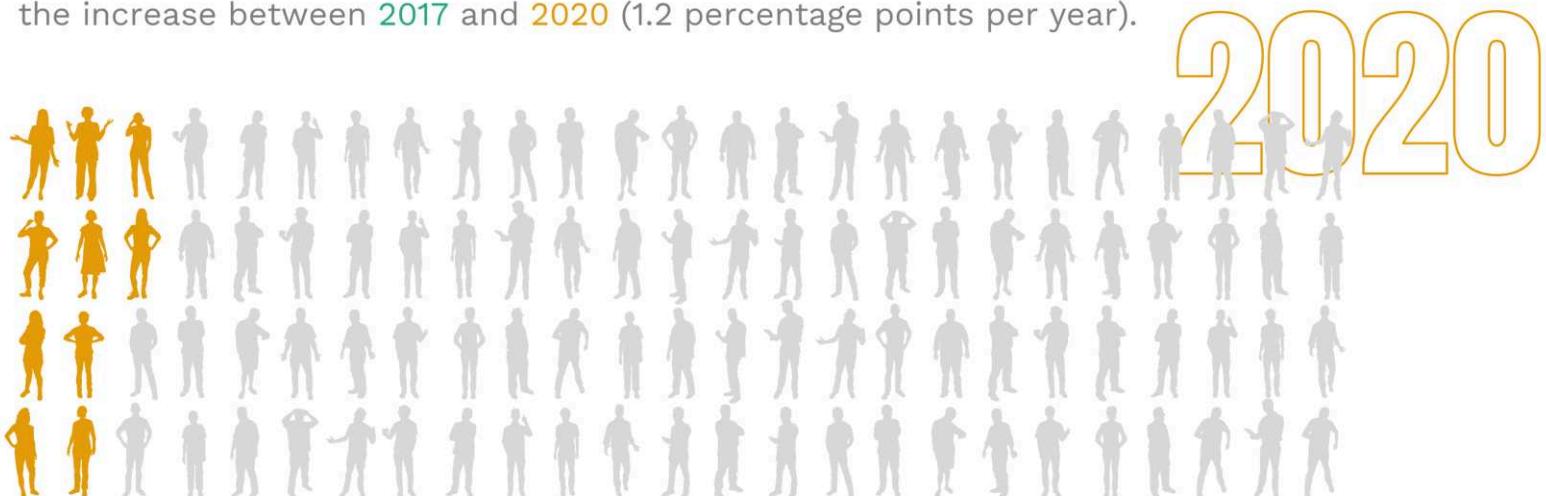
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The proportion of female chairs in board or CEOs in German companies remains vanishingly low



If the growth continues at the same pace, it will take more than 30 years to achieve gender parity on Germany's boards, assuming a linear progression of the increase between **2017** and **2020** (1.2 percentage points per year).



Visualization: Cédric Scherer | Data Source: BCG Gender Diversity Index 2017 and 2020 | Silhouettes: Wee People by ProPublica
#30DayChartChallenge 2021 | Day 2: Pictogram

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Wrap-Up



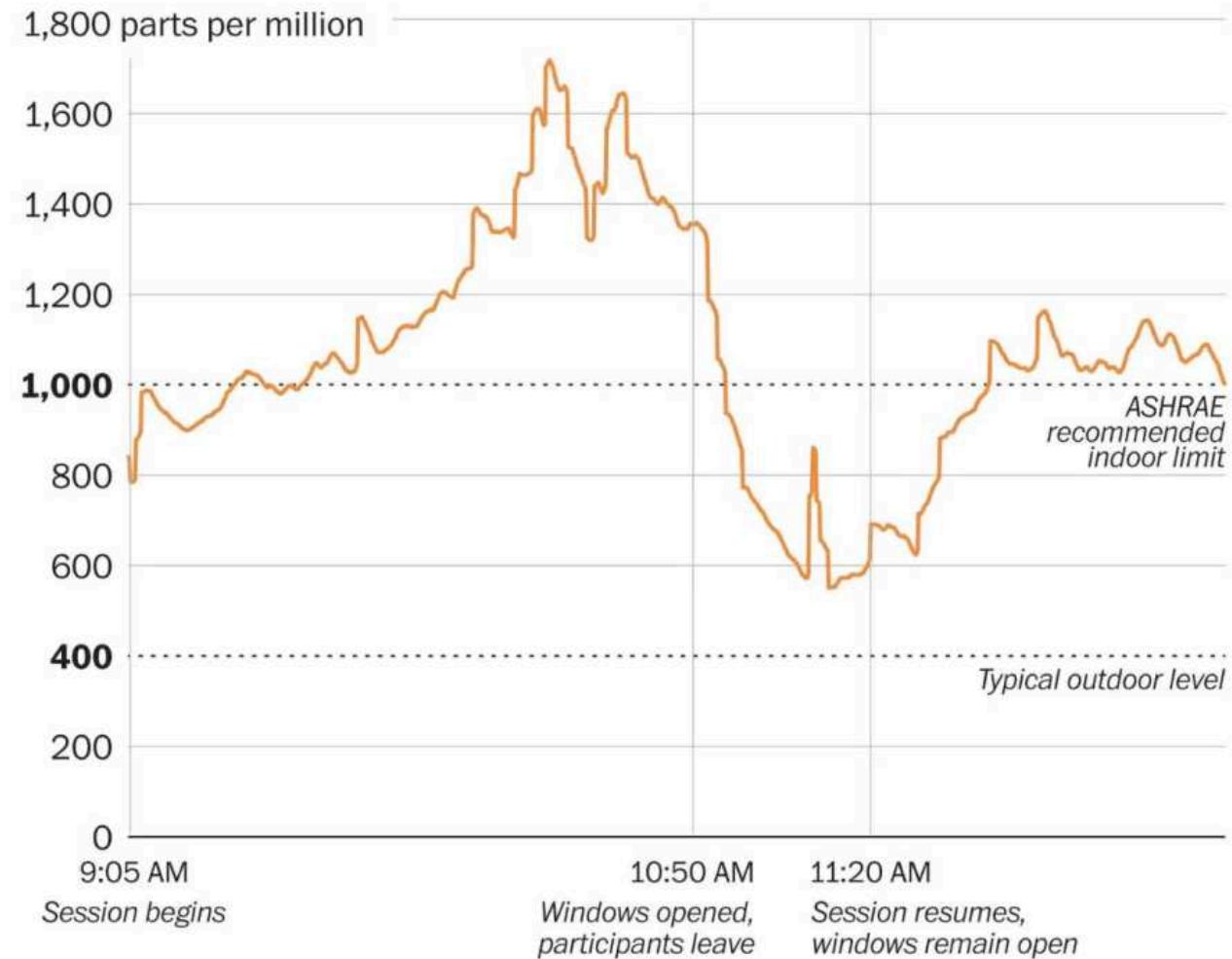
Was macht eine gute Datenvisualisierung aus?

- » **Information (Integrität)**
- » **Erzählung (Bedeutsamkeit)**
- » **Ziel (Zweckmäßigkeit)**
- » **Eleganz (Visuelle Form)**



Clearing the air

CO₂ levels in an occupied conference room on June 4, 2019



Source: Adam Ginsburg

THE WASHINGTON POST

Source: "Clearing the Air" by Adam Ginsburg (Washington Post) | Commented version by Francis Gagnon

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Publikum (wer)

- An wen richtet sich die Kommunikation?
- Was ist die eigene Position und Beziehung?

Inhalt (was)

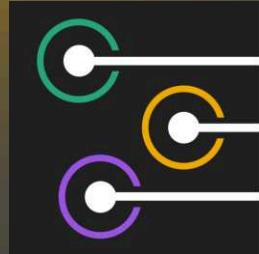
- Welche Erkenntnisse sollen die Zuhörenden mitnehmen?
- Auf welchem Weg findet die Kommunikation statt?

Grundlage (wie)

- Sind die Kodierung und der Diagrammtyp geeignet?
- Welchen Detailgrad benötige ich für meine Aussage?



Dankeschön!



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