Bringing the power of dataviz to everyone

Gurman Bhatia

Coda.Br   @gurmanbhatia
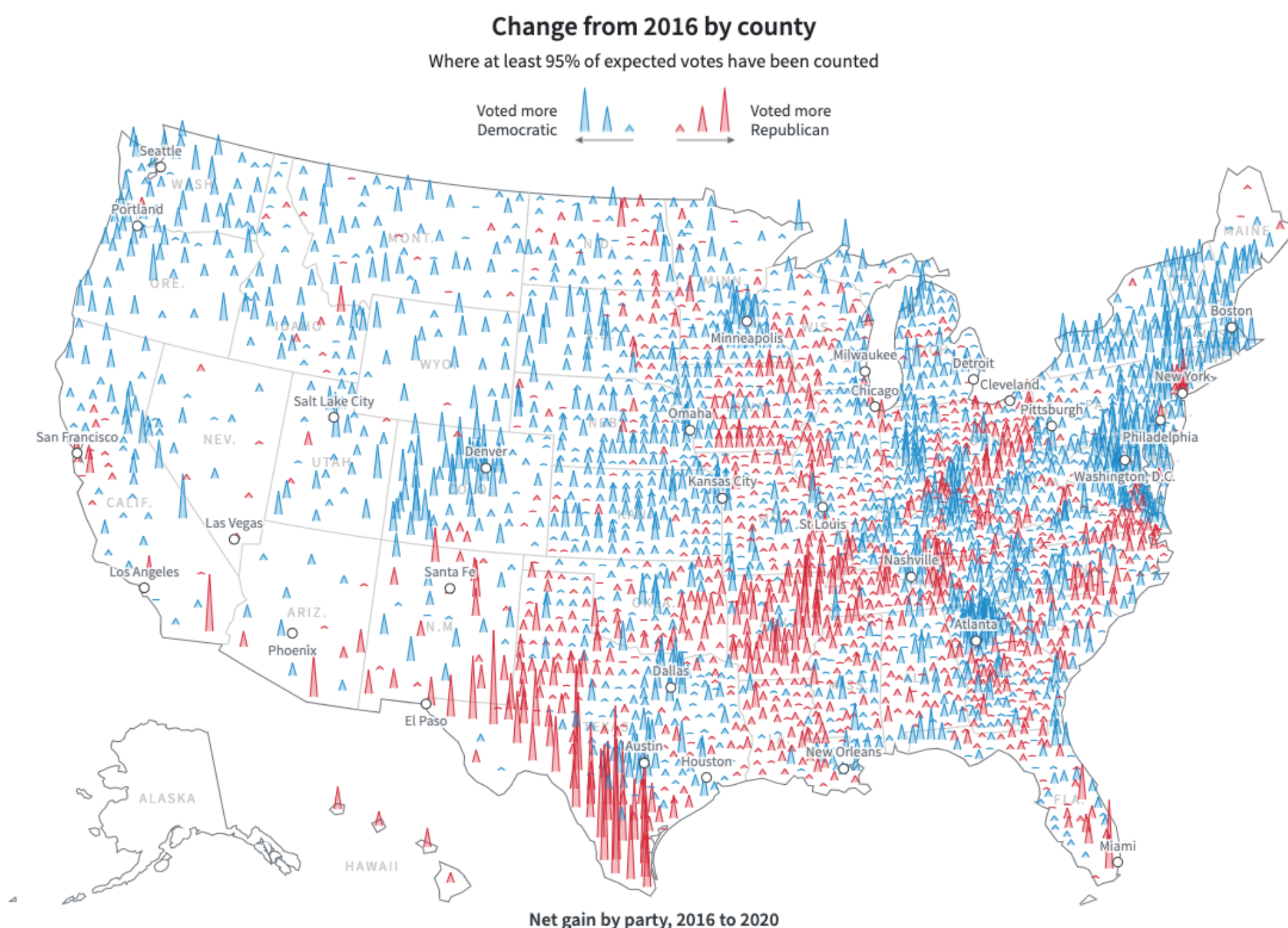November 10, 2021   www.gurmanbhatia.com

My universe

Journalism
Teaching
Dataviz
Code

The dual worlds of

data visualisation

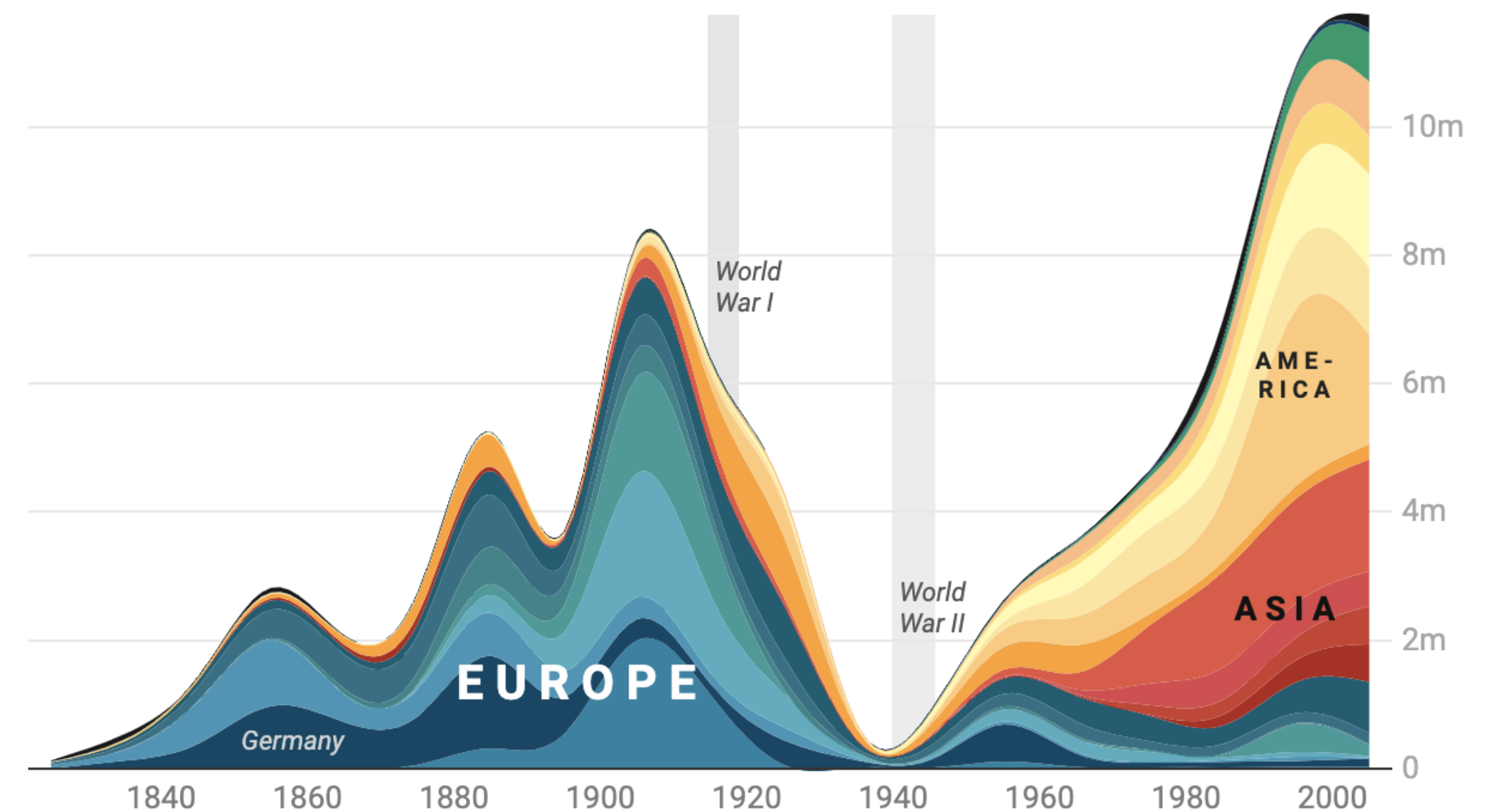Stories & explanations

Dashboards & explorations

Change from 2016 by county
Where at least 95% of expected votes have been counted

Voted more Democratic ← | → Voted more Republican

Net gain by party, 2016 to 2020

New reported infections

Reported deaths

Daily new infections

Daily deaths

7-day average

7-day average

Dec 31 — Oct 30

Dec 31 — Oct 30

Countries reporting the most new infections each day *

Countries reporting the most deaths each day *

▼ UNITED STATES 71,880

UNITED KINGDOM 40,565

▲ RUSSIA 39,231

▼ TURKEY 25,883

▲ UKRAINE 21,743

UNITED STATES 1,427

▲ RUSSIA 1,146

▲ UKRAINE 546

▲ INDIA 532

▲ ROMANIA 439

* Latest 7-day average reported
▲ average increasing over last 2 weeks
▼ average decreasing over last 2 weeks

Bespoke and customised

Traditional and tool-driven
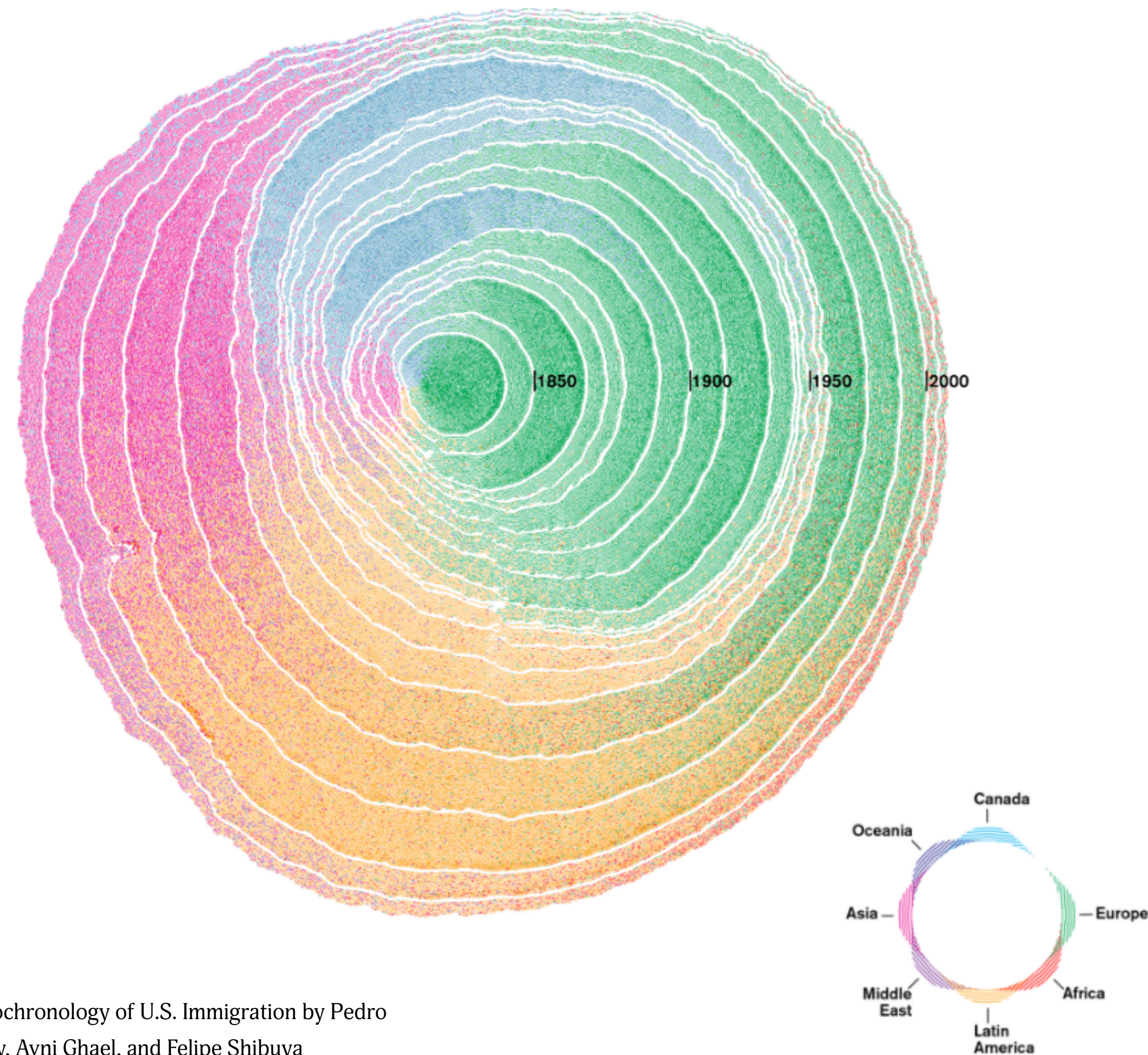
Simulated Dendrochronology of U.S. Immigration by Pedro Cruz, John Wihbey, Avni Ghael, and Felipe Shibuya

|1850 |1900 |1950 |2000

Canada

Oceania

Asia — — Europe

Middle East
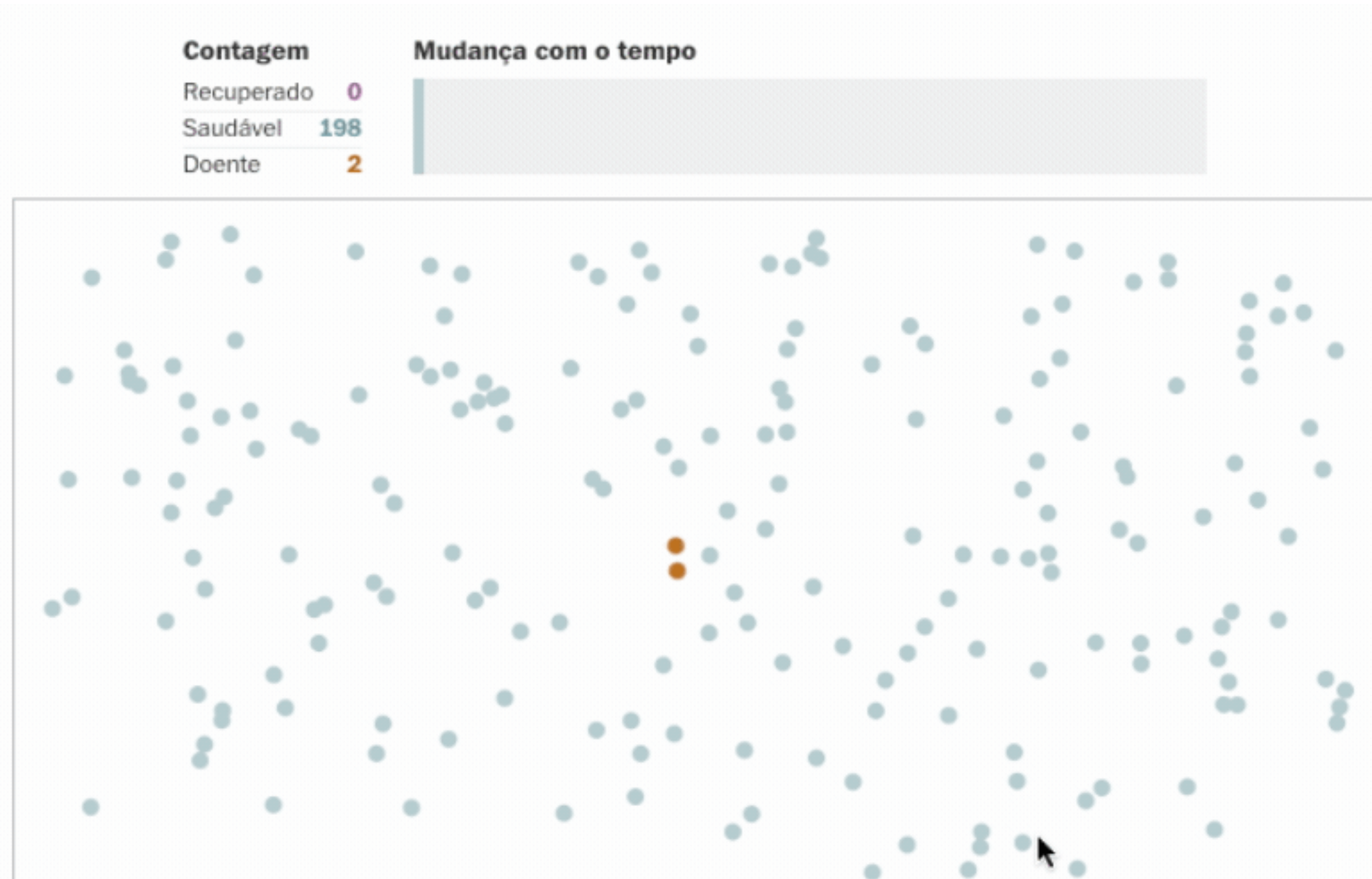
Latin America

Africa

Migration to the US by world region, 1820-2009

The numbers are recorded by decade. For example, the numbers recorded for 1905 tell us the number of immigrants between 1900 and 1910.

World War I

World War II

AME-RICA

ASIA

EUROPE

Germany

10m

8m

6m

4m

2m

0

1840   1860   1880   1900   1920   1940   1960   1980   2000

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Interactive

Por que surtos como o coronavírus se espalham exponencialmente e como "achatar a curva", Washington Post

Contagem

Recuperado	0
Saudável	198
Doente	2

Mudança com o tempo

Static

NATIONAL PARTIES

K Surendran
240 cases

Bharatiya Janata Party

Dean Kuriakose
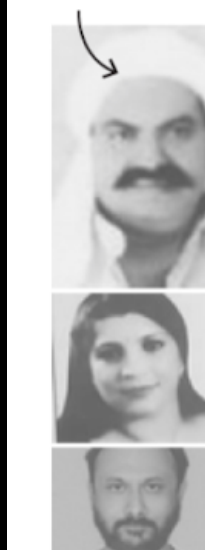201 cases

Indian National Congress

Yogesh Verma
27 cases

BSP · Others

CPI (M)

INDEPENDENTS

Ateek Ahmad - 54 cases

Shiv Sena

Samajwadi

REGIONAL PARTIES

Oli Mahammad Mallick - 32 cases

Others

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Many forms

Many roles

Stories	Dashboards
Explanatory	Exploration
Bespoke	Traditional
Customised	Tool-driven
Interactive	Static

All these forms
are gaining
popularity

Iran

63% received at least one dose

39.9% have been fully vaccinated
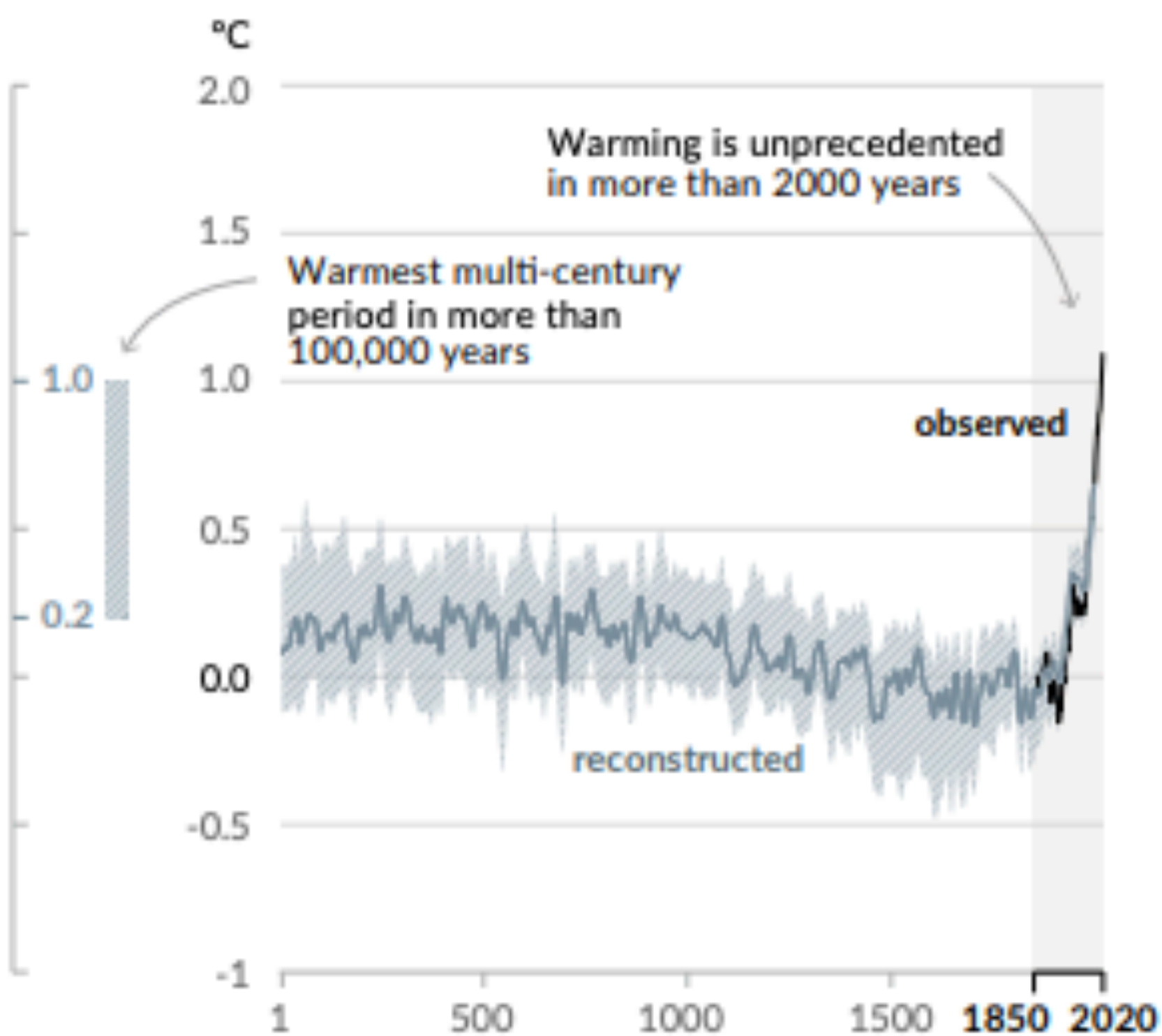
Spin me

% of people given at least one dose

Less   More

Data Journalism

Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years
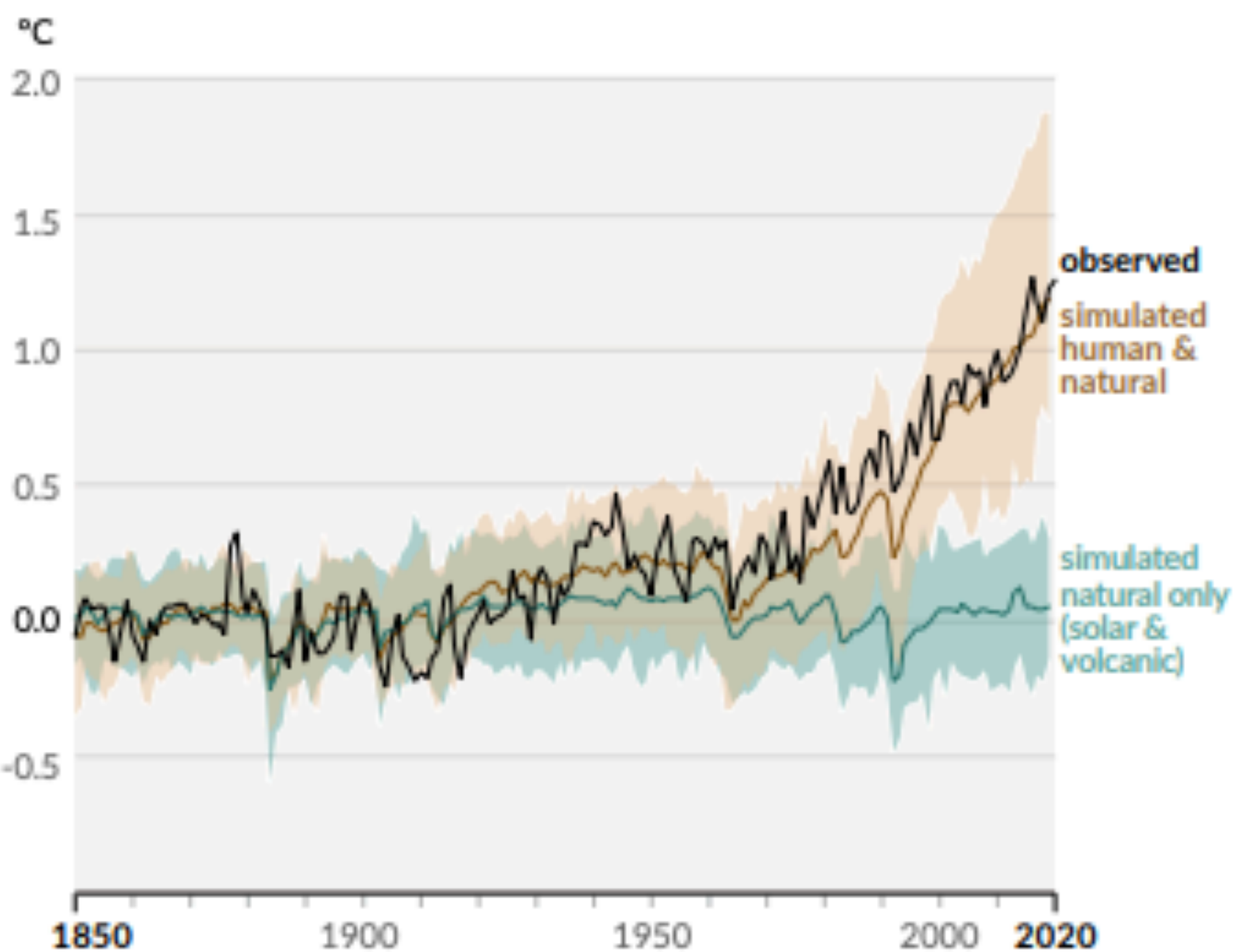
Changes in global surface temperature relative to 1850-1900

a) Change in global surface temperature (decadal average) as reconstructed (1-2000) and observed (1850-2020)

b) Change in global surface temperature (annual average) as observed and simulated using human & natural and only natural factors (both 1850-2020)
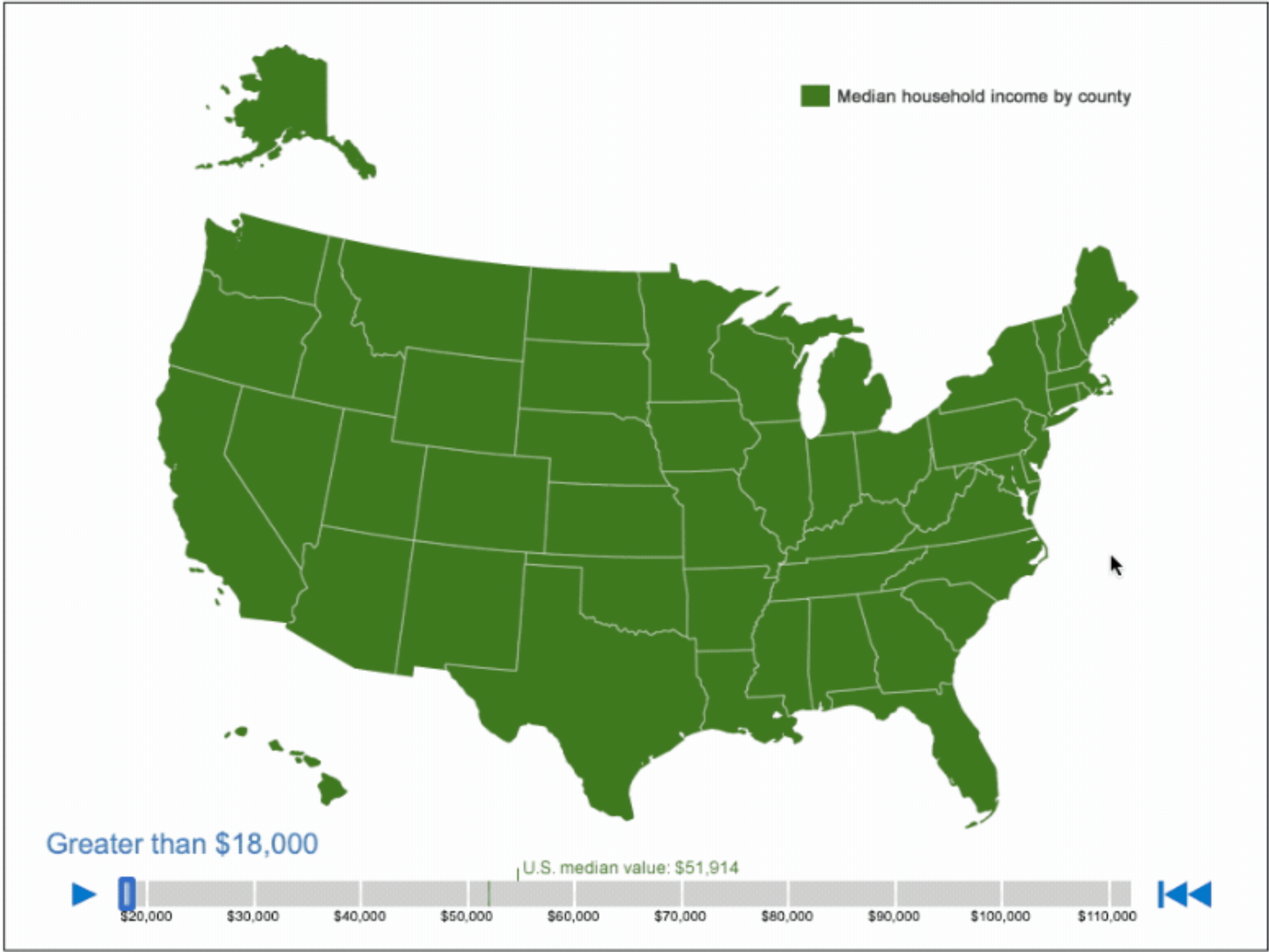
Non-Profit

Graduation
26.9%

Post-Graduation
24.8%

SSC To HSC
20.1%

Do Not Know/ Cannot Say, Not Decided
4.0%

Service Commission
3.7%

Professional Degree
11.6%

Do Not Want To Study Further
4.4%

Less Than SSC
1.6%

Professional Diploma
3.0%
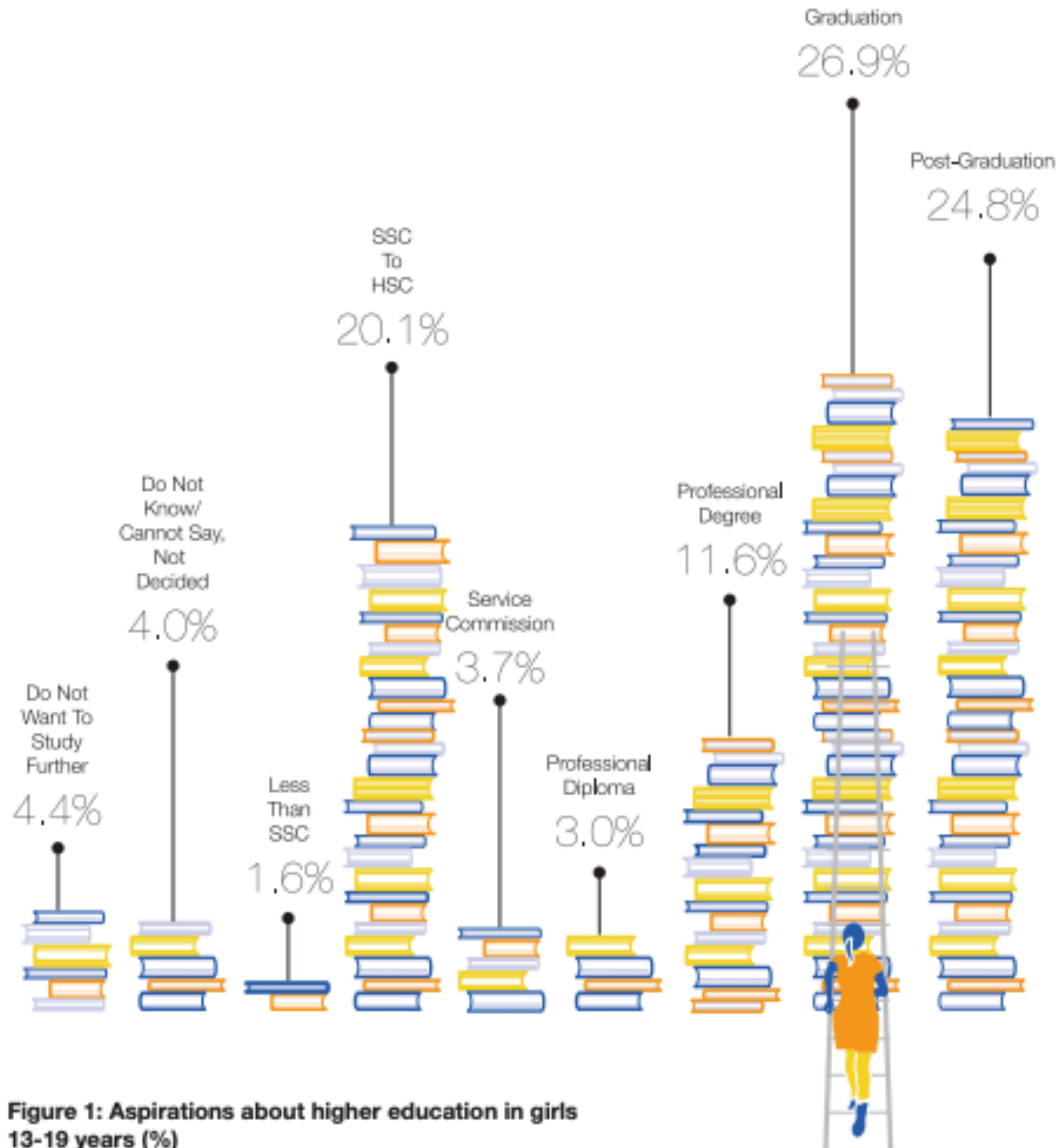
Figure 1: Aspirations about higher education in girls 13-19 years (%)

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Corporate
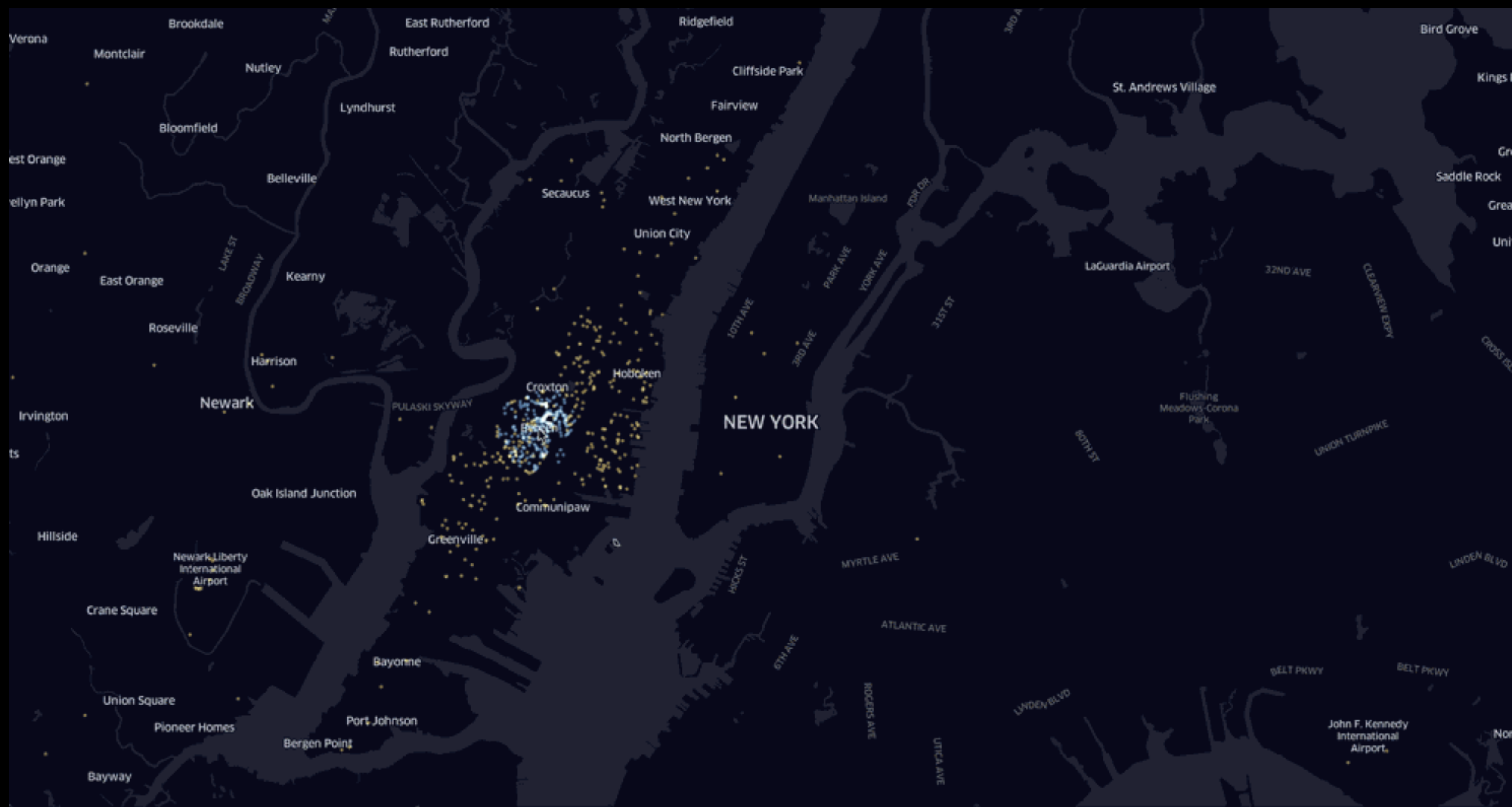
Dragging the cursor over a given radius area reveals distributions of Uber dropoffs in real-time.
Source: Uber Engineering.

www.gurmanbhatia.com

Which means
data visualisation
is catching on...

A lot has happened recently

1. Better tools

1. Better tools
No-code solutions

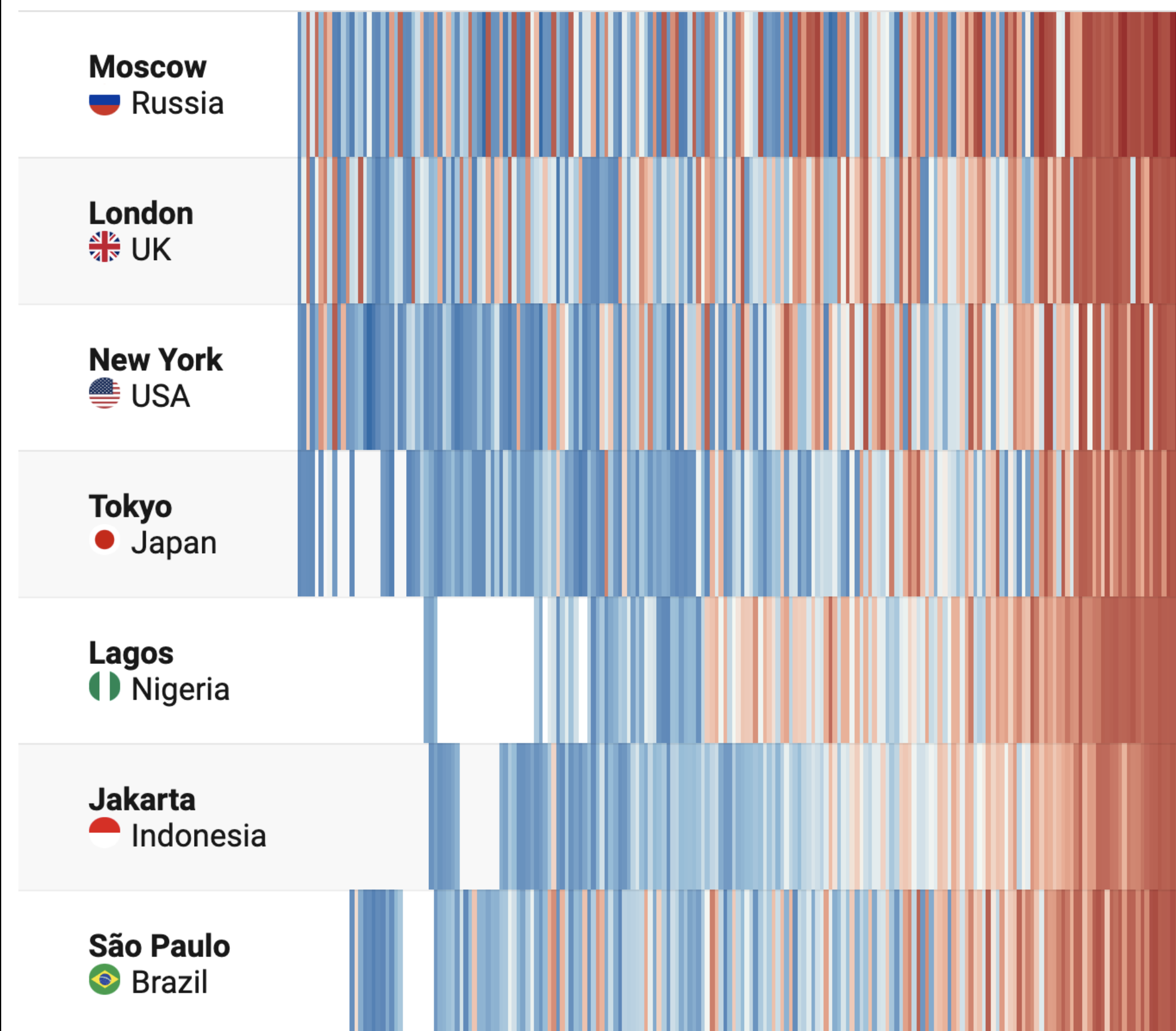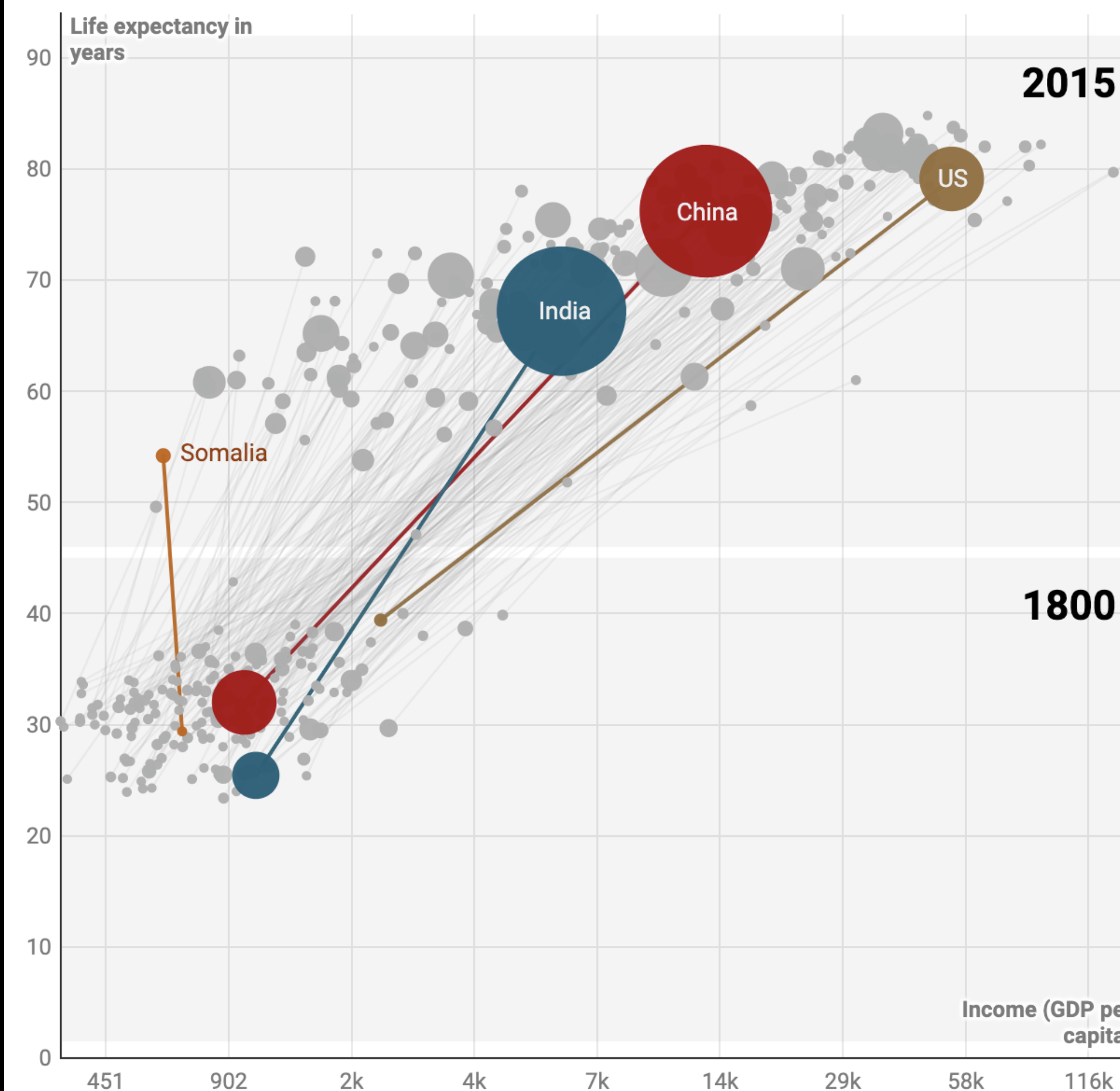# Datawrapper

Enrich your stories with charts, maps, and tables.

Start creating

It's free & no sign-up is required

Flourish

Beautiful and easy
**data visualization
and storytelling**

Get started for free
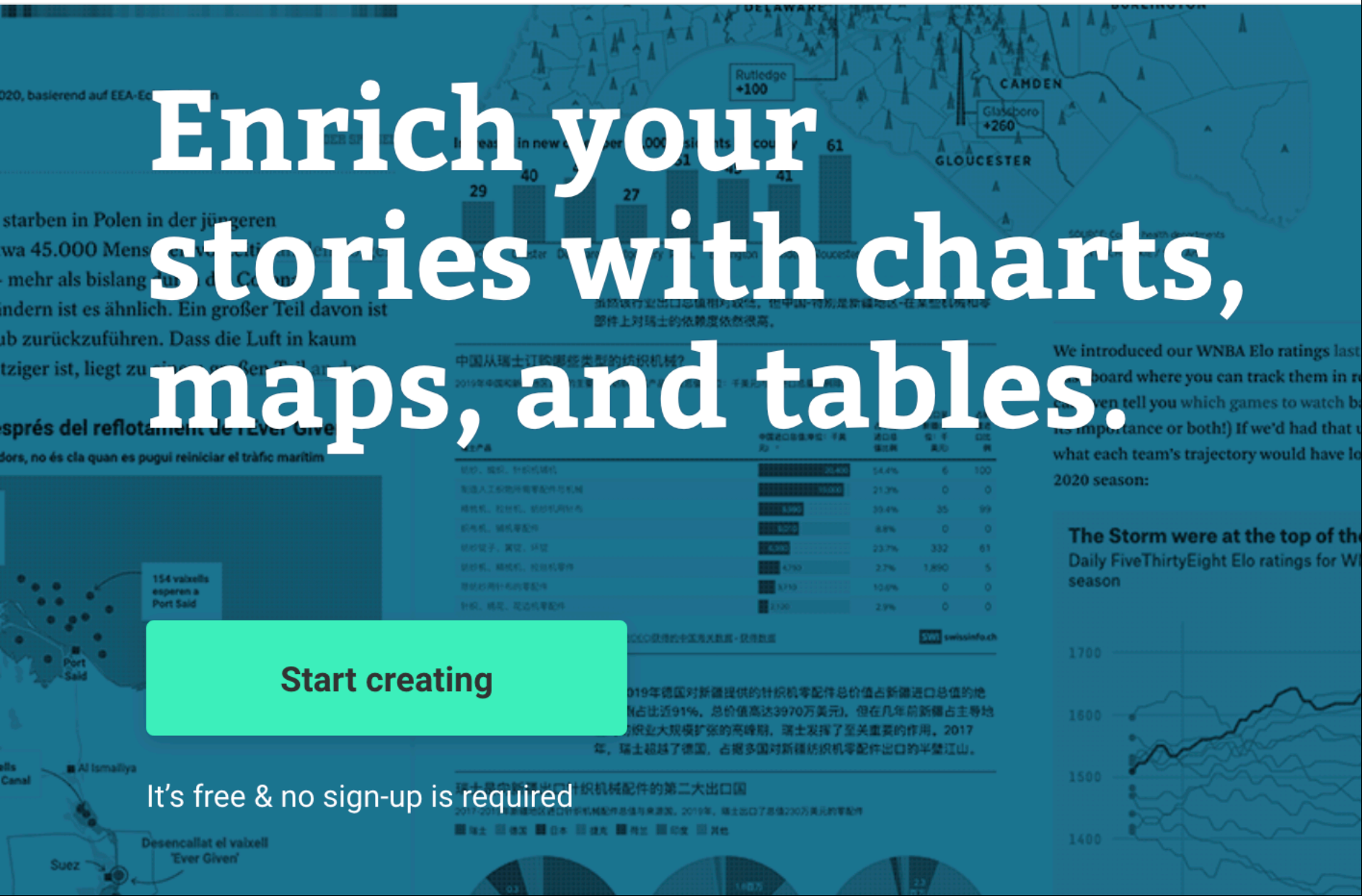
Datawrapper

Flourish

Temperature change around the world (1820–2020)

Moscow 🇷🇺 Russia	
London 🇬🇧 UK	
New York 🇺🇸 USA	
Tokyo 🔴 Japan	
Lagos 🇳🇬 Nigeria	
Jakarta 🇮🇩 Indonesia	
São Paulo 🇧🇷 Brazil	

Temperatures in Celsius, reported as anomalies relative to the Jan 1951—Dec 1980 average.

Every country has a higher life expectancy now than in 1800

Gross domestic product per person adjusted for differences in purchasing power (in international 2011 dollars) vs life expectacy of newborns, for selected countries in 1800 and 2015. The size of the circle shows the population of the countries.

Life expectancy in years

2015

1800

Somalia
China
India
US

Income (GDP per capita)

451 902 2k 4k 7k 14k 29k 58k 116k

90 80 70 60 50 40 30 20 10 0

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Urban population by country
Coloured by continent. Click the legend to filter.

● Asia ● Europe ● Africa ● Oceania ● Americas

0	100,000,000	200,000,000	300,000,000	

China — 350,443,821
India — 245,396,482
USA — 200,552,946
Brazil — 121,271,026
Russia — 108,913,812
Japan — 97,072,823
Mexico — 66,592,477
Indonesia — 66,151,430
Germany — 59,838,997
UK — 45,230,081

1993
Total: 2,461,575,815

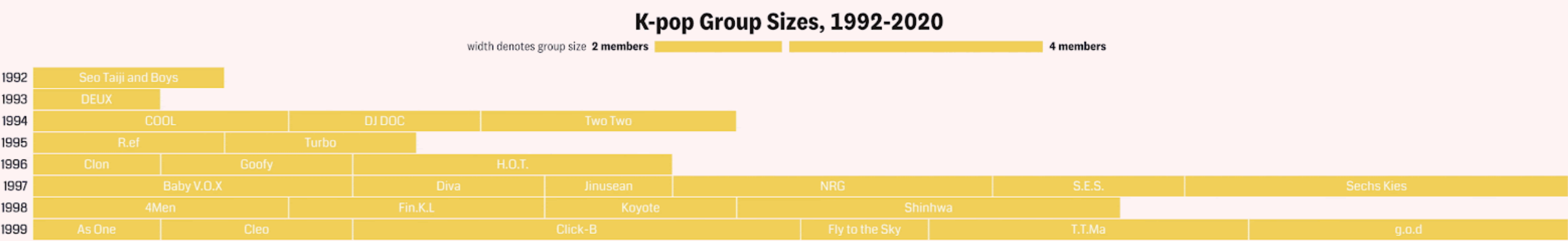|																			
2,000,000,000																			
1,500,000,000																			
1,000,000,000																			
500,000,000																			
0																			
1960	1963	1966	1969	1972	1975	1978	1981	1984	1987	1990	1993	1996	1999	2002	2005	2008	2011	2014	

members (yes, a group that big exists) might seem alien, or downright excessive. And yet the average size of the top 10 selling K-pop groups of the last decade (like girl group TWICE, pictured above) is 9 members.
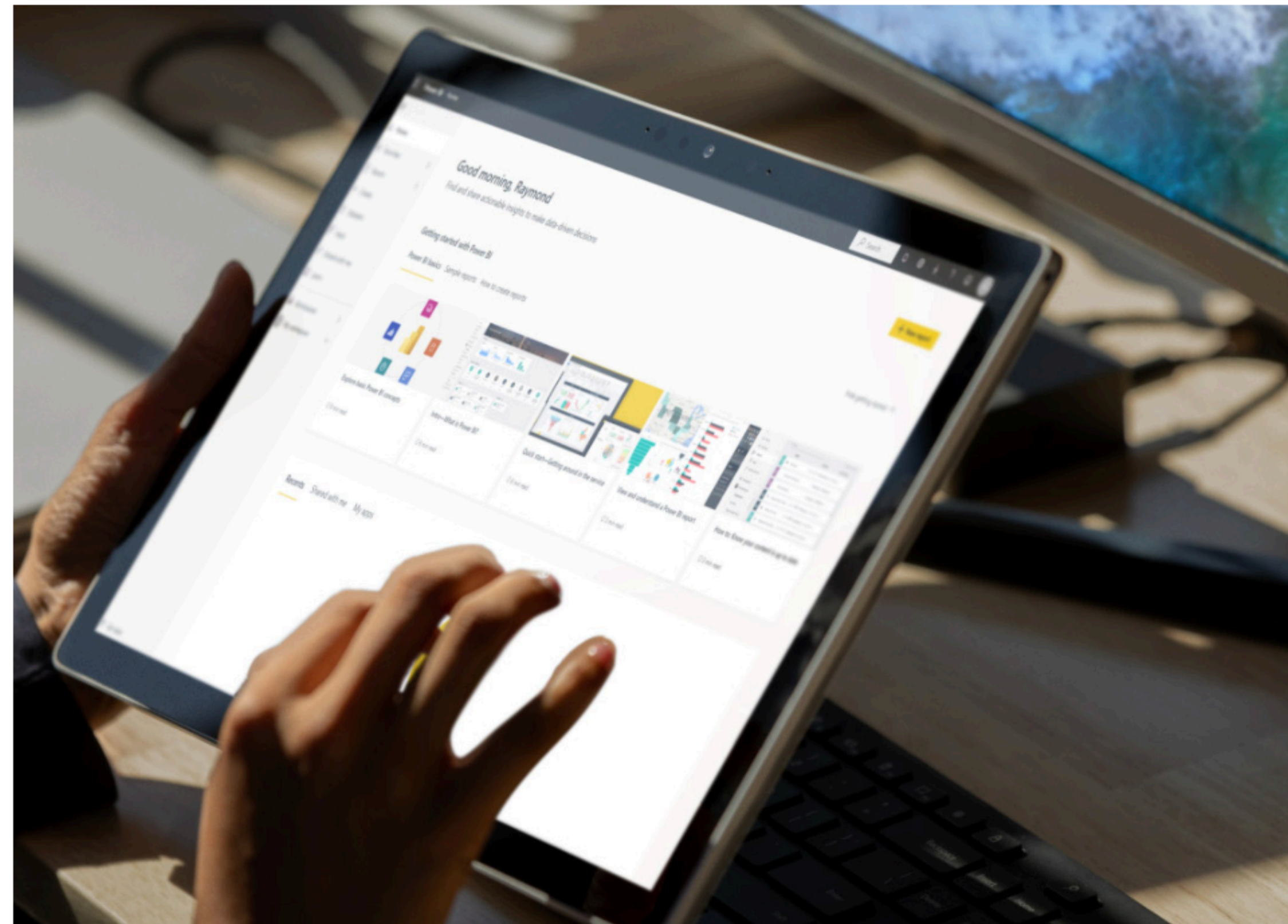
So, how did groups get that large? What about large groups is so appealing? And, what do the sizes of K-pop groups tell us about why K-pop is so popular?

To answer those questions, we tracked trends in group sizes and member roles over modern K-pop's 30-year history, breaking the numbers down across the industry's three generations of artists.
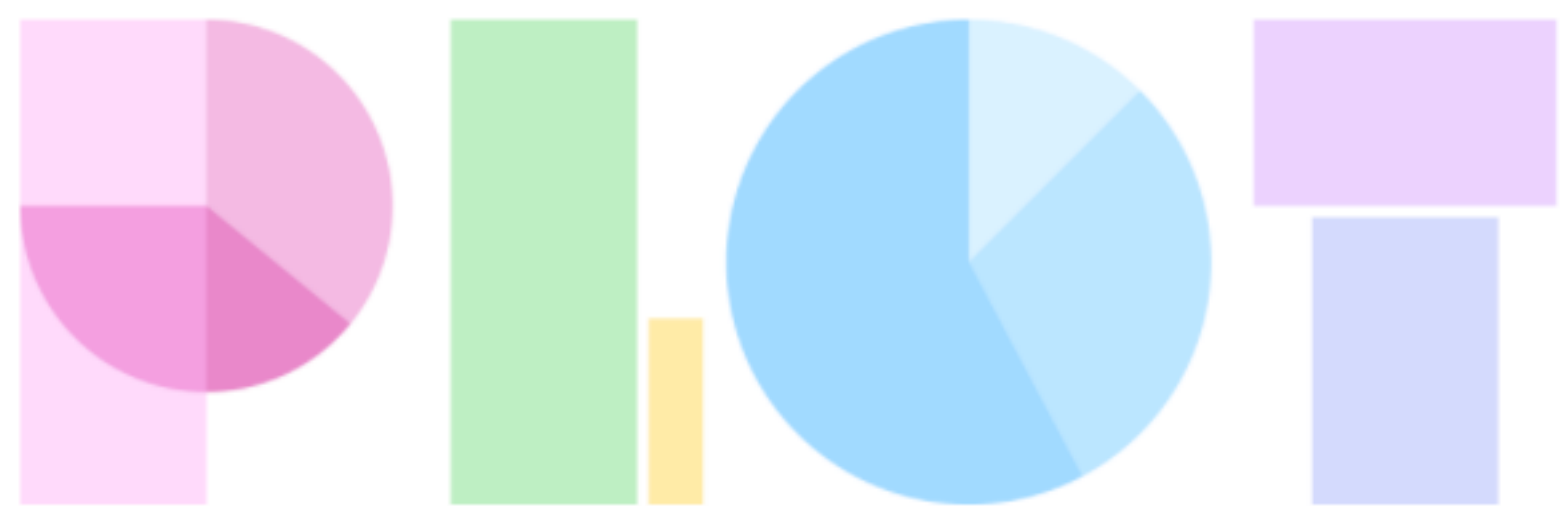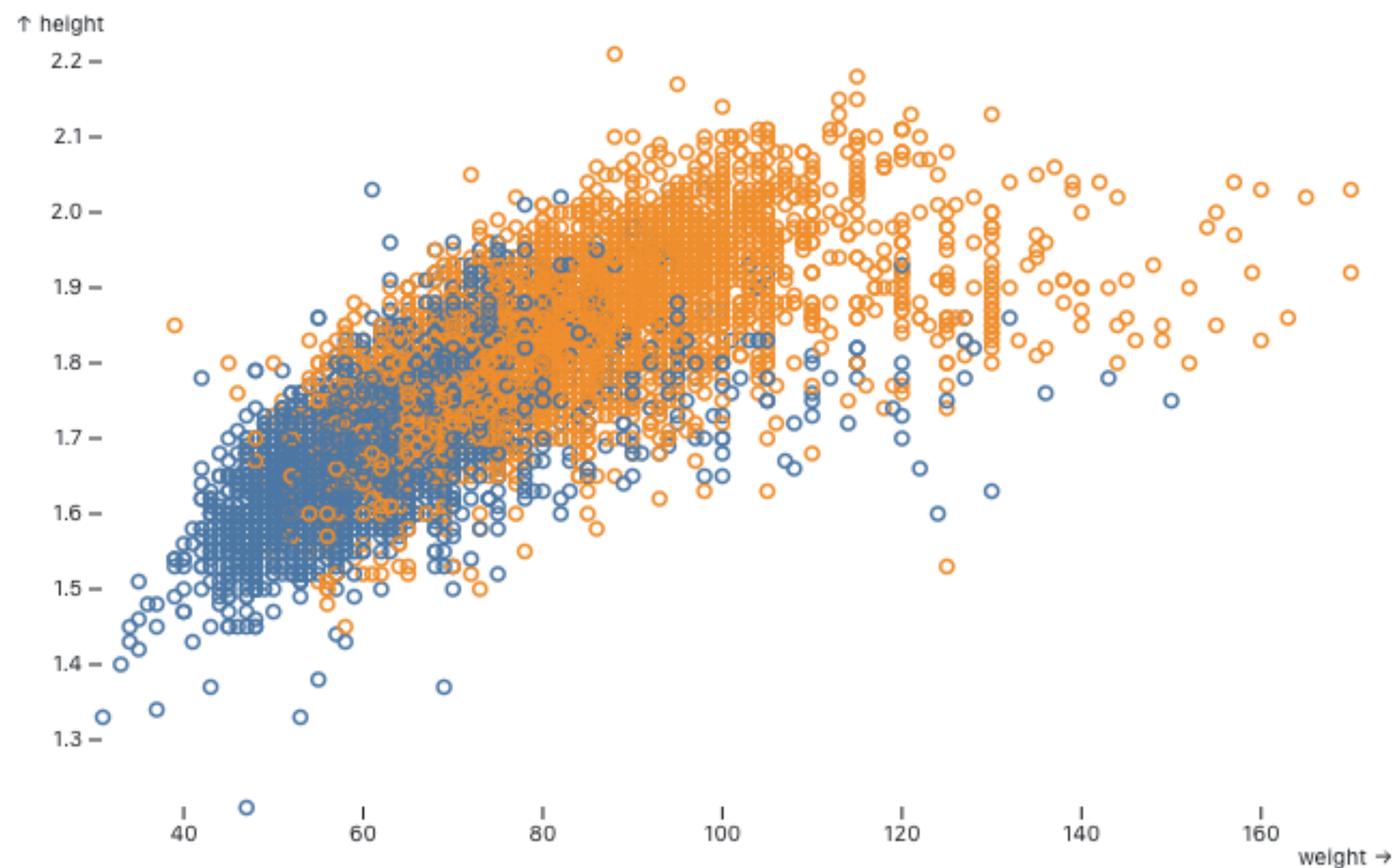
K-pop Group Sizes, 1992-2020

width denotes group size **2 members** ▭▭▭ ▭▭▭▭▭▭ **4 members**

Year						
1992	Seo Taiji and Boys					
1993	DEUX					
1994	COOL		DJ DOC		Two Two	
1995	R.ef		Turbo			
1996	Clon		Goofy		H.O.T.	
1997	Baby V.O.X		Diva	Jinusean	NRG	S.E.S.	Sechs Kies
1998	4Men		Fin.K.L	Koyote	Shinhwa	
1999	As One	Cleo	Click-B	Fly to the Sky	T.T.Ma	g.o.d

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Tableau

PowerBI

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1. Better tools
Low-code solutions

```
dotplot = Plot.dot(athletes, {x: "weight", y: "height", stroke: "sex"}).plot()
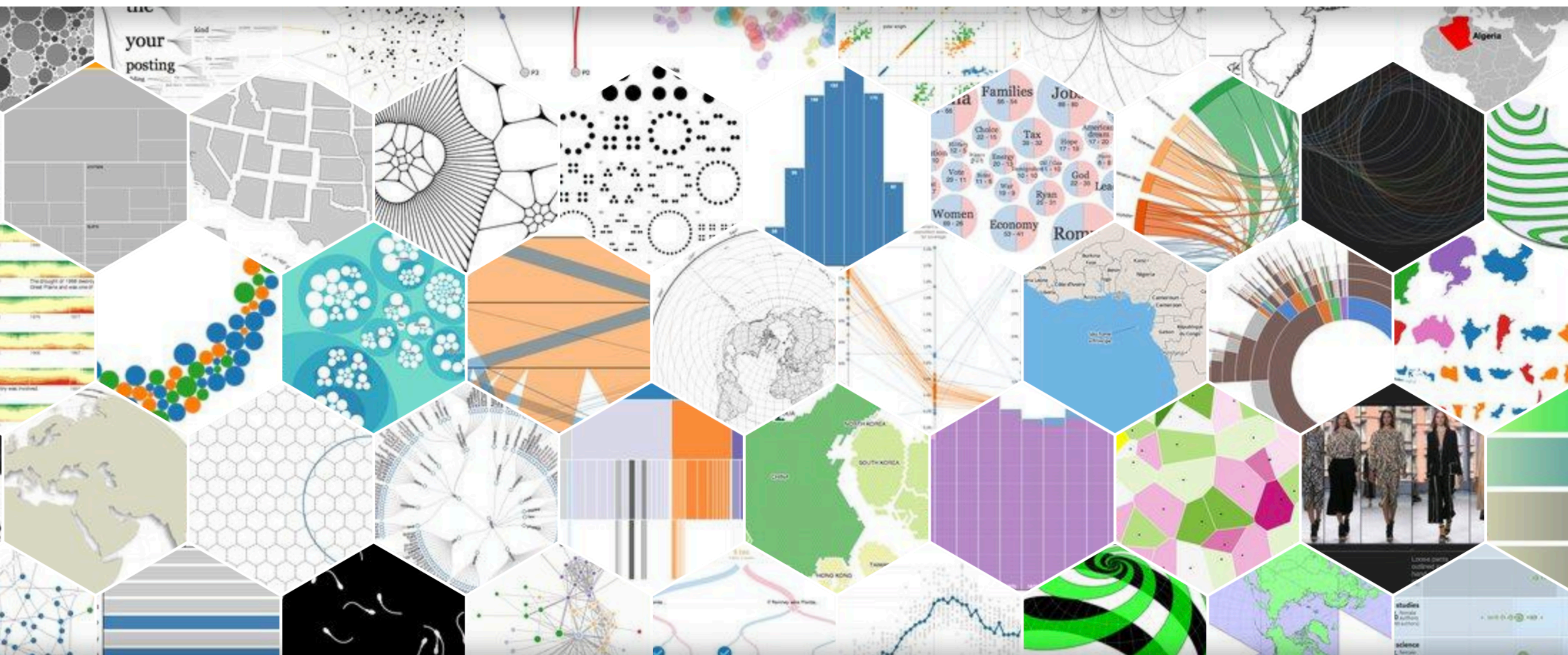```
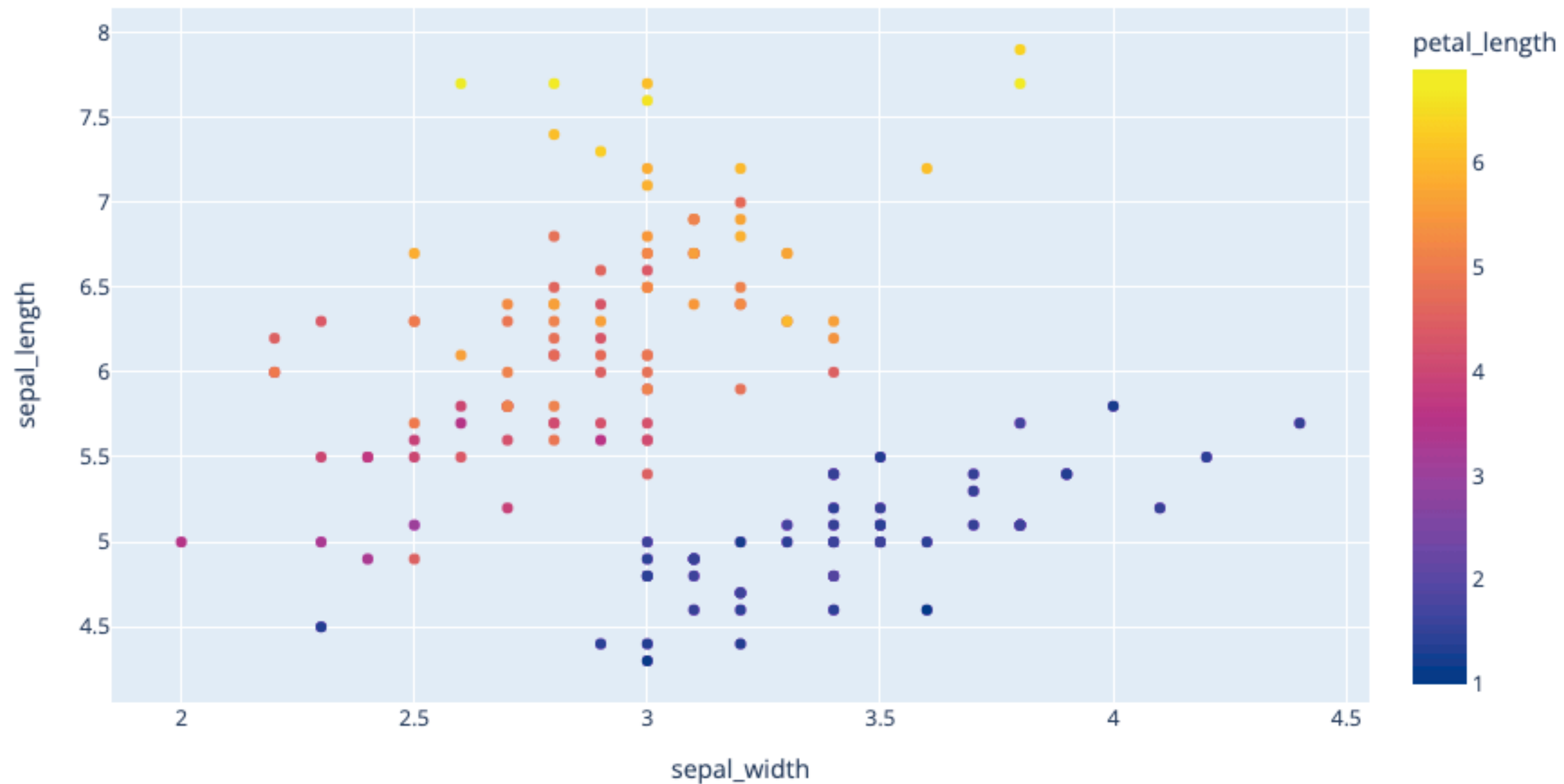
```
ggplot(chic, aes(x = temp, y = season, fill = ..x..)) +
  geom_density_ridges_gradient(scale = .9, gradient_lwd = .5,
                               color = "black") +
  scale_fill_viridis_c(option = "plasma", name = "") +
  labs(x = "Temperature (°F)", y = "Season") +
  theme_ridges(font_family = "Roboto Condensed", grid = FALSE)
```
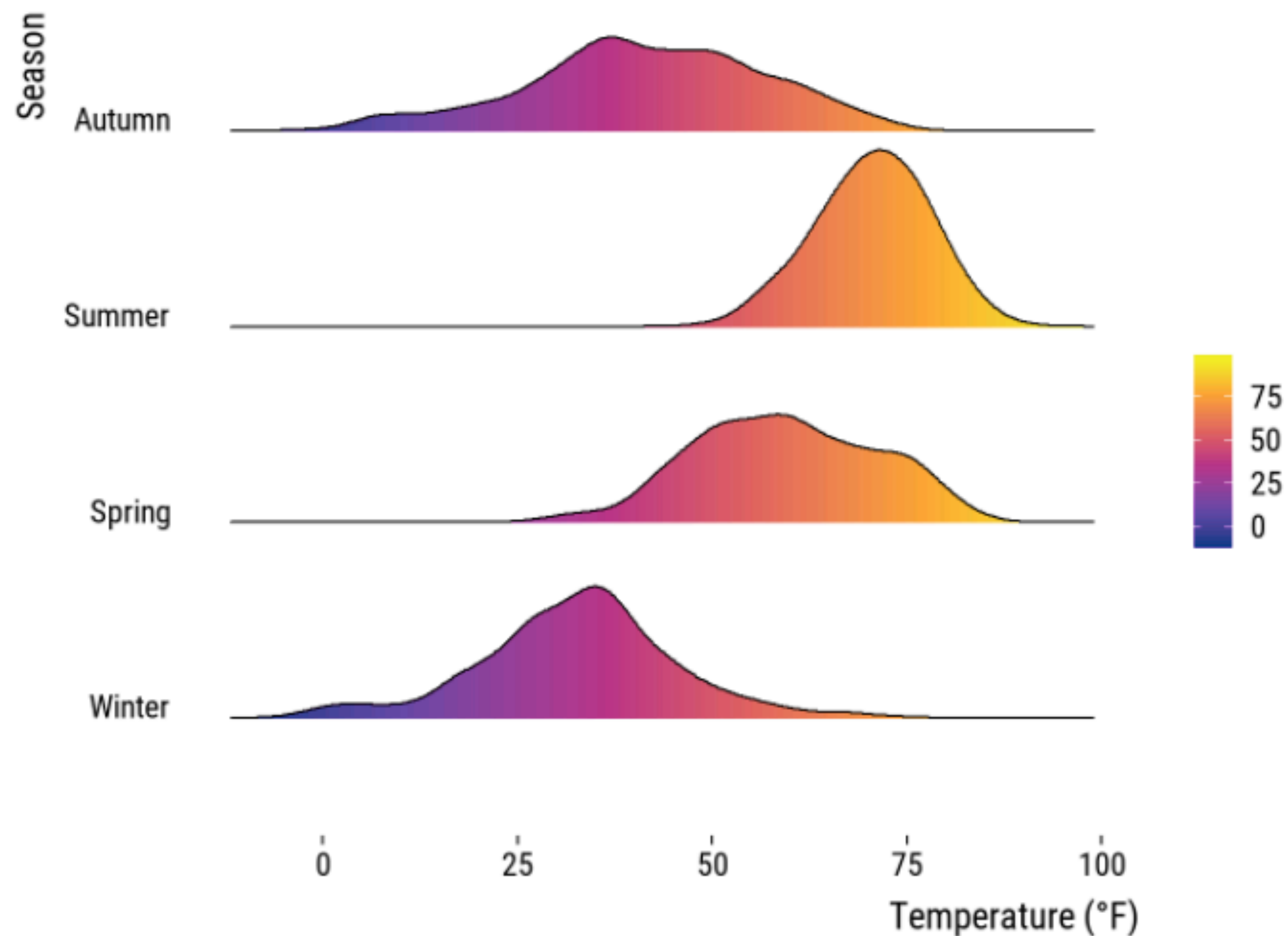
Data-Driven Documents

```javascript
const node = this.selection().node();
const { width: containerWidth } = node.getBoundingClien
const width = containerWidth - margin.left - margin.rig
const height = (p
                    this.selection()
                      .appendSelect('p.axis-label')
                      .text(props.topText)
const xScale = d3    .style('padding-left', (props.margin.lef
  .rangeRound([0,
  .domain([0, use
                    this.svg = this.selection()
                      .appendSelect('svg') // 👈 Use appendSel
                      .attr('width', width + margin.left + mar
const yScale = d3    .attr('height', height + margin.top + ma
  .rangeRound([0,
  .domain(data.ma
                    const plot = this.svg
                      .appendSelect('g')
                      .classed('plot', true)
                      .attr('transform', `translate(${margin.l

                    const yAxis = plot.appendSelect('g.axis.y'
                    const xAxisTop = plot.appendSelect('g.axis

                    xAxisTop.attr('transform', 'translate(0,0)')
                      .call(
                        d3.axisTop(xScale)
                          .ticks(4)
                          .tickFormat(d => d * 100)
                      );


                    yAxis.attr('transform', 'translate(0, 0)')
                      .call(
                        d3.axisLeft(yScale)
                          .tickFormat((d) => {
                            return props.countryNameGetter(d);
                          })
                      );
```

```javascript
const bars = plot.appendSelect('g.country-container')
  .selectAll('rect')
  .data(data, d => d.country);


bars
  .enter()
  .append('rect')
  .style('fill', props.rectFill)
  .merge(bars)
  .attr('x', 0)
  .attr('y', d => yScale(d.country))
  .attr('height', d => yScale.bandwidth())
  .attr('width', d => xScale(d.perPop));


bars.exit()
  .remove();
```
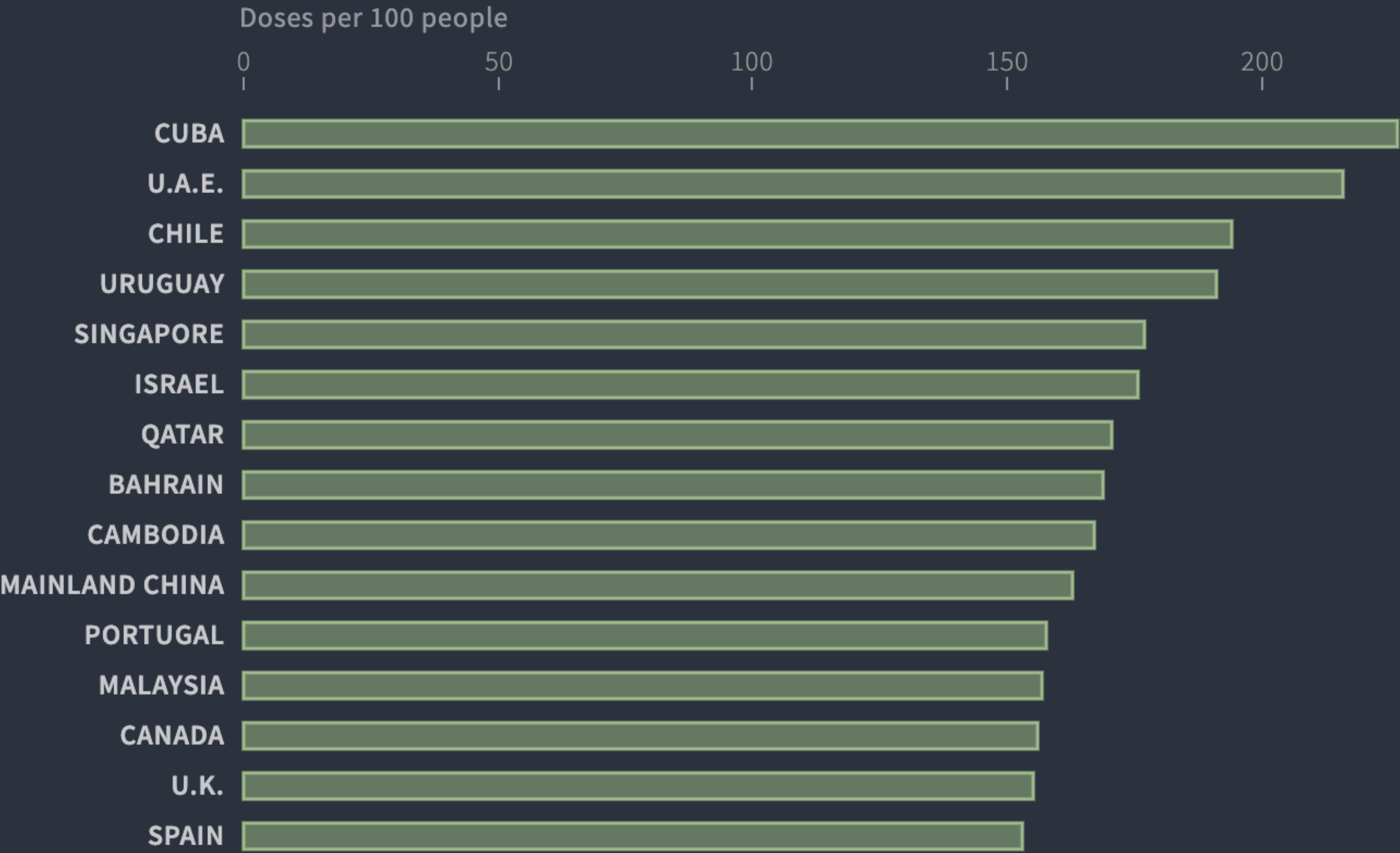
www.gurmanbhatia.com

Countries reporting the most doses administered per population*

Doses per 100 people

Country	Doses per 100 people
CUBA	
U.A.E.	
CHILE	
URUGUAY	
SINGAPORE	
ISRAEL	
QATAR	
BAHRAIN	
CAMBODIA	
MAINLAND CHINA	
PORTUGAL	
MALAYSIA	
CANADA	
U.K.	
SPAIN	

*Countries with more than
1 million people

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2. A stronger community

MakeoverMonday

Workout Wednesday

A weekly challenge to re-create data-driven visualizations.
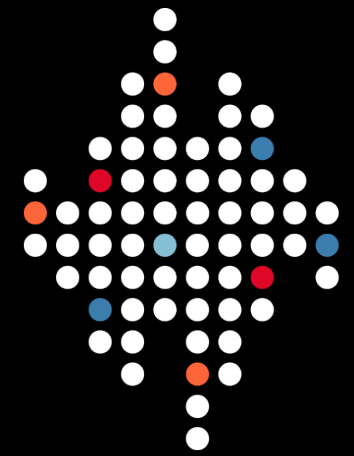
Topi Tjukanov
@tjukanov

...

🎉Categories for #30DayMapChallenge 2021 🎉

Join in to create maps around these themes. Use your
creativity and share your results with others! Starts
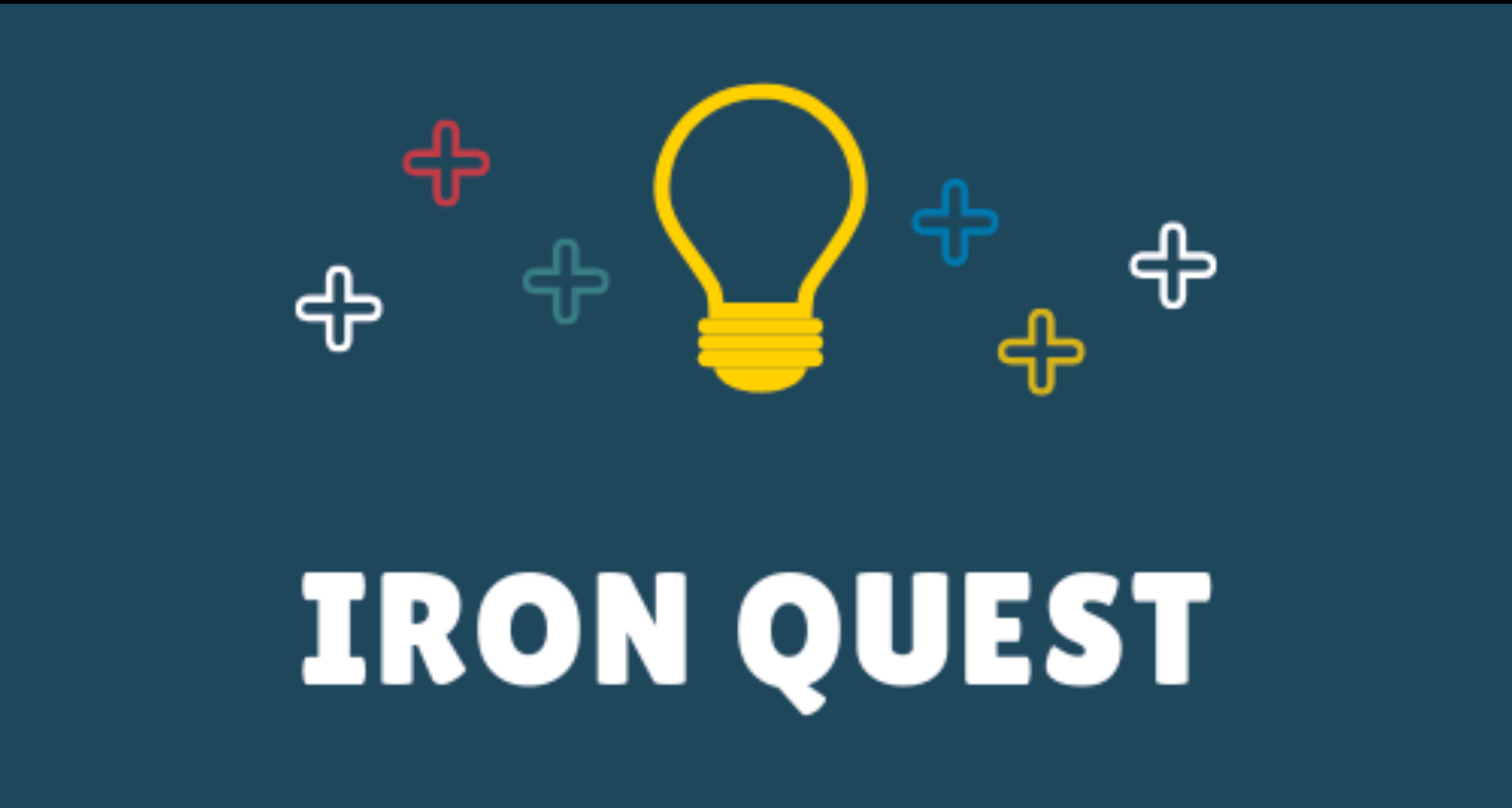01/11/2021.

Viz for
Social Good

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TidyTuesday
A weekly data project in R from the
R4DS online learning community
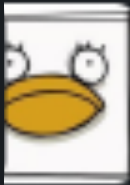
variables
observations
values

IRON QUEST

Real World Fake Data

d3
d3js.slack.com
8,112

3. A wealth of cheap/free online resources to learn

Welcome to the Datawrapper Academy!

Here you can learn how to build charts, maps & tables with Datawrapper.

| Search the knowledge base | Search |

Welcome!
Your first chart, what's Datawrapper & a tour through it.
10 articles

Bar charts
Bar charts, stacked, bullet, split & grouped bar charts.
13 articles

Line & Area charts
Line charts, area charts and slope charts
15 articles

Pie & Donut charts
Pie charts, donut charts, multiple pie charts & multiple donut charts
12 articles

Scatter plots
Create and customize scatterplots, set annotations & add custom lines
11 articles

Flourish

Flourish basics
26 articles
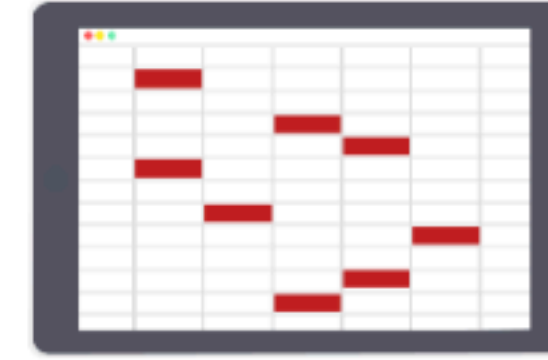
Editing data
9 articles

Flourish stories
8 articles

Video series: Learning Observable

Understand Observable core concepts & learn basic techniques for working with notebooks through these explanatory videos.
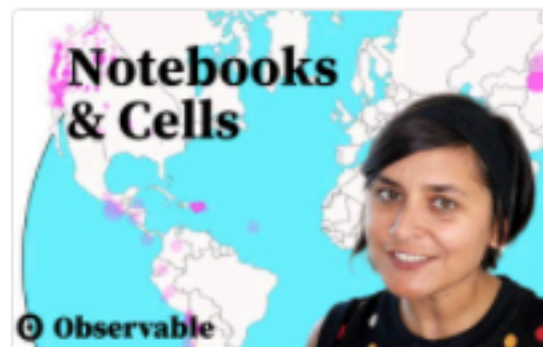
1. Notebooks & Cells
2. Reactive Markdown & HTML
3. Reactive Dataflow
4. User Input & Interactivity
5. JavaScript and Observable
6. Imports & Remixing Cells
7. Getting Data into a Notebook
8. Sharing, Publishing & Embedding

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Workshop: Introduction to D3.js

Learn how to work with SVG and foundational D3 concepts by creating a fun data visualization! To access the full workshop, including video lessons, join Frontend Masters: https://frontendmasters.com/courses/d3/

Showing all **9** listings

Shirley Wu
@sxywu

- Profile
- Notebooks
- Collections

1. **Introduction to SVG and D3.js**
   Shirley Wu
   Aug 11, 2020 · ♡ 238 · 💬 4

2. **1. Draw a flower petal on the screen**
   Shirley Wu
   Aug 11, 2020 · ♡ 71 · 💬 7

3. **2. Select existing petal(s) and bind movie data**
   Shirley Wu
   Aug 11, 2020 · ♡ 20 · 💬 13

4. **3. Create a petal for each movie**
   Shirley Wu
   Aug 11, 2020 · ♡ 7 · 💬 4

FULLSTACK D3 and DATA VISUALIZATION

The *Fullstack D3* course is the complete guide to D3. With dozens of code examples showing each step, you will gain new insights into your data by creating visualizations in this self-paced online course.

Watch the First Day Free   **Enroll Now →**

A Quick How-to on Labelling Bar Graphs in ggplot2

Bar charts are likely the most common chart type out there and come in several varieties. Most notably, direct labels can increase accessibility of a bar graph. I got a request how one can add percentage labels inside the bars and how to highlight specific bars with {ggplot2}. This short tutorial shows you multiple ways how to do so.

Posted by Cédric · Monday, July 5, 2021

Visualizing Distributions with Raincloud Plots (and How to Create Them with ggplot2)

Raincloud plots, that provide an overview of the raw data, its distribution, and important statistical properties, are a good alternative to classical boxplots. In this tutorial, I highlight the potential problem of boxplots, illustrate why raincloud plots are great, and show numerous ways how to create such hybrid charts in R with {ggplot2}.

Posted by Cédric · Sunday, June 6, 2021

Always coding. Passionate about design. Worried about nature. Proud dad.

QUICK LINKS

ggplot2 Tutorial
Evolution of a ggpplot

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4. More visual platforms

Posted by u/PieChartPirate **OC: 59** 16 days ago 🏅2 💬18 ⏱13 Ⓢ18 & 8 More

57.2k

OC **[OC] Walt Disney World Ticket Price Increase vs Wages, Rent, and Gasoline**

Walt Disney World Price Increase vs Wages, Rent, and Gasoline
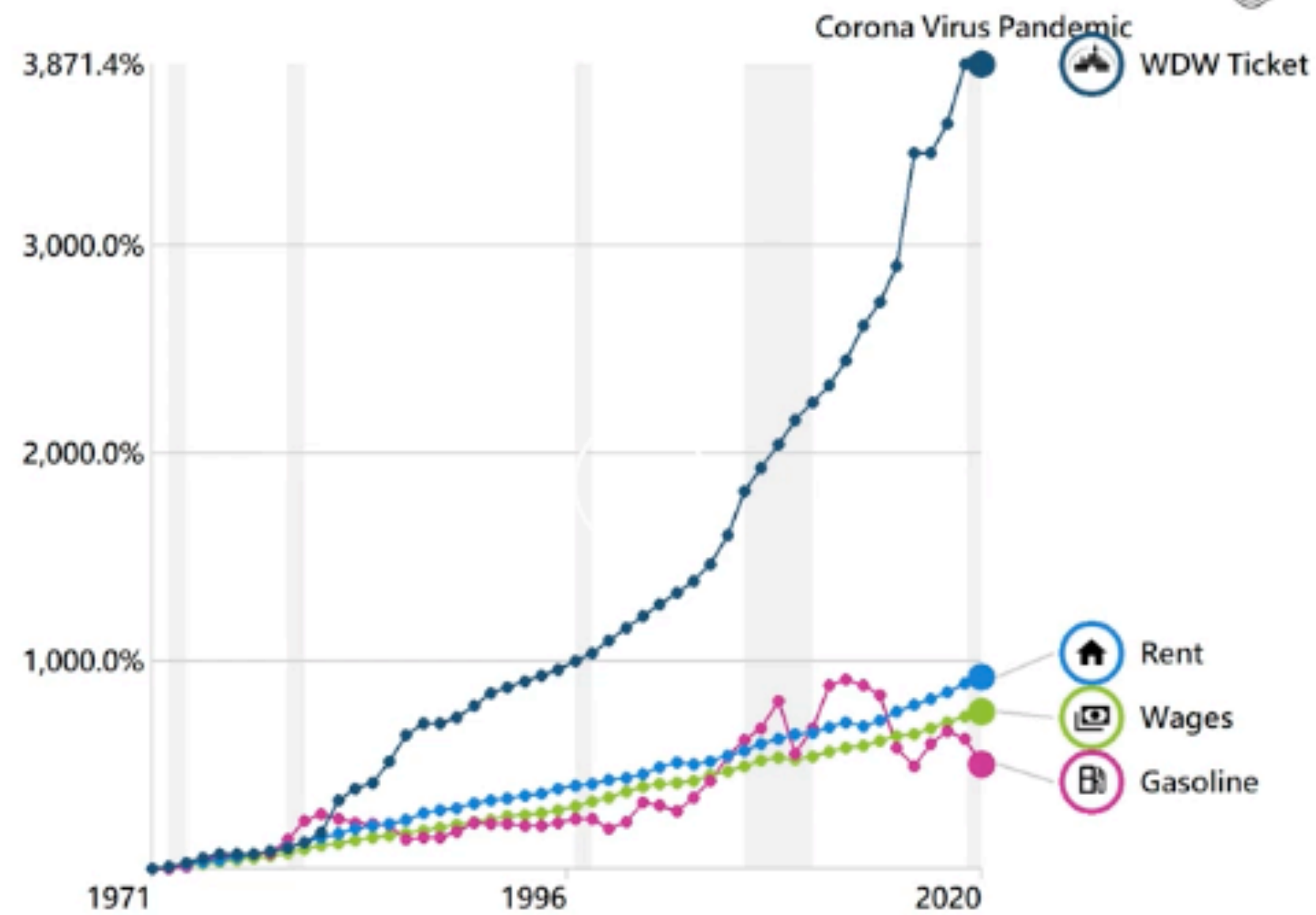
Corona Virus Pandemic

3,871.4% ─── WDW Ticket

3,000.0%

2,000.0%

1,000.0% ─── Rent
              ─── Wages
              ─── Gasoline

1971   1996   2020

2020   Pie Chart Pirate 📷

💬 3.2k Comments   ↗ Share   🔖 Save   ...

www.gurmanbhatia.com

Average number of dentist consultations per person per year

NETHERLANDS

CANADA

FRANCE

U.S.

U.K.

MEXICO
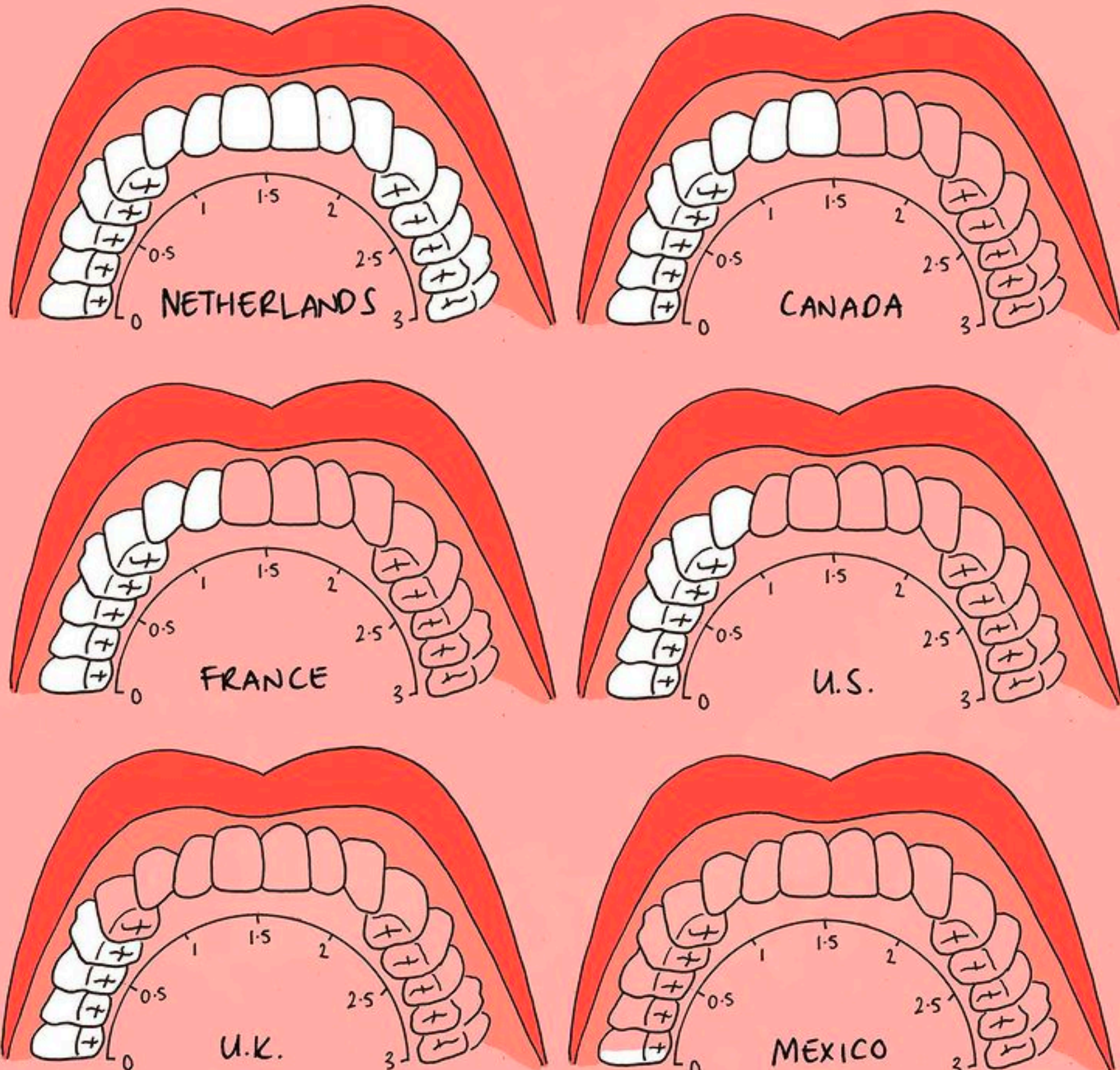
monachalabi ✓ In Brooklyn one summer, I was told two very different things by two very different dentists. Which one could I trust? I explore a toothy little mystery in episode 3 of the podcast Am I Normal.
Source: OECD data 2018-19

6 d

monachalabi ✓ ID: There's an outline of red lips and empty teeth against a pink background, the more teeth that are colored in white, the more that people in that country go see a dentist. The data shows: Netherlands 3 dentist consultations on average per year,
Canada 1.5, France 1.3, United States 1.1, United Kingdom 0.7 and Mexico 0.1

6 d   171 likes   Reply

www.gurmanbhatia.com

flotsam @researchremora · Oct 21
Today's population density map is Perú.

It was supposed to be México but there's something strange with the data —Monterrey has a huge spike, way higher than Ciudad de México, which seems wrong... (see next tweet)

#rayshader adventures, an #rstats tale

POPULATION DENSITY MAP OF
PERÚ
2020

Lima
Trujillo

💬 3   ⟲ 21   ♡ 83   ⬆

flotsam @researchremora · Oct 23
A population density map of long, slinky Chile. Took a bit of time to find an angle I like.

#rayshader adventures, an #rstats tale

Santiago

POPULATION DENSITY MAP OF
CHILE
2020

💬 19   ⟲ 430   ♥ 2.1K   ⬆

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LinkedIn
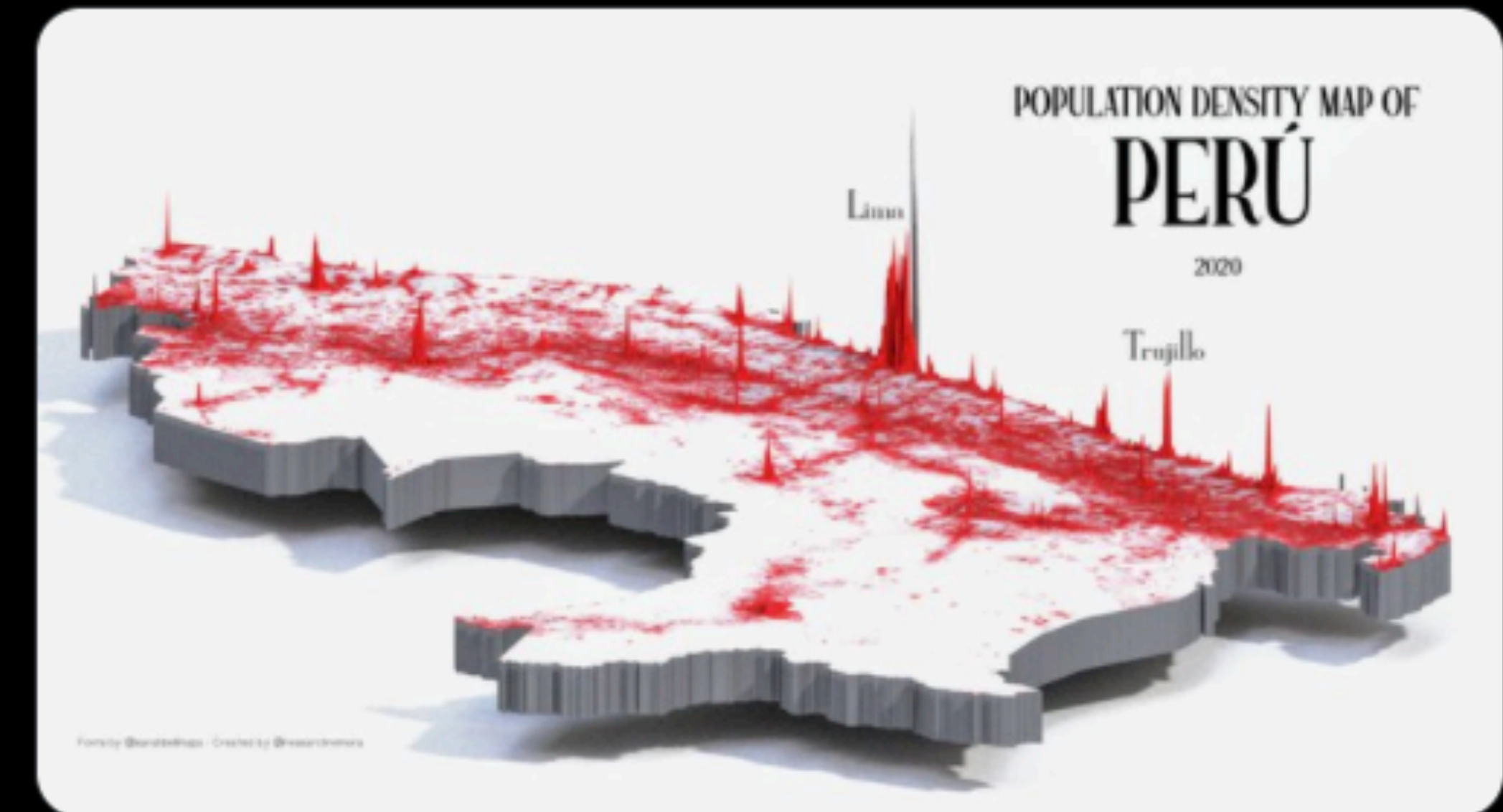
Craig Taylor · Following
Senior Data Visualisation Design Manager
5d · 🌐

City Dome | Tokyo, Shinjuku District 🏙️🎵
Evolving last week's LA Dome to this - a super detailed city model of
#Tokyo including procedural street lamps, trees for parkland & even little
aircraft warning lights on the tall buildings! Which do you prefer night or day?
#3d #map #gis #design #animation #concept

CITY DOME
Tokyo, Shinjuku District

👍❤️🌐 98 · 5 comments · 1,595 views

5. 🔼 Increasing visual and data literacy

More content means better familiarity

Deaths now above levels seen in spring
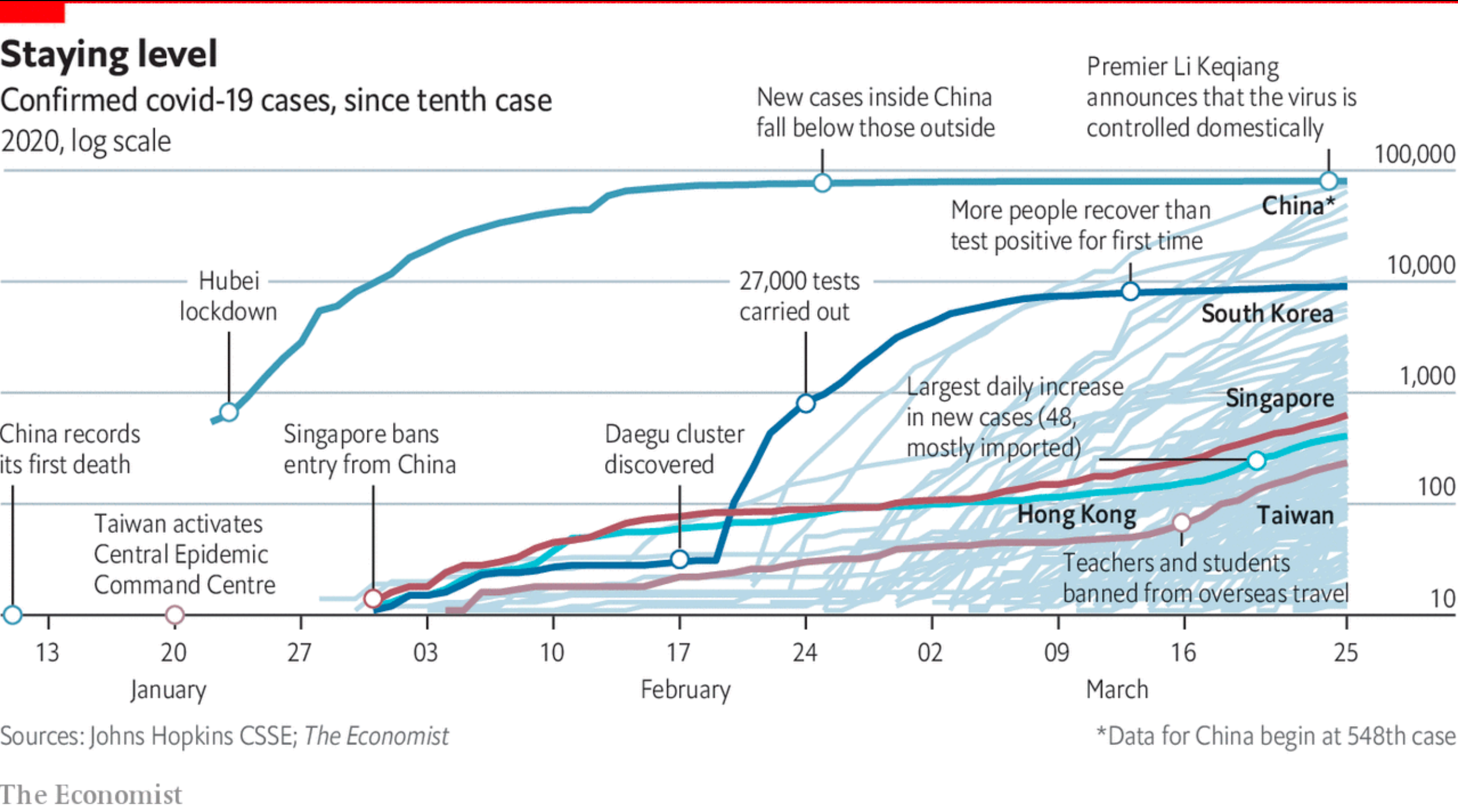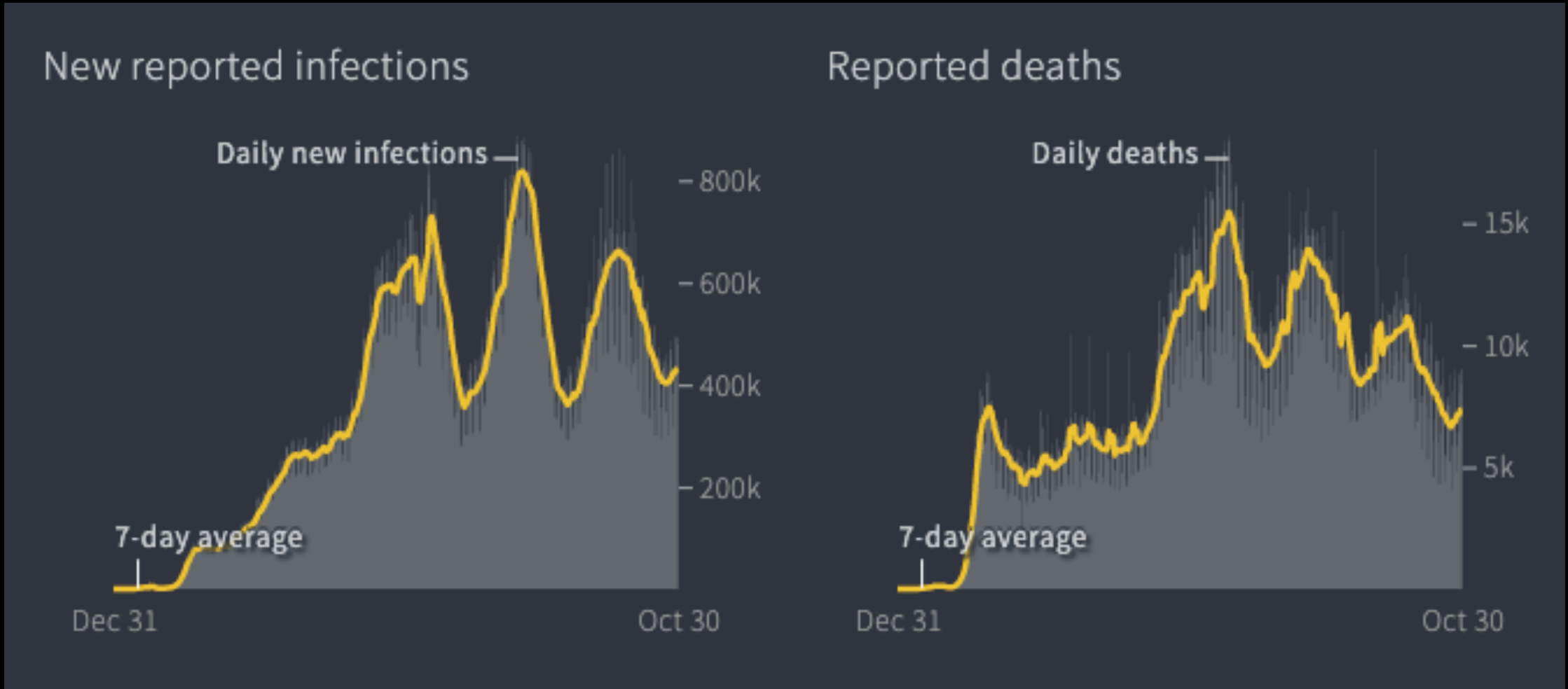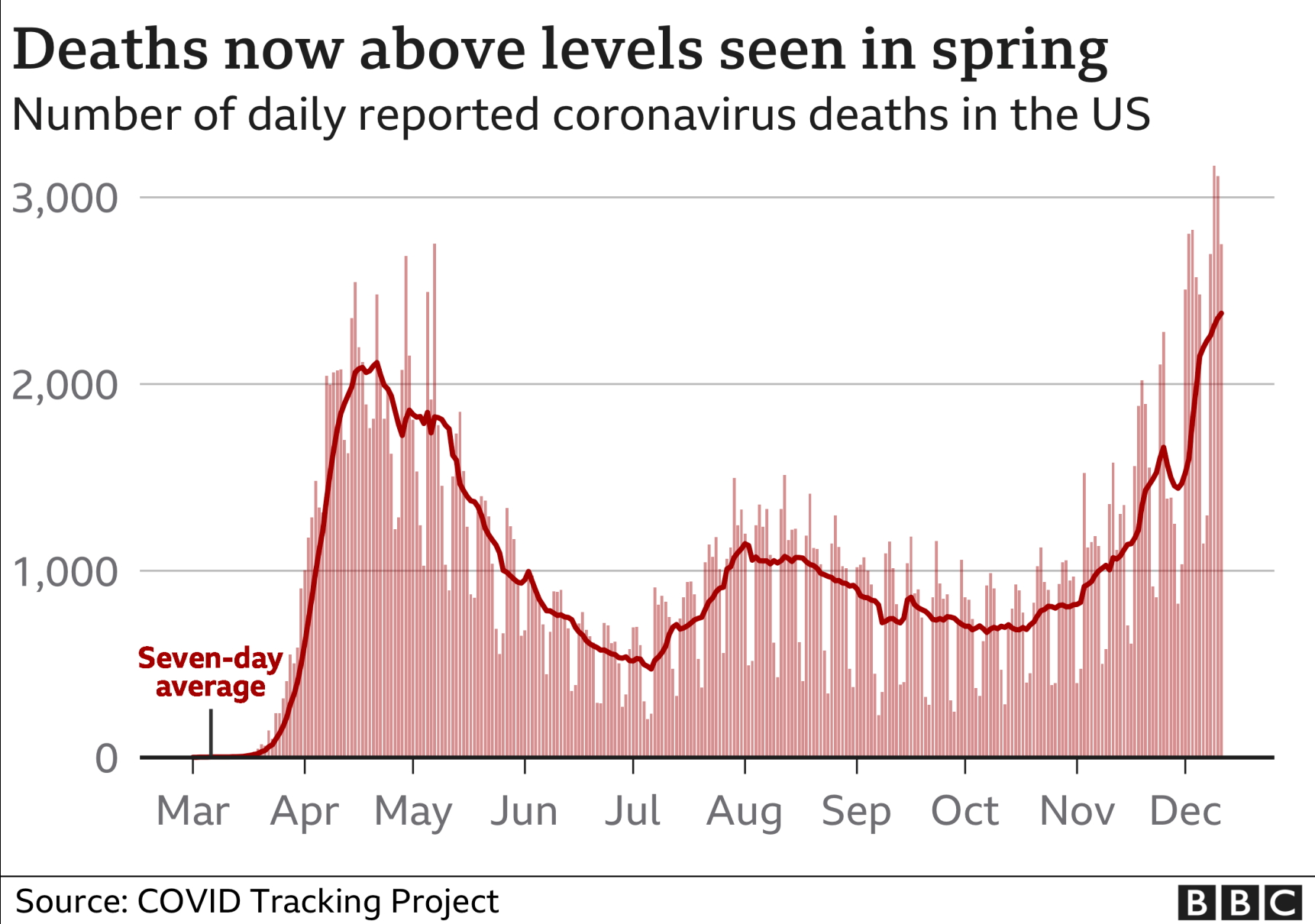Number of daily reported coronavirus deaths in the US

3,000

2,000

1,000

Seven-day average

0

Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Source: COVID Tracking Project

BBC

New reported infections

Daily new infections

800k
600k
400k
200k

7-day average

Dec 31   Oct 30

Reported deaths

Daily deaths

15k
10k
5k

7-day average

Dec 31   Oct 30

Show [**infections** | deaths] by [**count** | percent]

- Europe
- Asia and the Middle East
- Northern America
- Latin America and the Caribbean
- Africa
- Oceania

800k
600k
400k
200k
0

Jan

*Shows rolling 7-day average reported

Staying level
Confirmed covid-19 cases, since tenth case
2020, log scale

New cases inside China fall below those outside

Premier Li Keqiang announces that the virus is controlled domestically

Hubei lockdown

27,000 tests carried out

More people recover than test positive for first time

100,000

China*

10,000

South Korea

China records its first death

Singapore bans entry from China

Daegu cluster discovered

Largest daily increase in new cases (48, mostly imported)

Singapore

1,000

Taiwan activates Central Epidemic Command Centre

Hong Kong

Taiwan

100

Teachers and students banned from overseas travel

10

13   20   27   03   10   17   24   02   09   16   25

January   February   March

Sources: Johns Hopkins CSSE; The Economist

*Data for China begin at 548th case

The Economist

6. A slow and steady shift to stronger communication techniques

About 2 Million Guns Were Sold in the U.S. as Virus Fears Spread

By Keith Collins and David Yaffe-Bellany   April 1, 2020
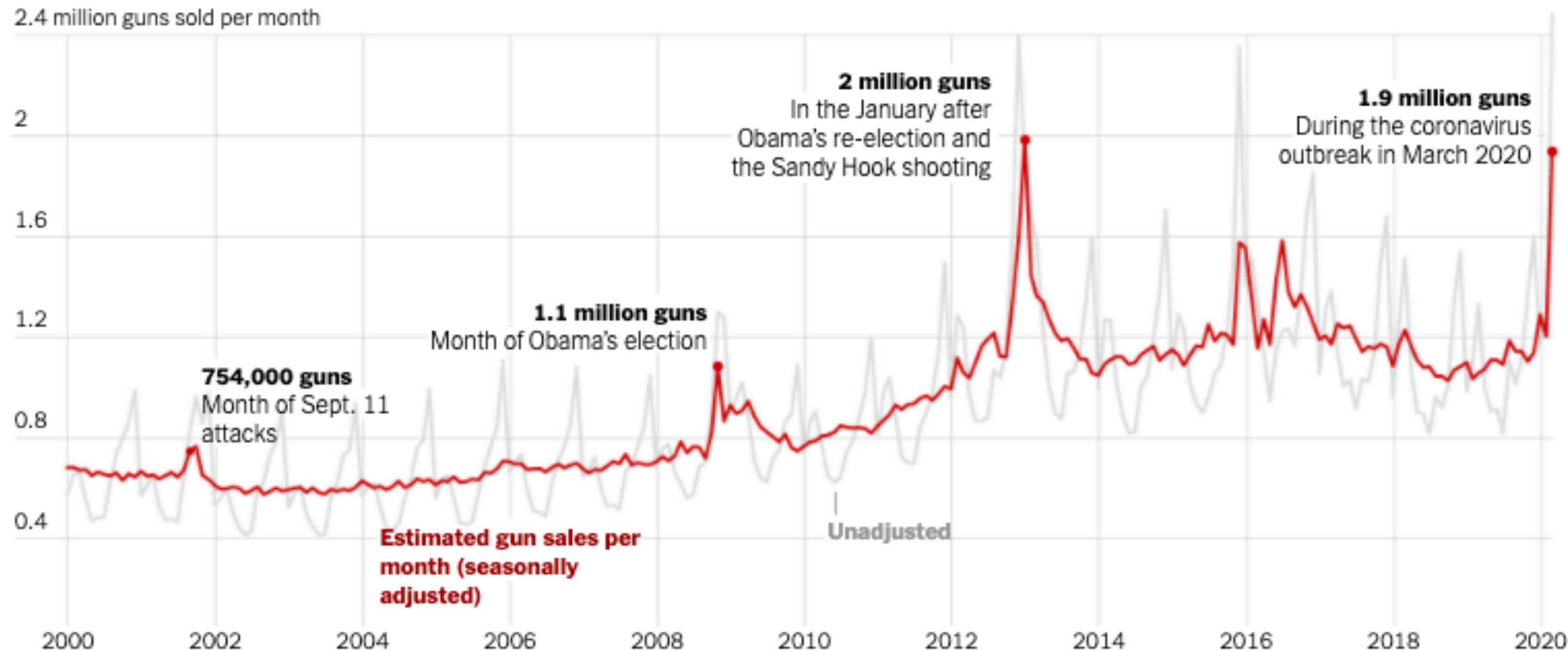
Source: The New York Times

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"The annotation layer is the most important thing we do"

—Amanda Cox, Editor, Upshot

7. More data!

A DAY IN DATA

The exponential growth of data is undisputed, but the numbers behind this explosion – fuelled by internet of things and the use of connected devcies – are hard to comprehend, particularly when looked at in the context of one day

DEMYSTIFIYING DATA UNITS

From the more familiar 'bit' or 'megabyte', larger units of measurement are more frequently being used to explain the masses of data

Unit		Value	Size
b	bit	0 or 1	1/8 of a byte
B	byte	8 bits	1 byte
KB	kilobyte	1,000 bytes	1,000 bytes
MB	megabyte	1,000² bytes	1,000,000 bytes
GB	gigabyte	1,000³ bytes	1,000,000,000 bytes
TB	terabyte	1,000⁴ bytes	1,000,000,000,000 bytes
PB	petabyte	1,000⁵ bytes	1,000,000,000,000,000 bytes
EB	exabyte	1,000⁶ bytes	1,000,000,000,000,000,000 bytes
ZB	zettabyte	1,000⁷ bytes	1,000,000,000,000,000,000,000 bytes
YB	yottabyte	1,000⁸ bytes	1,000,000,000,000,000,000,000,000 bytes

*A lowercase "b" is used as an abbreviation for bits, while an uppercase "B" represents bytes.

463EB
of data will be created every day by 2025

IDC

500m
tweets are sent every day

Twitter

4PB
of data created by Facebook, including

350m photos
100m hours of video watch time

Facebook Research

95m
photos and videos are shared on Instagram

Instagram Business

65bn
messages sent over WhatsApp and two billion minutes of voice and video calls made

Facebook

320bn
emails to be sent each day by 2021

294bn
billion emails are sent

Radicati Group

306bn
emails to be sent each day by 2020

3.9bn
people use emails

4TB
of data produced by a connected car

Intel

28PB
to be generated from wearable devices by 2020

Statista

Searches made a day — **5bn**

Searches made a day from Google — **3.5bn**
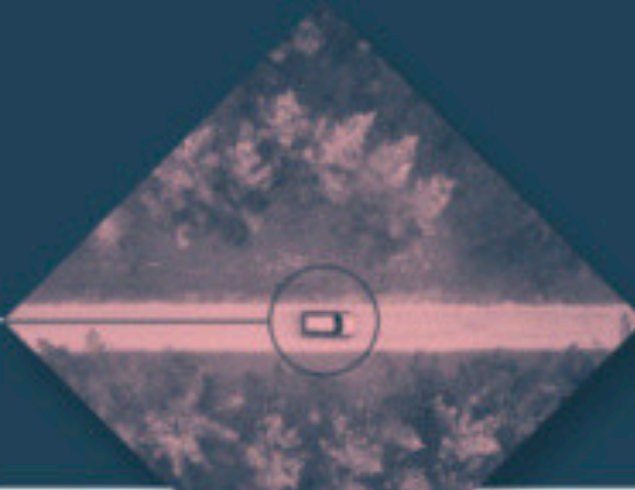
Smart Insights

ACCUMULATED DIGITAL UNIVERSE OF DATA

4.4ZB
2013

44ZB
2020

PwC

RACONTEUR

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But we have much further to go...

1. We still are pretty bad at communicating uncertainty

Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.

7 AM Wed

7 AM Tue

7 AM Mon

7 AM Sun

7 PM Sat

7 AM Sat

10 AM Fri

Subtropical Storm Alberto
Friday May 25, 2018
10 AM CDT Advisory 1
NWS National Hurricane Center

Current information: ⊙
Center location 19.7 N 86.8 W
Maximum sustained wind 40 mph
Movement NNE at 6 mph

Forecast positions:
● Tropical Cyclone ○ Post/Potential TC
Sustained winds: D < 39 mph
S 39-73 mph H 74-110 mph M > 110 mph

Potential track area:
☐ Day 1-3   ▨ Day 4-5

Watches:
Hurricane   Trop Storm

Warnings:
Hurricane   Trop Storm

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Biden is *favored* to win the election

We simulate the election 40,000 times to see who wins most often. The sample of 100 outcomes below gives you a good idea of the range of scenarios our model thinks is possible.

Trump wins
10 in 100

Biden wins
89 in 100

+300   +200   +100   +100   +200   +300

ELECTORAL VOTE
MARGIN

TIE

● Trump win ● Biden win
● No Electoral College majority, House decides election

2. More data also means more noise to filter through

IT Services Desk

Tickets by Status

181 Critical | 299 High | 201 Medium | 245 Low | All Tickets

32.4% · 34.3% · 33.3%

KPIs
Resolution Rate — 7...
Agent Utilization — 9...

Satisfaction Rate
68% · 13% · 19%

Tickets by Customer - All
State Grid · Texaco · Sinopec · Wallmart · Caltex · Volkswagon

Tickets By Category - All Priority
Software, Applications, PC, Network, Facilities, Email, Printer, Security, Phone, Mainframe, Financial Systems, Request, HR, Pharma Equipment, Medical Equipment, Hardware

Open and Acknowledged Tickets - All
300 Open · 308 Acknowledged

SLA Violations - All
Tickets by Age - All
< Month: 29
4 - 6 Months: 55
1 - 3 Months: 94
> 6 Months: 430

047.0%
Wallmart

SLA Violations by Month
Critical · High · Medium · Low

Overall Progress 78%

Planning — Completed
Design — Completed
Development — 67%
Testing — Waiting

Projected Launch Date
Friday, December 15
121 Days

Risks
8.1% Currently Over Target Budget
2 Overdue Tasks (High Risk)
2 Overdue Tasks (Medium Risk)

Project Budget
Total Budget $52,000
Remaining $8,770
Currently 8.1% Over Target
Total Budget / Budget Amount Used / Target Amount Used

Overdue Tasks

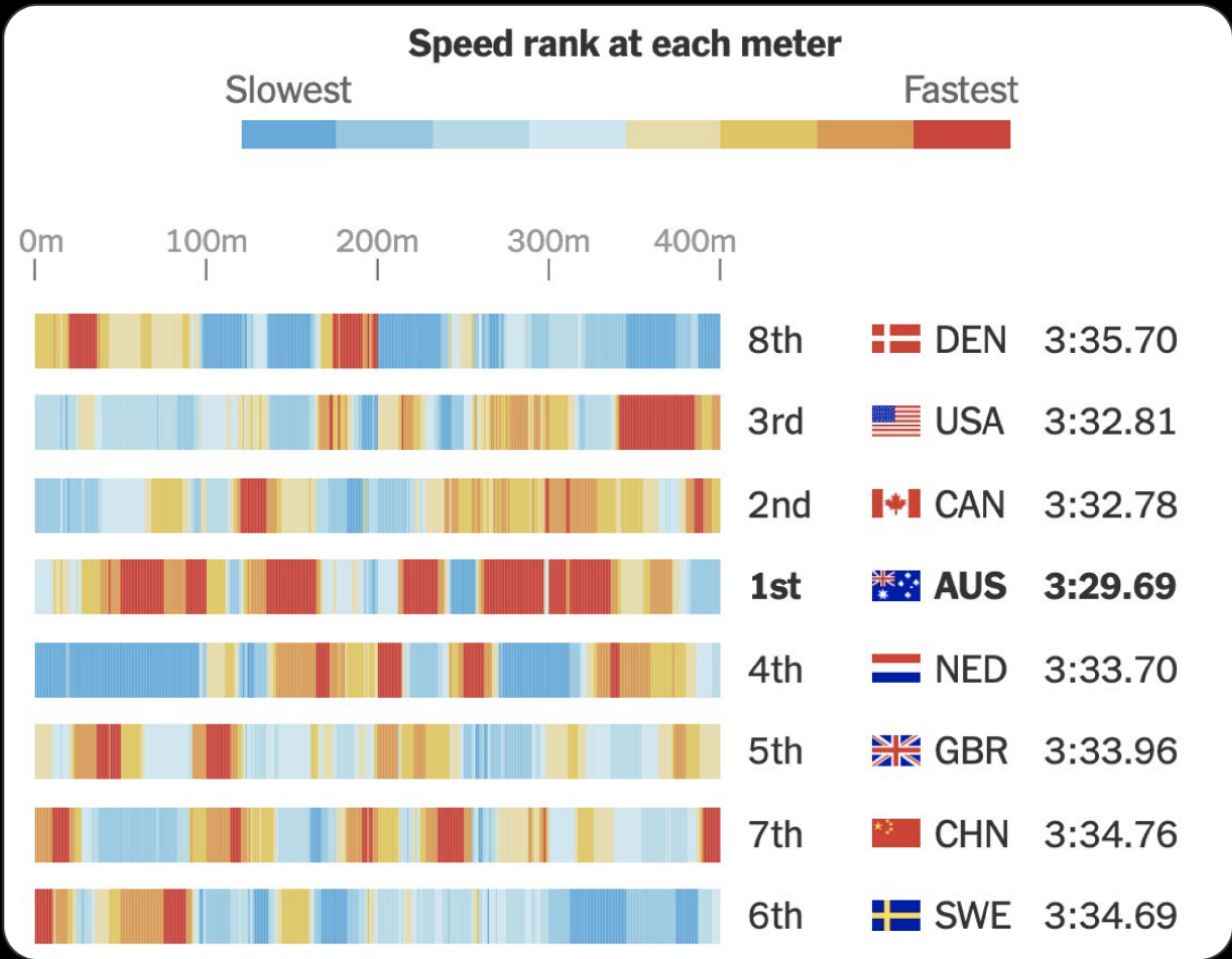| Overdue	Task	Deadline	Employee
1 Day	Status Update For Board	2017-08-15	Paula
4 Days	Finish UX Optimizations	2017-08-12	Catherine
10 Days	Configure Mobile View	2017-08-06	Nancy
24 Days	Relational Database Connections	2017-07-23	Georg

Project Log

Task Finished — 3 Days
Paula finished task
Submit expense report

New Comment — 1 Day
Georg commented on task
Optimize Drill-Down Filter

Task Finished — 1 Day
Georg finished task
Optimize Drill-Down Filter

Task Overdue — 1 Day
Task Status Update for board is overdue.

View all project logs

Project Summary
Start Date: 2017-05-01
End Date: 2017-12-15
Project Leader: Georg Danwill
Overall Status: In Time

Avg Handle Time (In Days) For Project-Task
Georg 5.3 · Kate 4.5 · Nancy 3.7 · Paula 7.7 · Richard 6.4

Upcoming Deadlines

Employee	Task	Deadline	Workload
Catherine	Interactive Dashboard Features	2017-08-21	34%
Georg	Facebook API Connector	2017-08-30	56%
Nancy	Set-Up Test Environment	2017-09-29	15%
Paula	Finalize Testing Plan	2017-10-12	11%

Power BI — Sales and Marketing — Sales and Marketing Sample

File · Chat in Teams · Comment · Subscribe · Edit

Ask a question about your data

Home · Favorites · Recent · Create · Datasets · Goals · Apps · Shared with me · Discover · Learn · Workspaces · Sales and Marketing

Total Volume IN 2014: 50K
Market Share LAST 12 MONTHS: 32.86%
Our Total Volume IN 2014: 16K
Sentiment: 68
Sentiment Gap: 4
Total Units: 1M

% Units Market Share vs. % Units Market Share Rolling 12 Months BY MONTH

Total Units Overall BY SEGMENT
Productivity, Convenience, Moderation, Extreme, Select, Youth, All Season, Regular

Total Units YTD Variance % BY MONTH, MANUFACTURER
Manufacturer: Aliqui, Natura, Pirum, VanArsdel

Total Units YTD BY MANUFACTURER, REGION
VanArsdel, Aliqui, Pirum, Quibus, Abbas, Vict..., Po..., Natura, Currus, Fama, Barba, Leo, Salvus

Total Units for 2014 BY MONTH, MANUFACTURER
Manufacturer: Aliqui, Natura, Pirum, VanArsdel

Industry % Market Share YOY Change BY ROLLING PERIOD, REGION
Region: Central, East, West

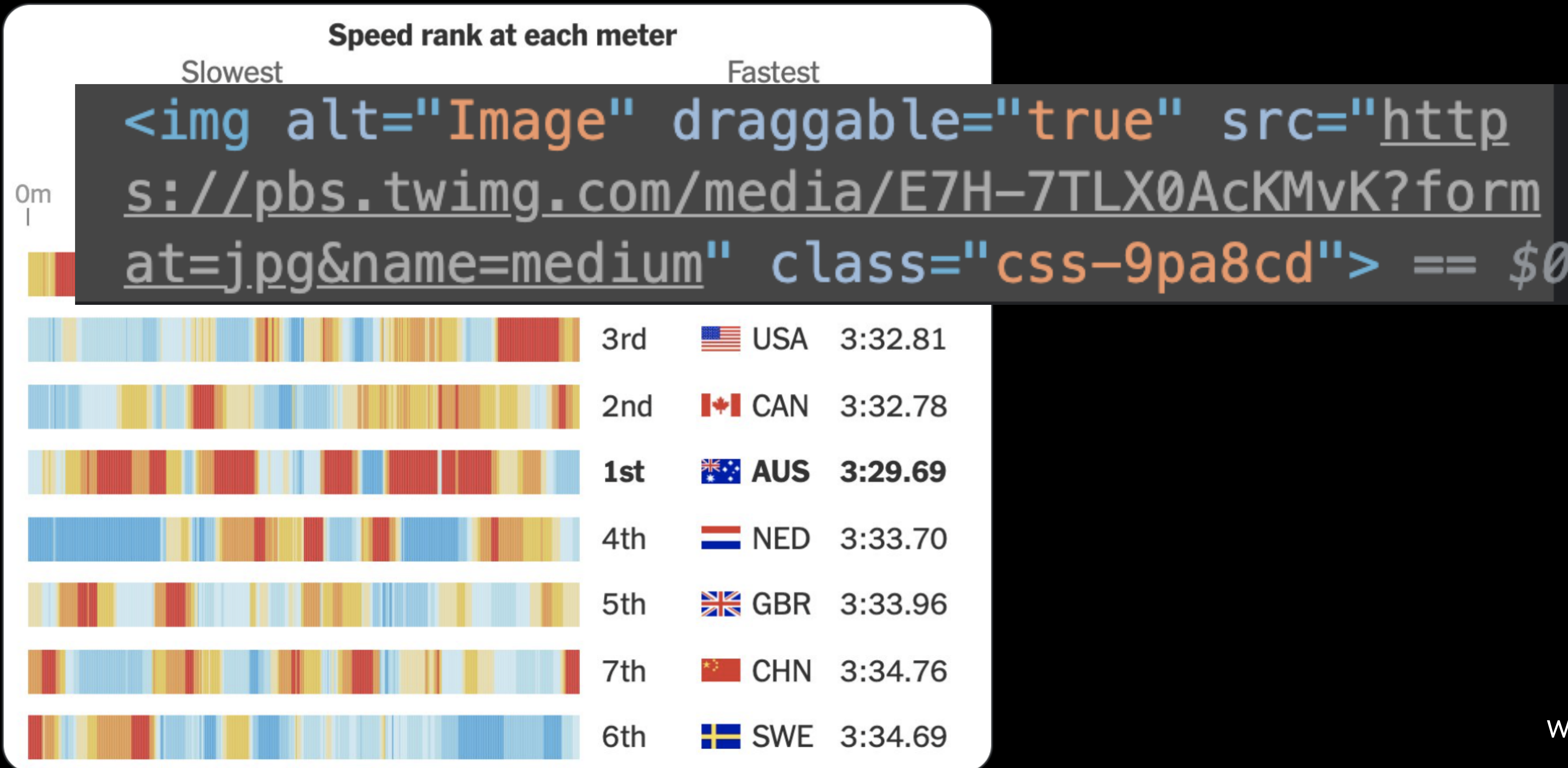Get data

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3. A lot of dataviz is still not "accessible"

See how Australia dominated the women's 4x100 freestyle relay, swimming some of the fastest speeds across all four legs. nytimes.com/interactive/20...

Speed rank at each meter

Slowest   Fastest

0m

```
<img alt="Image" draggable="true" src="http
s://pbs.twimg.com/media/E7H-7TLX0AcKMvK?form
at=jpg&name=medium" class="css-9pa8cd"> == $0
```

3rd	🇺🇸 USA	3:32.81
2nd	🇨🇦 CAN	3:32.78
1st	🇦🇺 **AUS**	**3:29.69**
4th	🇳🇱 NED	3:33.70
5th	🇬🇧 GBR	3:33.96
7th	🇨🇳 CHN	3:34.76
6th	🇸🇪 SWE	3:34.69

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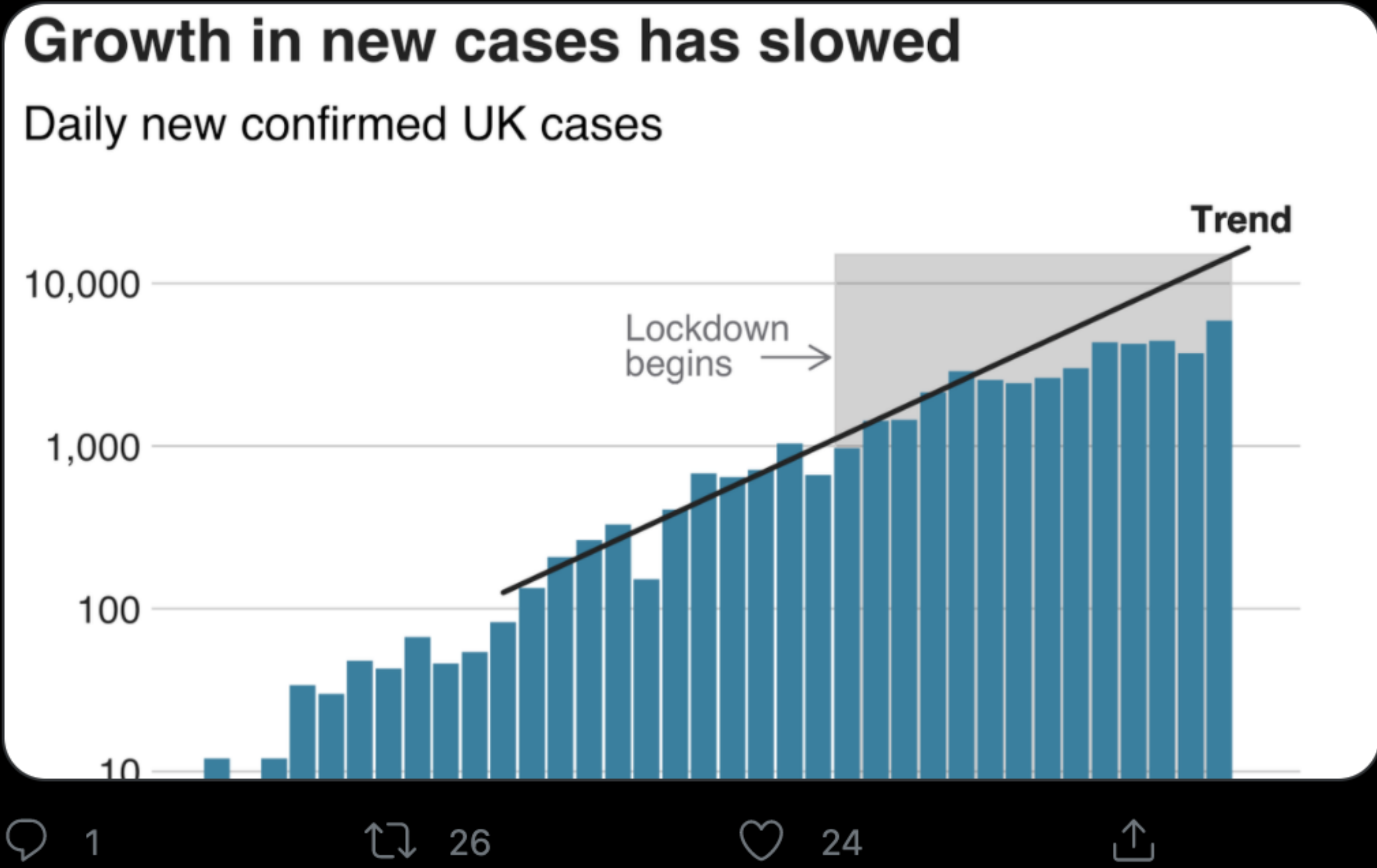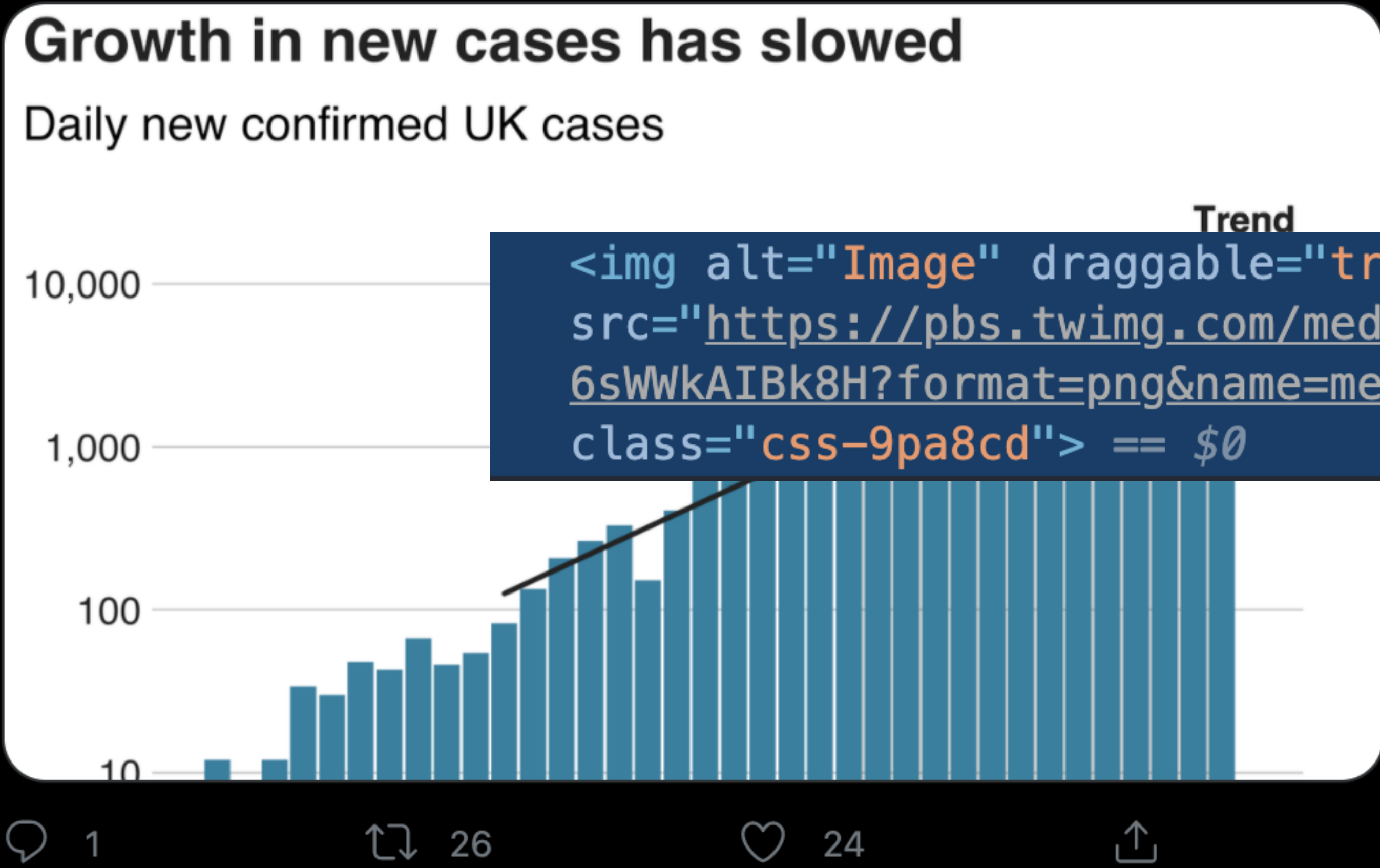
Monday, 23. November 2020

How (not) to make accessible data visualizations, illustrated by the US presidential election.

Dataviz # Accessibility # Design # Development
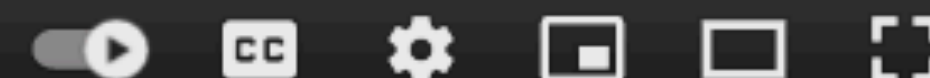
4. Our tools still don't help us achieve "data variety"

"The Future of Data Visualization" - Jeffrey Heer (Strata + Hadoop 2015)

152,421 views • Feb 21, 2015

"Show data variation, not design variation"

– Edward Tufte

The humans still have to innovate with the questions...

How can our tools help us ask better questions?

Finding the data and the story

Communicating the story

Finding the data
and the story

www.gurmanbhatia.com

No amount of design can save a bad story.

Thank you

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