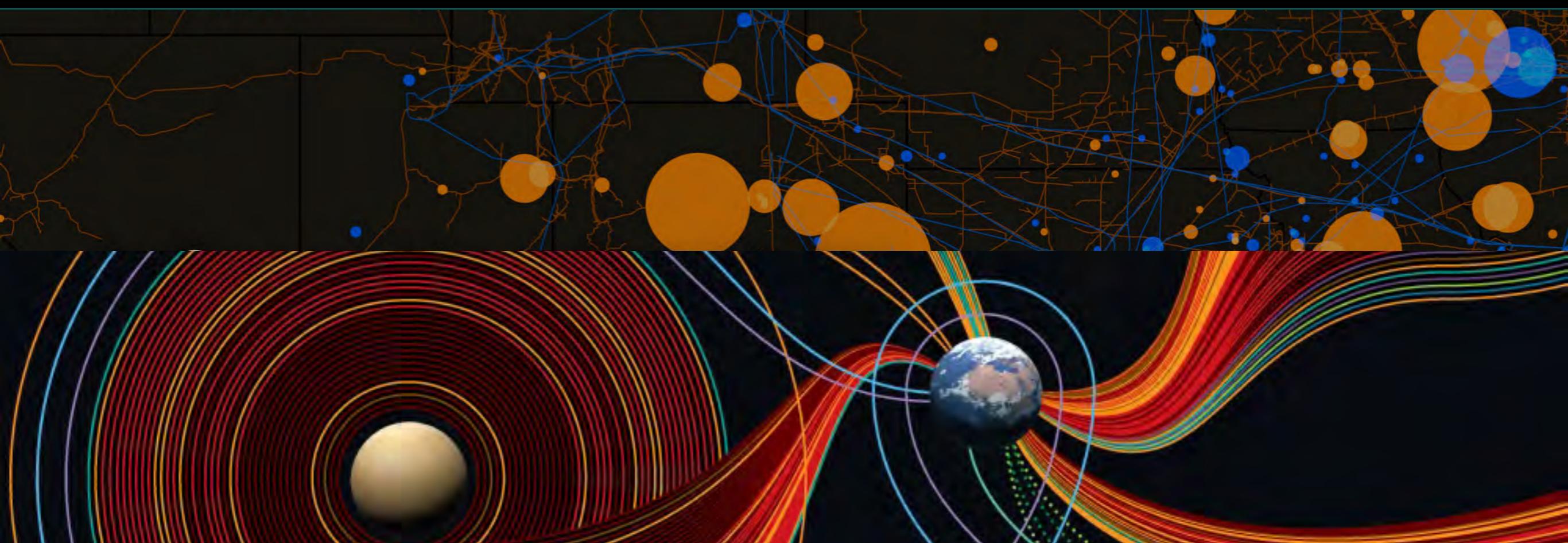


# Perception and data visualization design principles



ONLINE WORKSHOP • MARCH 5 & 12, 2021

Juan Velasco - 5W Infographics  
@juanvelasco



# Day 2

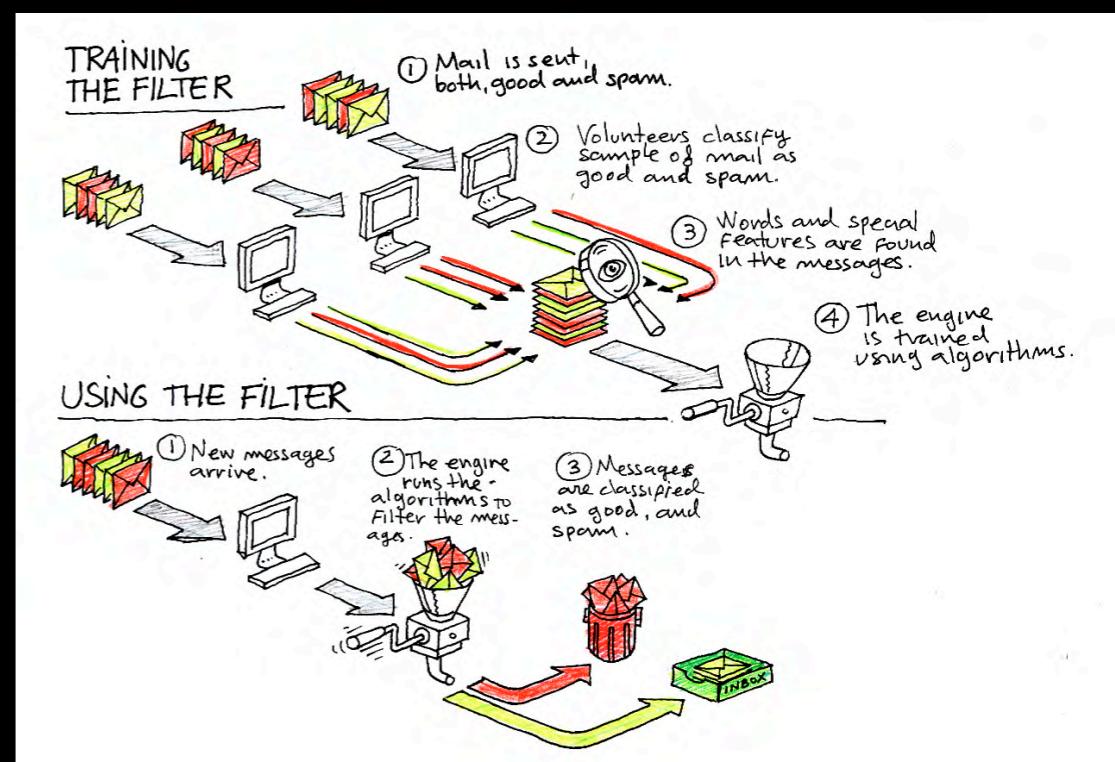
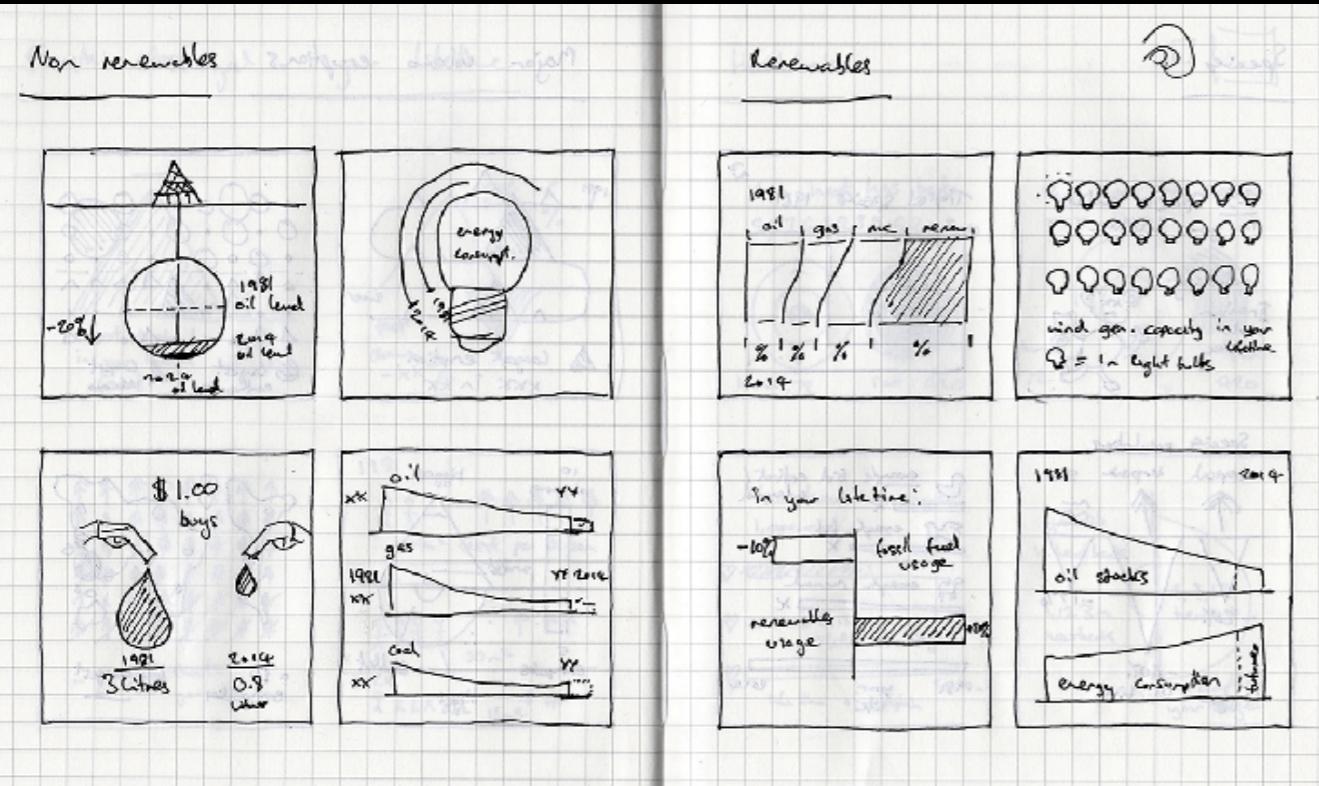
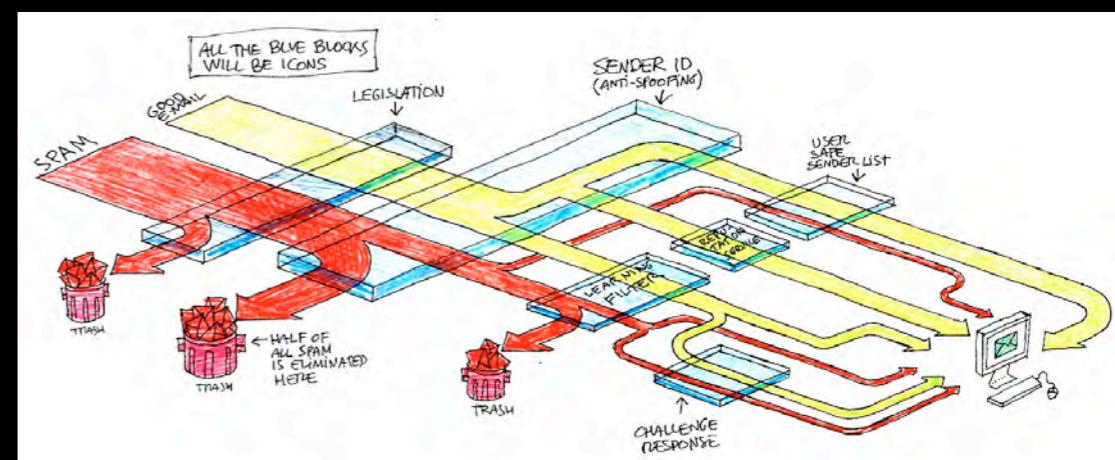
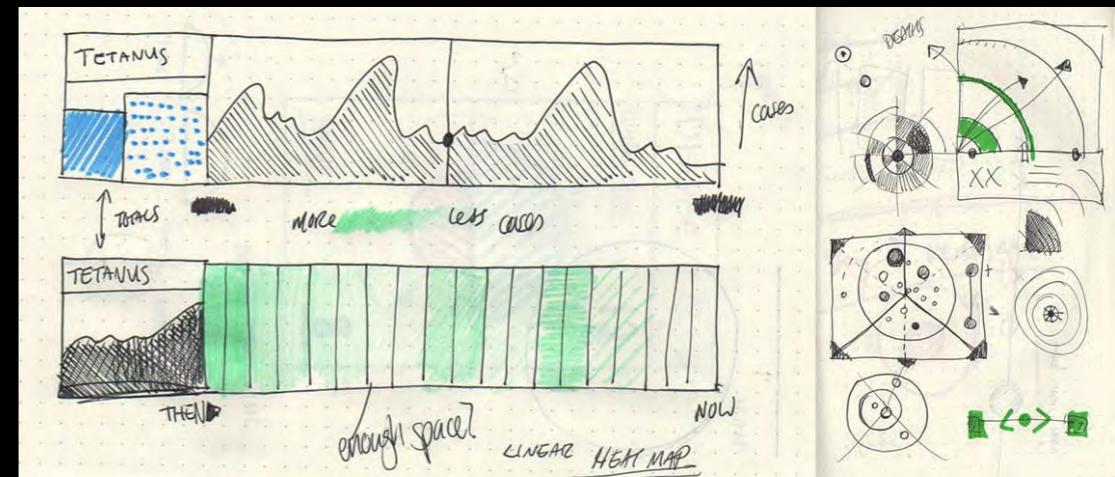
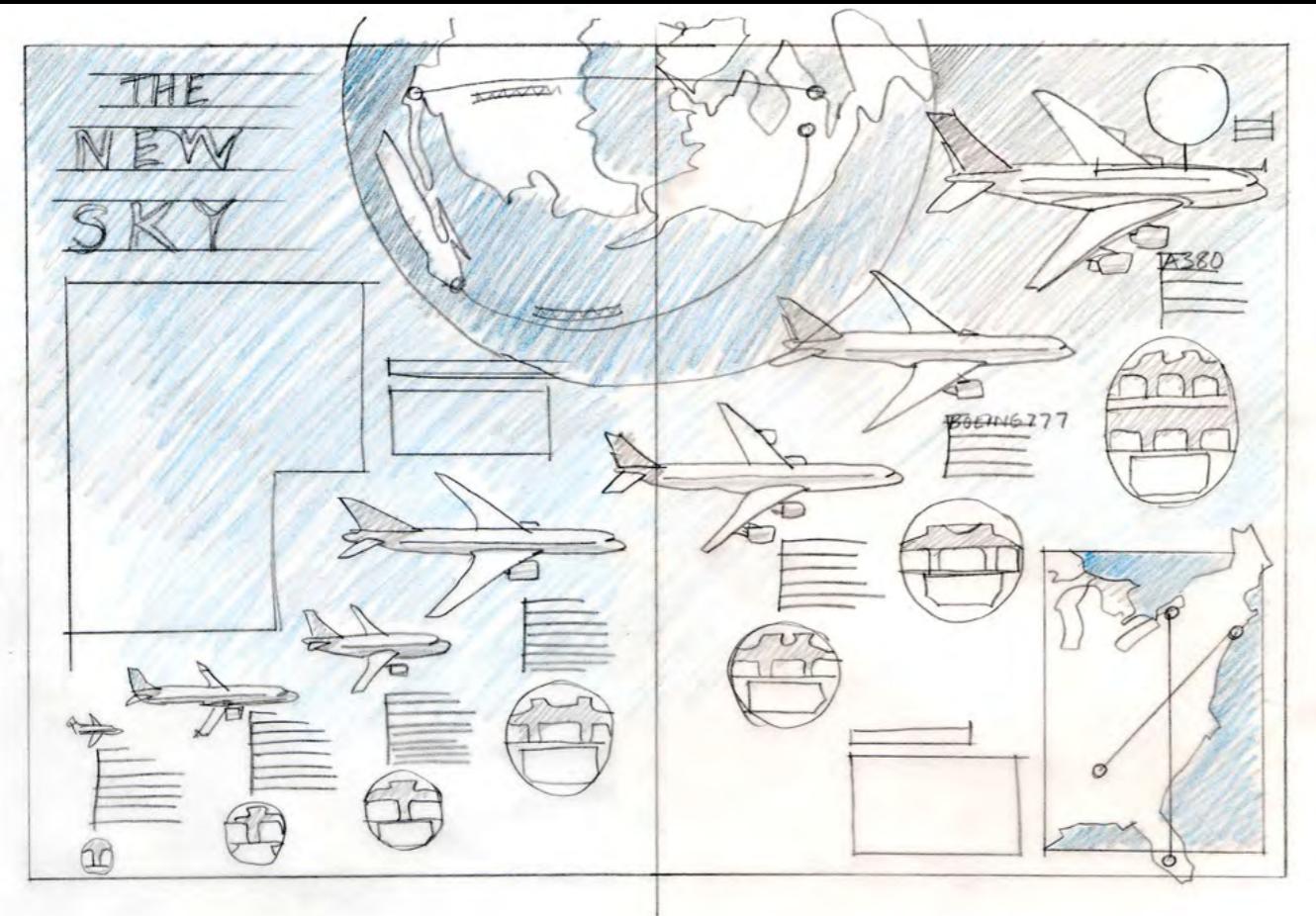
**DAY 2**

# Infographics and dataviz **design**

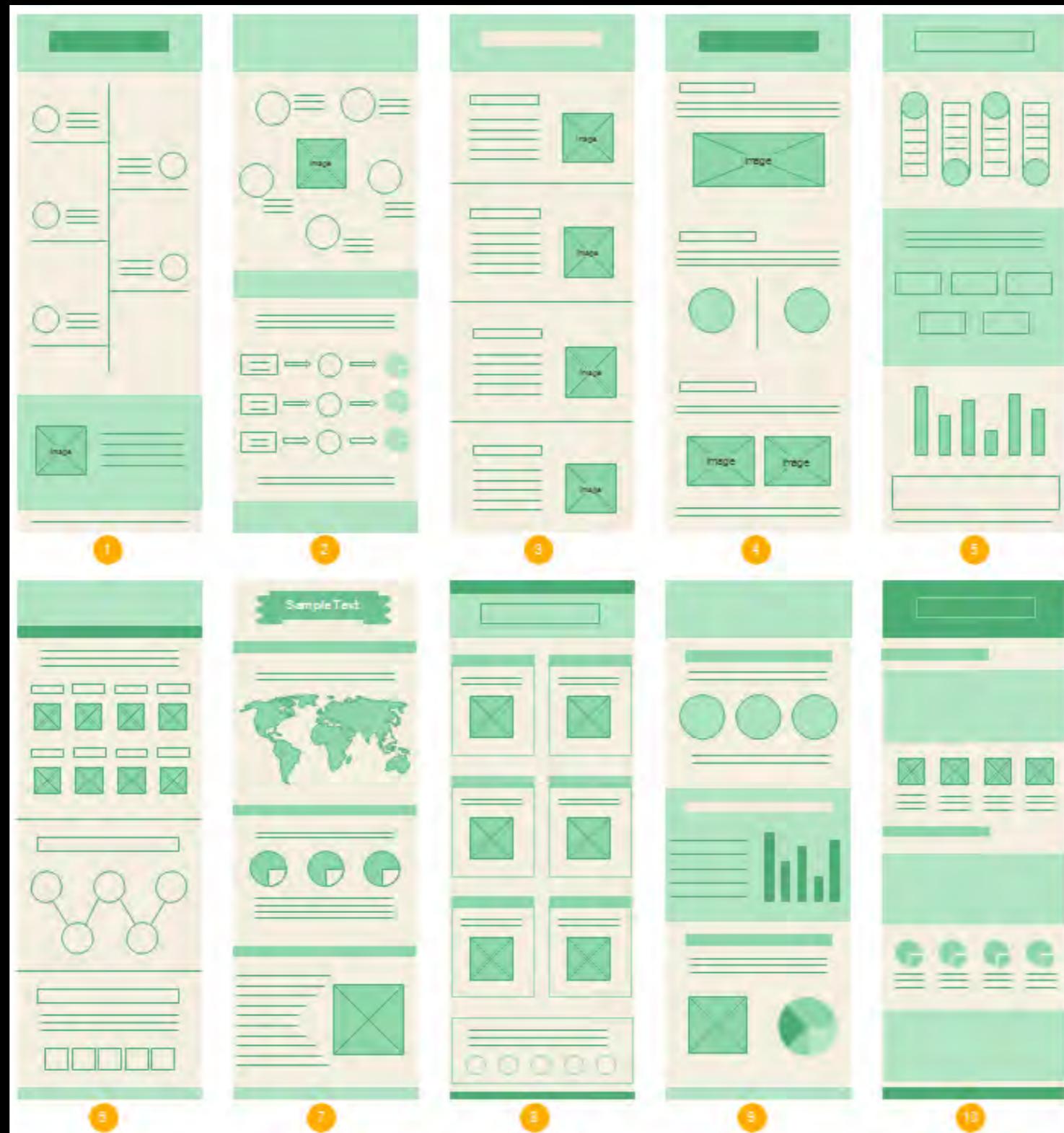
# 1

Use the most sophisticated  
tool in data visualization



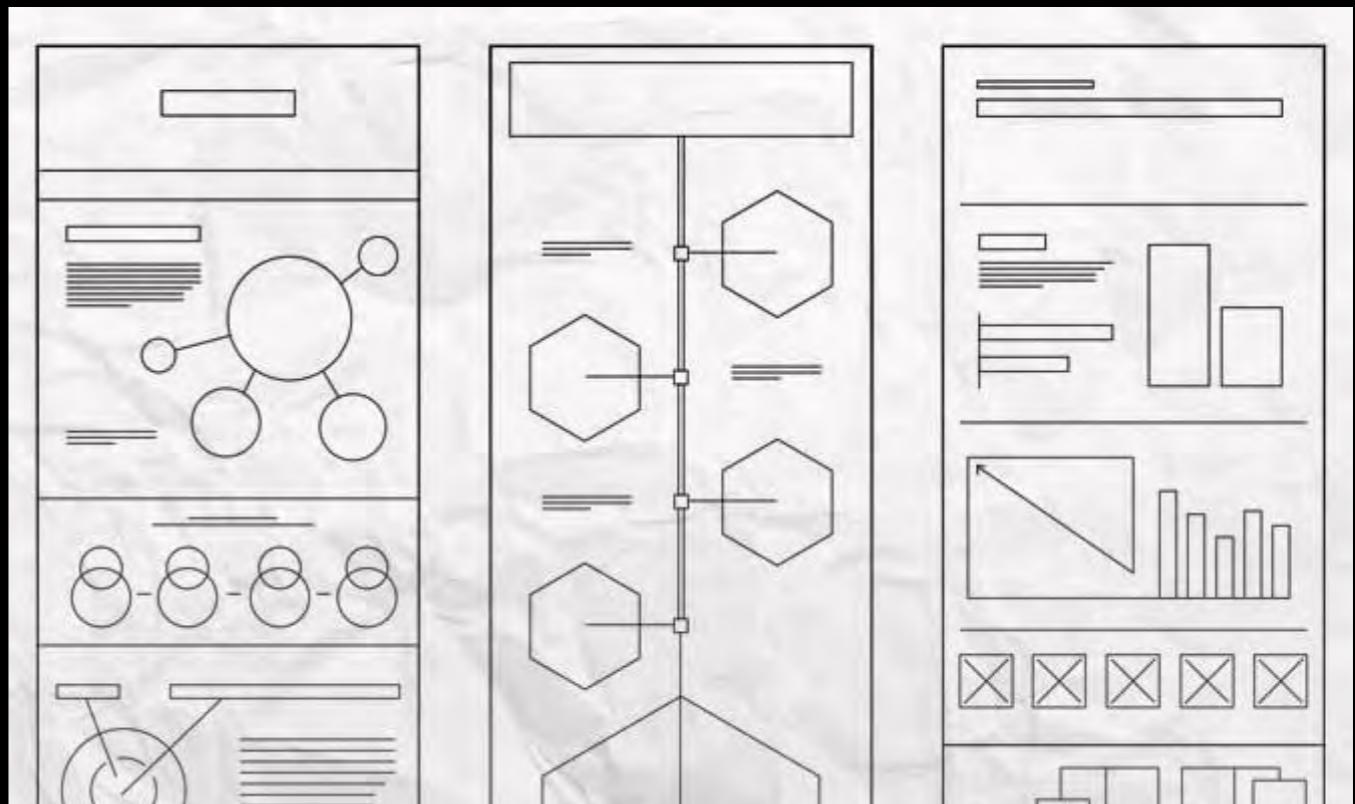
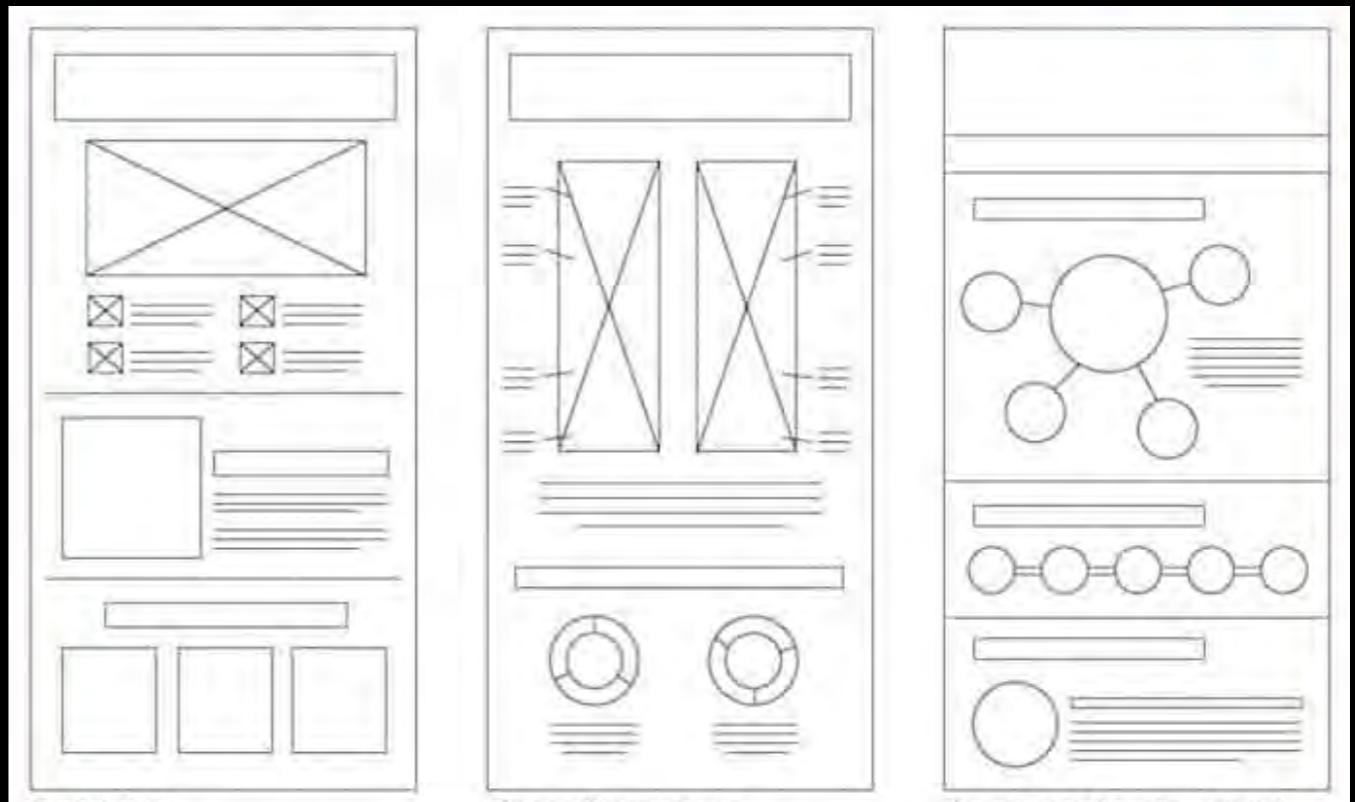


# Wireframe



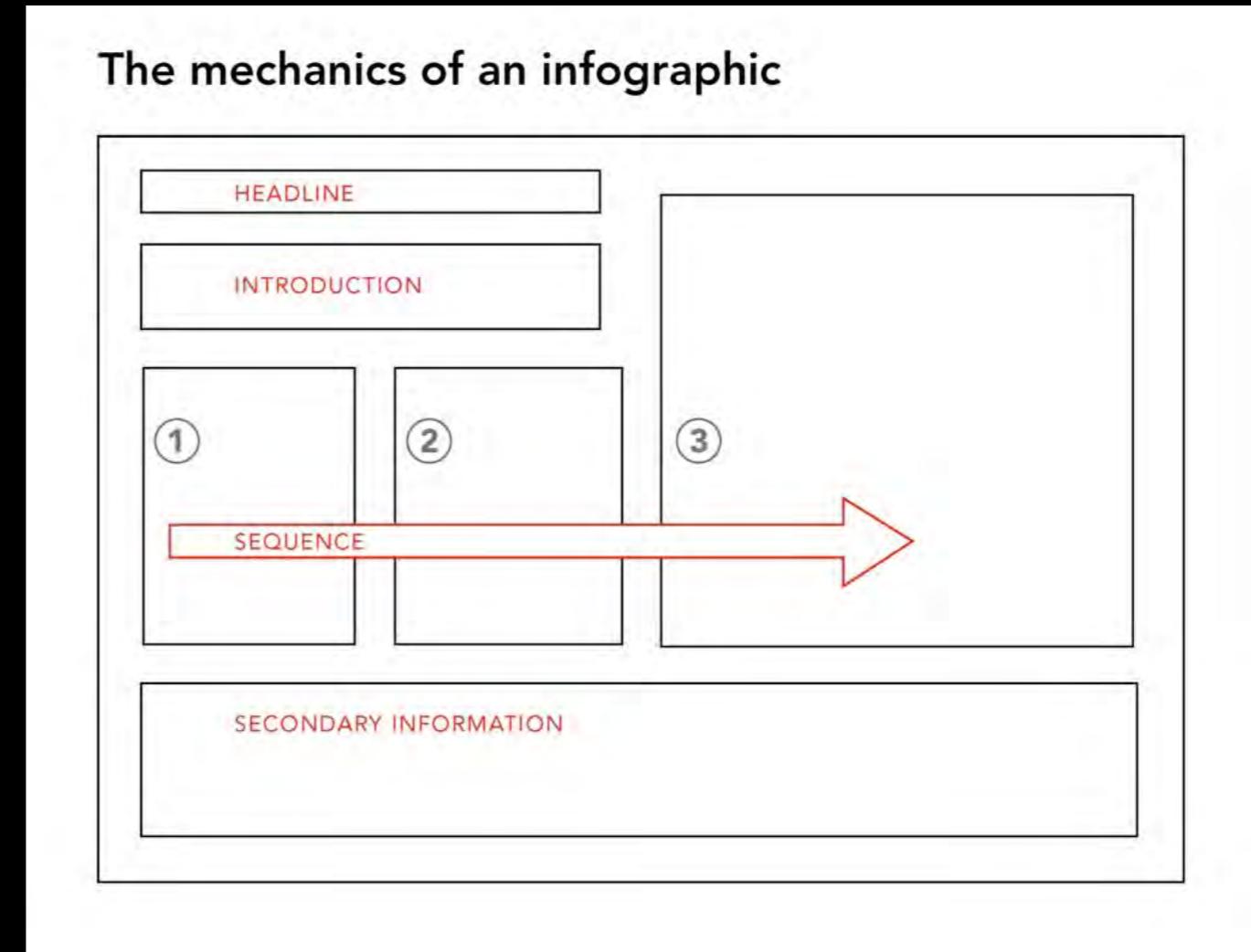
# Wireframe

- Distribute space
- Create hierarchy levels
- Account for text headings and captions where they will be needed
- Determine narrative flow
- Find visual variety and pace within a grid



# 2

Define a clear reading order



## How the Surgery Is Done

750,000 Americans are expected to get LASIK surgery next year. Here's the 15-min. procedure, step by step:

1 A liquid anesthetic is dropped into the patient's eye, numbing it for surgery. The physician then gently props the eyelids open and marks the cornea with water-soluble ink to guide the later repositioning of the flap.

2 A suction ring holds the eye steady while the platform for the microkeratome, a cutting instrument, is put in place. Pressure is applied to the eye so that it is firm enough to be cut cleanly. This also dims vision.

3 After the cornea is moistened, the microkeratome glides across its surface, cutting through the outer layers. The instrument stops automatically, leaving an uncut section to act as a hinge.

4 After the suction is turned off and the cutting device removed, vision returns. The surgeon carefully lifts the still attached corneal flap out of the way, exposing the underlying layers that must be excised by the laser.

5 Guided by a computer program, the excimer laser reshapes the cornea. To correct nearsightedness, the laser trims the cornea's center, making it flatter. For farsightedness, a doughnut-shaped ring of tissue is removed. The flap is then put back in place.

Cornea bed after reshaping  
Cornea bed before reshaping  
Flap is one-third inch diameter

Each laser pulse removes ten-millionths of an inch in twelve-billionths of a second

Source: LASIK Institute; Dr. Alan N. Carlson, Duke University Medical Center

### Poor Eyesight Can Be Improved ...

**The Goal: 20/20**  
If you can read letters three-eighths of an inch high from 20 feet away, you have 20/20 vision.

**Nearsightedness**  
Either the cornea is too steep or the eyeball too long; light from distant objects focuses in front of the retina.

**Astigmatism**  
An irregular curvature of the cornea that prevents light from focusing on a single point.

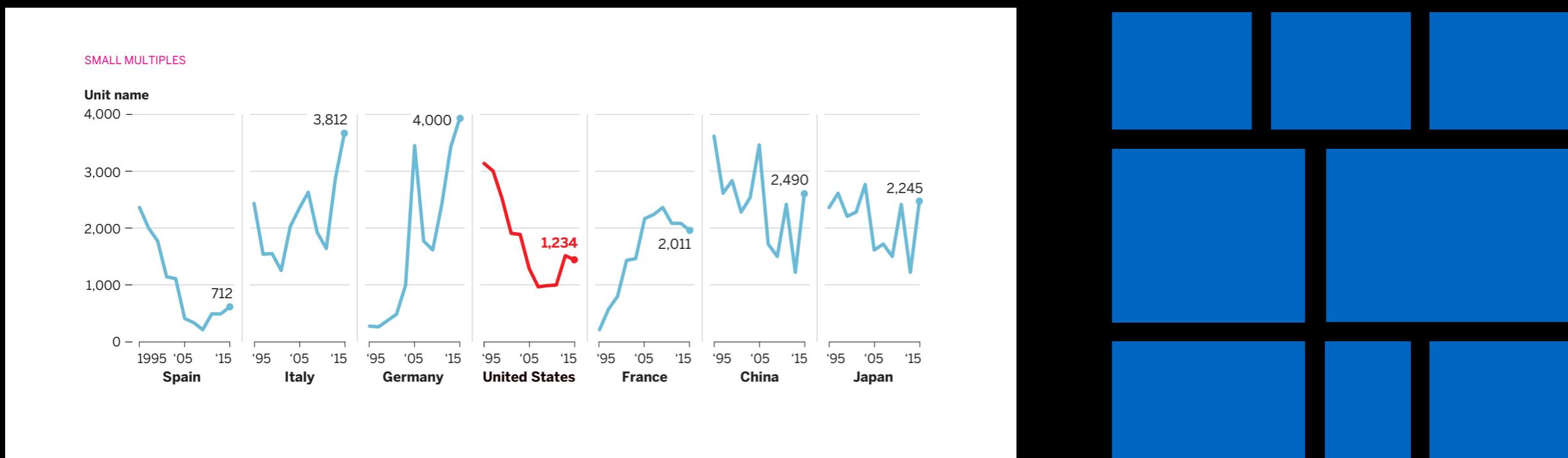
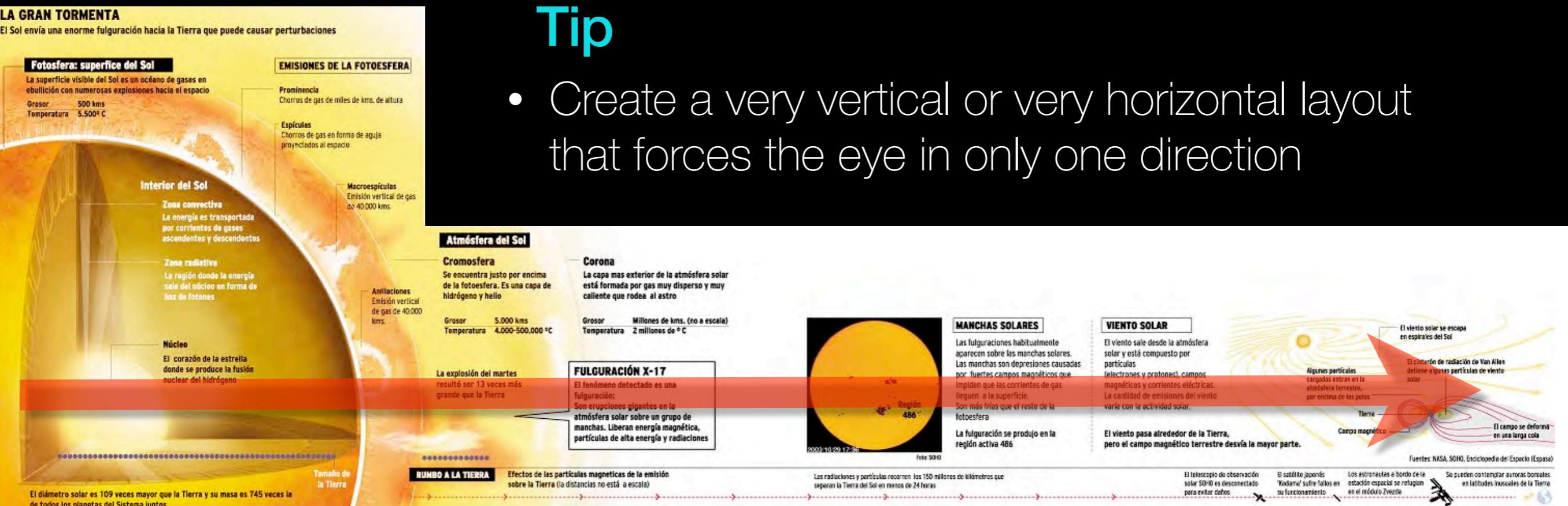
**Farsightedness**  
The cornea is too flat or the eyeball too short; light from nearby objects focuses in back of the retina.

**... But at What Cost?**  
Some LASIK patients report problems with **diminished contrast**, hampering, for example, their ability to drive a car. Everyone has trouble with **glare and halos** in the beginning. Those with large pupils or severe corrections are more likely to suffer permanent disability.

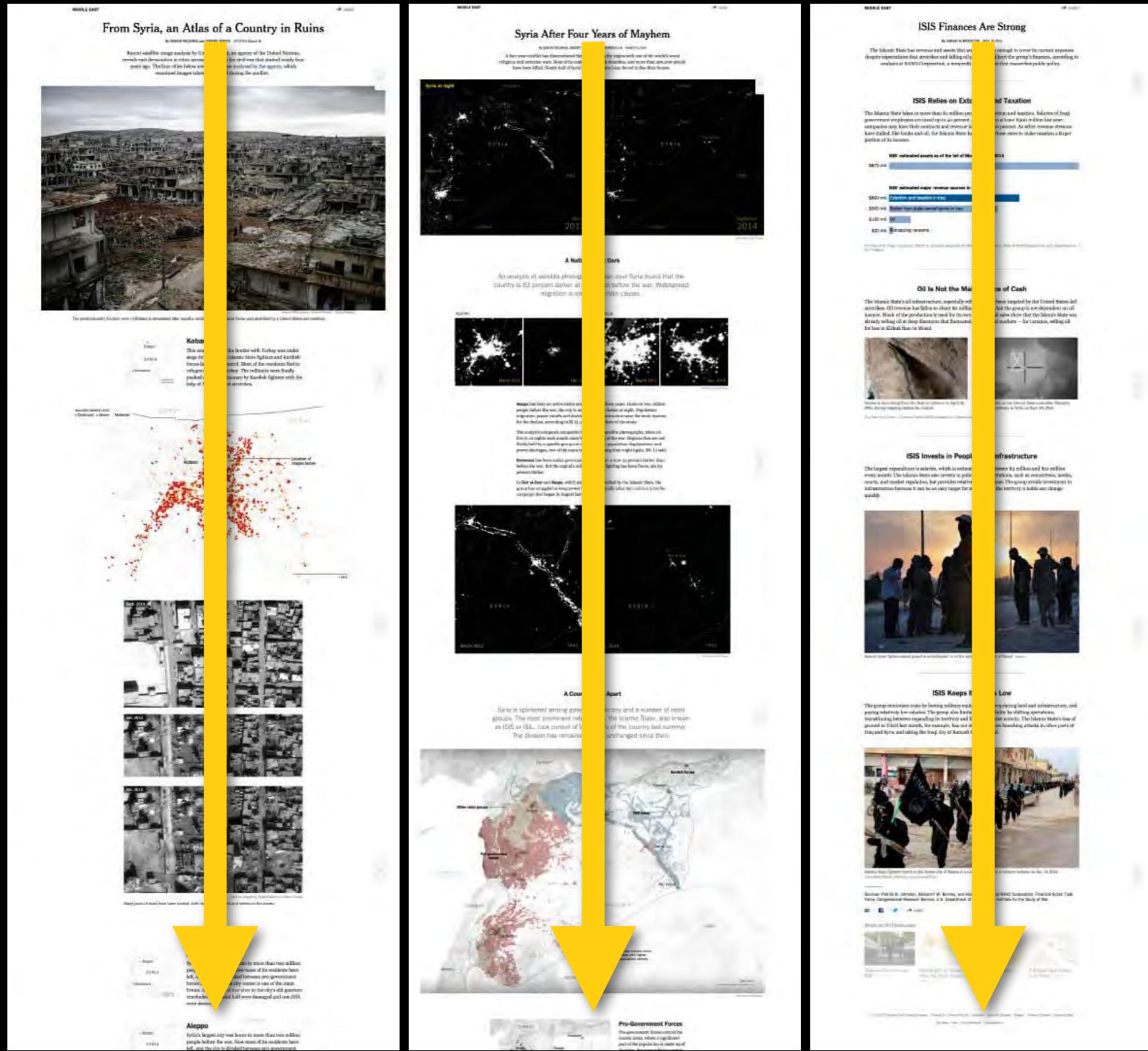
TIME Graphic by Ed Gabel and Joe Zeff

# Tip

- Create a very vertical or very horizontal layout that forces the eye in only one direction



# The New York Times



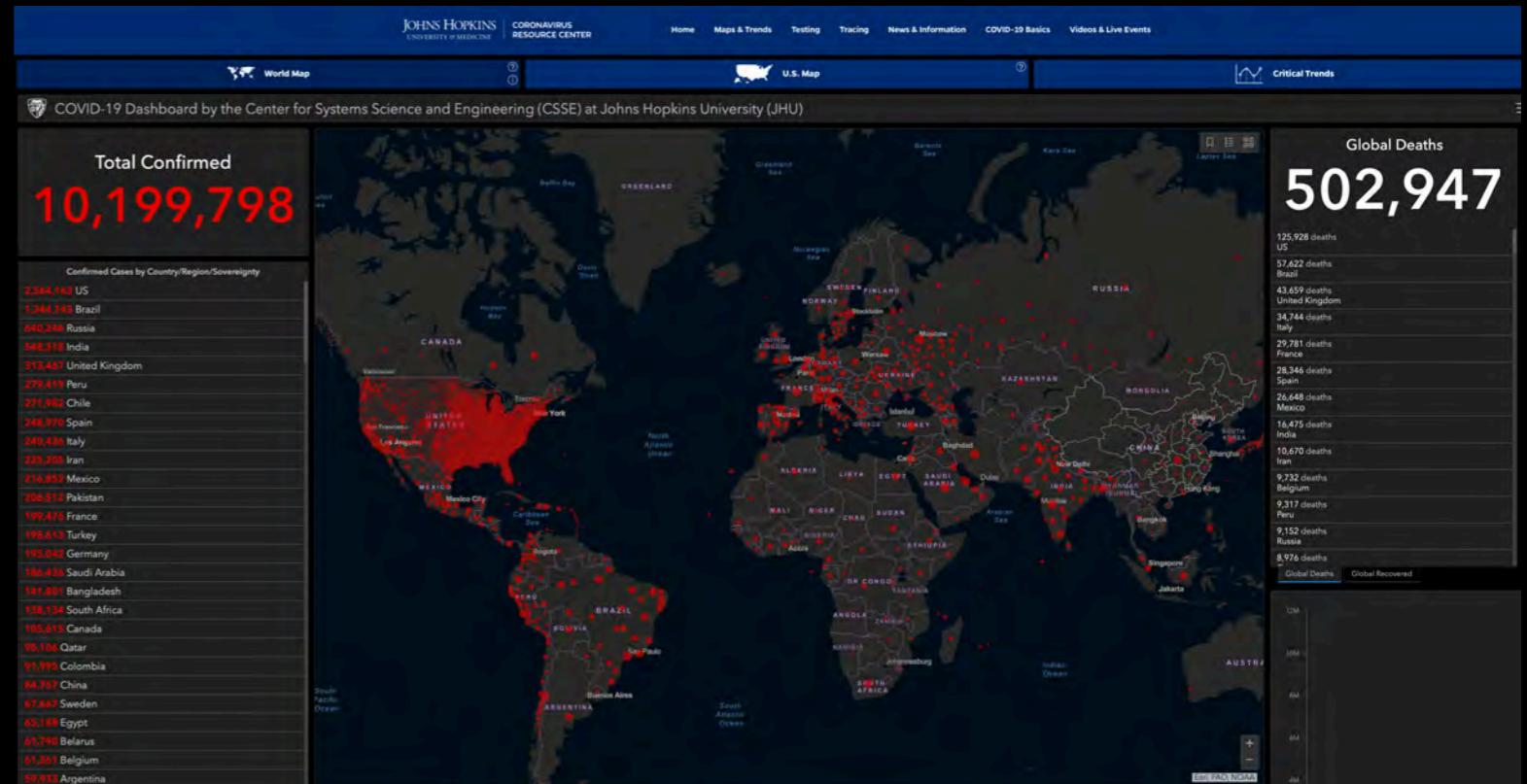
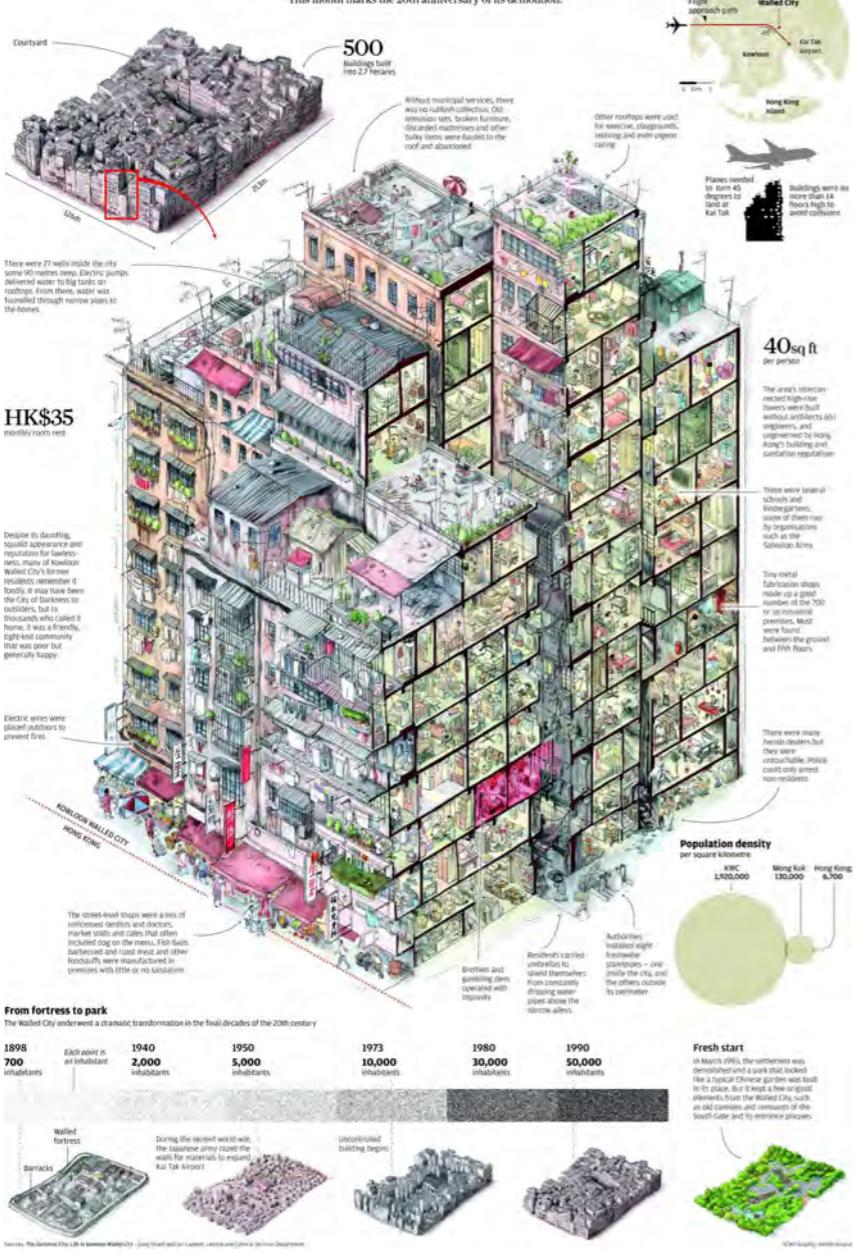
# 3

Define a **visual hierarchy**:  
use a strong dominant element  
and simple secondary elements

# City of anarchy

Kowloon Walled City, located not far from the former Kai Tak Airport, was a remarkable high-rise squatter camp that by the 1980s had 50,000 residents. A historical accident of colonial Hong Kong, it existed in a lawless vacuum until it became an embarrassment for Britain.

This month marks the 20th anniversary of its demolition.



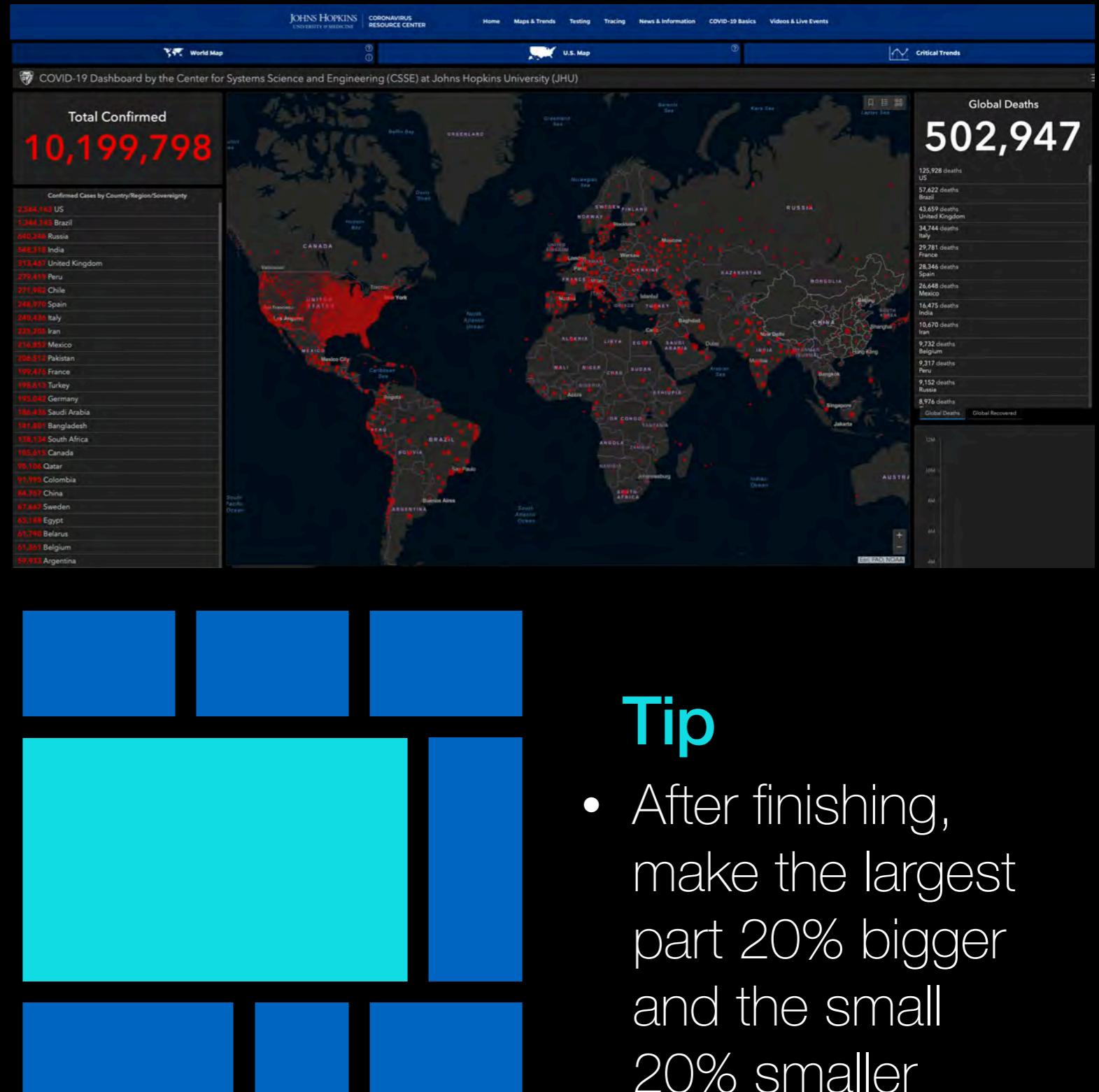
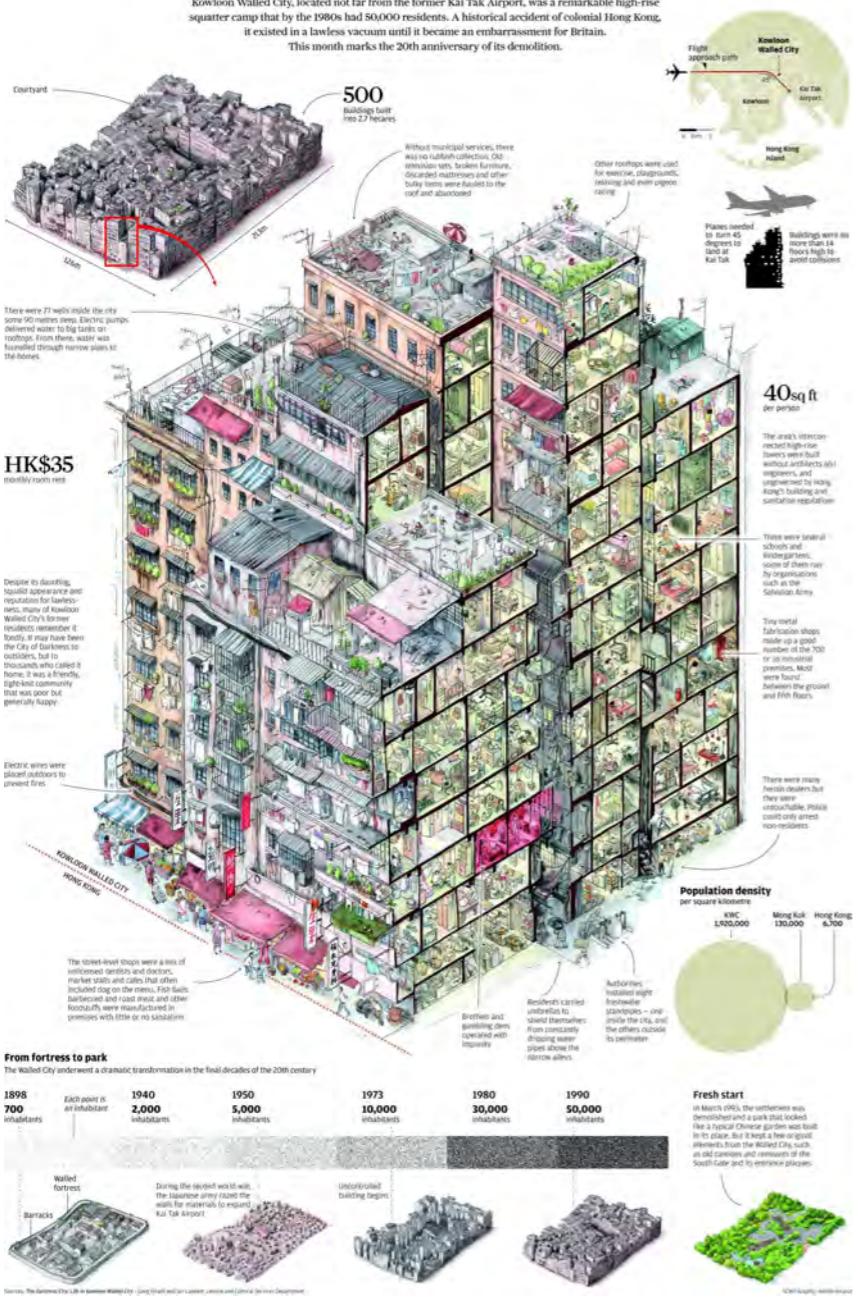
# Tip

- After finishing, make the largest part 20% bigger and the small 20% smaller

## City of anarchy

Kowloon Walled City, located not far from the former Kai Tak Airport, was a remarkable high-rise squatter camp that by the 1980s had 50,000 residents. A historical accident of colonial Hong Kong, it existed in a lawless vacuum until it became an embarrassment for Britain.

This month marks the 20th anniversary of its demolition.



# Small multiples

17/06/2010 | DEPORTES | Automovilismo

**Fórmula 1» FERRARI CUMPLE 60 AÑOS**

1950 - 2010 Las máquinas que han forjado la leyenda del 'cavallino rampante'

Los 60 años de historia de Ferrari en la Fórmula 1 se cumplen este año con una colección de 60 imágenes que recogen los 60 monoplazas que el equipo italiano ha presentado en las 60 temporadas. El primer año de competición, 1950, es el que aparece en la parte superior de la página. Los 60 coches están ordenados cronológicamente, desde el año 1950 hasta el año 2010. Los 60 monoplazas están divididos en tres secciones: los 10 de 1950-1960, los 20 de 1970-1980 y los 30 de 1990-2010.

Los 60 monoplazas

1950-1960

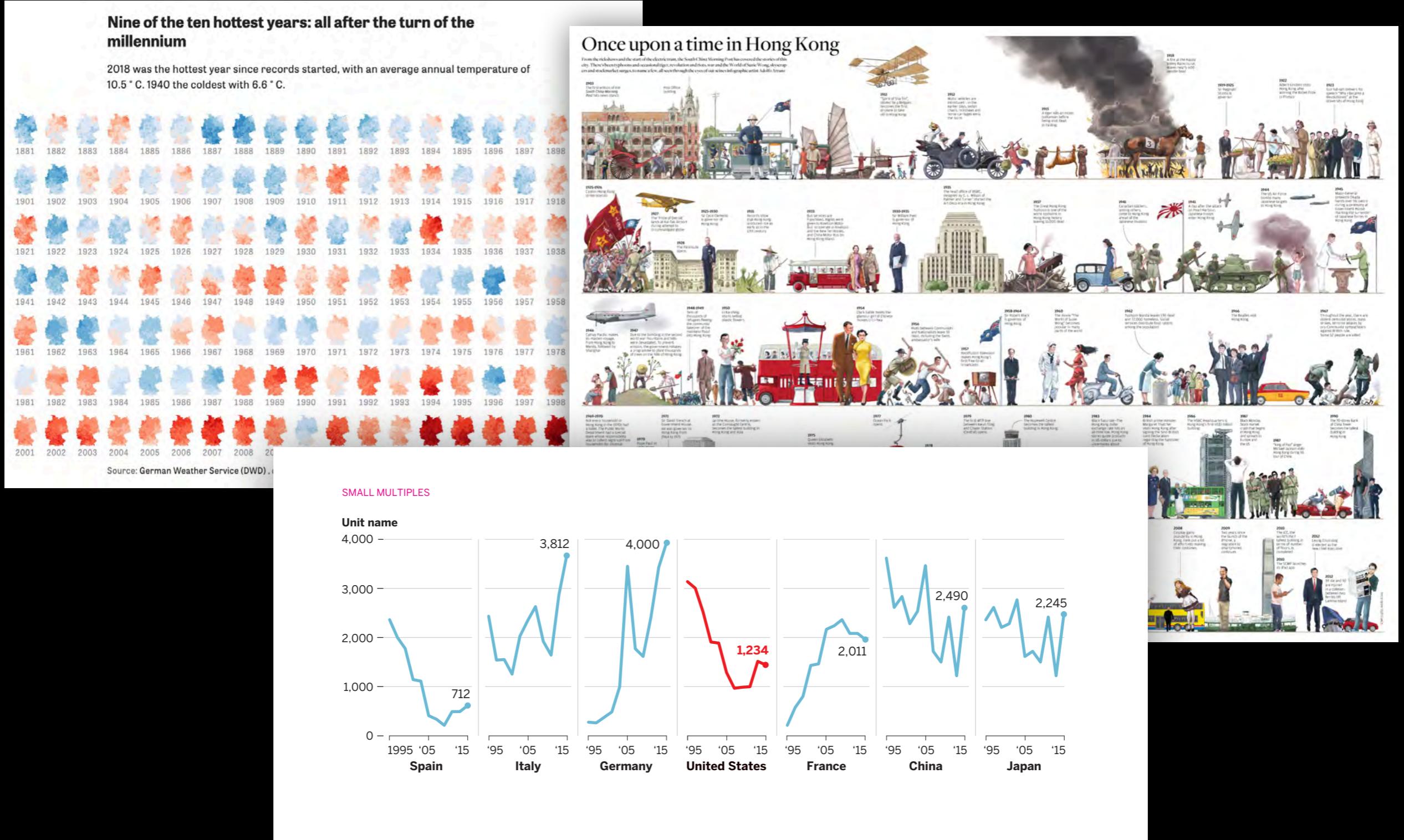
1970-1980

1990-2010

Automovilismo | DEPORTES



# Small multiples



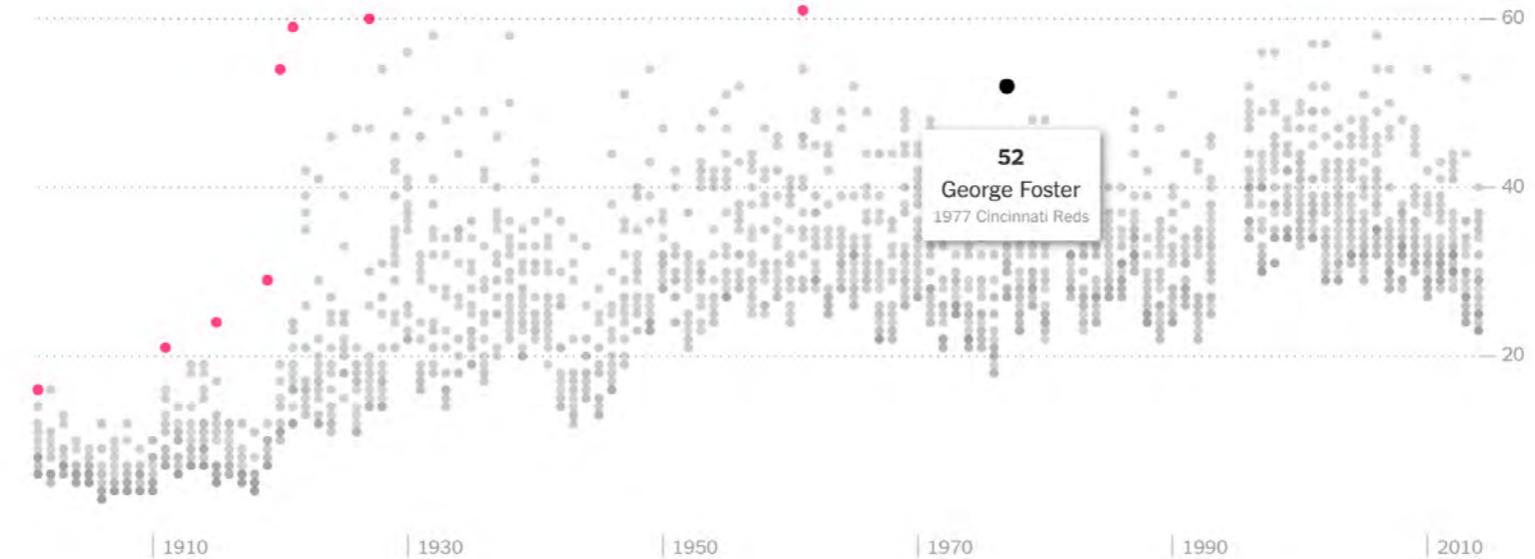
# 4

Use color strategically:  
with **moderation** and only to  
highlight important information.  
Color is a layer of **information**,  
not decoration

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

Home runs 49 years

Barry Bonds, 2001 73



A6 Saturday, September 21, 2019

## The first 100 days of protests

By Pablo Robles [pablourobles/scmp.com](http://pablourobles/scmp.com)

When the first march against the now-shelved extradition bill began on June 9, nobody could have predicted Hong Kong's subsequent plunge into the political abyss. With no end to the crisis in sight, the Post looks back at the first 100 days of protests.

**PROTEST BY NUMBERS (JUNE 9 TO SEPTEMBER 16)**

**2,414** Results of tear gas

**1,453** People arrested

**503** Rubber bullets

ESCALATING VIOLENCE

PEACEFUL PROTEST

MODERATE FORCE BY BOTH SIDES

● VIOLENT USE OF WEAPONS BY RIOTERS

Map only shows streets and buildings

HONG KONG ISLAND

NEW TERRITORIES

MASSIVE RALLIES

The most heavily attended rallies occurred in June

June 9: Start Victoria Park

June 16: 1,000,000+ protesters; 7,000,000+ protesters

\*organizer estimate

the route is about 2km

JUNE

PROTESTER

Riot police

GENERAL STRIKE

TEAR GAS

MTR DISRUPTION

FROM JUNE 9 TO JUNE 30

First clashes

Legco sacked

Protests expand to Kowloon

Yuen Long mob attack

General strike

Airport paralysed

Flight cancellations

100 days of protests

FROM JULY 1 TO JULY 31

Police clashing with protesters

Protests turn violent

August 1: General strike chaos to the city

August 5: Protests paralyse Hong Kong International Airport

September 4: Chief Executive Carrie Lam says rioters must leave

September 13: By day 99, protests have become more violent, and the arrests continue

September 16: Protests continue across Hong Kong

September 17: Protests continue across Hong Kong

September 18: Protests continue across Hong Kong

September 19: Protests continue across Hong Kong

September 20: Protests continue across Hong Kong

September 21: Protests continue across Hong Kong

September 22: Protests continue across Hong Kong

September 23: Protests continue across Hong Kong

September 24: Protests continue across Hong Kong

September 25: Protests continue across Hong Kong

September 26: Protests continue across Hong Kong

September 27: Protests continue across Hong Kong

September 28: Protests continue across Hong Kong

September 29: Protests continue across Hong Kong

September 30: Protests continue across Hong Kong

October 1: Protests continue across Hong Kong

October 2: Protests continue across Hong Kong

October 3: Protests continue across Hong Kong

October 4: Protests continue across Hong Kong

October 5: Protests continue across Hong Kong

October 6: Protests continue across Hong Kong

October 7: Protests continue across Hong Kong

October 8: Protests continue across Hong Kong

October 9: Protests continue across Hong Kong

October 10: Protests continue across Hong Kong

October 11: Protests continue across Hong Kong

October 12: Protests continue across Hong Kong

October 13: Protests continue across Hong Kong

October 14: Protests continue across Hong Kong

October 15: Protests continue across Hong Kong

October 16: Protests continue across Hong Kong

October 17: Protests continue across Hong Kong

October 18: Protests continue across Hong Kong

October 19: Protests continue across Hong Kong

October 20: Protests continue across Hong Kong

October 21: Protests continue across Hong Kong

October 22: Protests continue across Hong Kong

October 23: Protests continue across Hong Kong

October 24: Protests continue across Hong Kong

October 25: Protests continue across Hong Kong

October 26: Protests continue across Hong Kong

October 27: Protests continue across Hong Kong

October 28: Protests continue across Hong Kong

October 29: Protests continue across Hong Kong

October 30: Protests continue across Hong Kong

October 31: Protests continue across Hong Kong

November 1: Protests continue across Hong Kong

November 2: Protests continue across Hong Kong

November 3: Protests continue across Hong Kong

November 4: Protests continue across Hong Kong

November 5: Protests continue across Hong Kong

November 6: Protests continue across Hong Kong

November 7: Protests continue across Hong Kong

November 8: Protests continue across Hong Kong

November 9: Protests continue across Hong Kong

November 10: Protests continue across Hong Kong

November 11: Protests continue across Hong Kong

November 12: Protests continue across Hong Kong

November 13: Protests continue across Hong Kong

November 14: Protests continue across Hong Kong

November 15: Protests continue across Hong Kong

November 16: Protests continue across Hong Kong

November 17: Protests continue across Hong Kong

November 18: Protests continue across Hong Kong

November 19: Protests continue across Hong Kong

November 20: Protests continue across Hong Kong

November 21: Protests continue across Hong Kong

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November 29: Protests continue across Hong Kong

November 30: Protests continue across Hong Kong

December 1: Protests continue across Hong Kong

December 2: Protests continue across Hong Kong

December 3: Protests continue across Hong Kong

December 4: Protests continue across Hong Kong

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December 30: Protests continue across Hong Kong

December 31: Protests continue across Hong Kong

January 1: Protests continue across Hong Kong

January 2: Protests continue across Hong Kong

January 3: Protests continue across Hong Kong

January 4: Protests continue across Hong Kong

January 5: Protests continue across Hong Kong

January 6: Protests continue across Hong Kong

January 7: Protests continue across Hong Kong

January 8: Protests continue across Hong Kong

January 9: Protests continue across Hong Kong

January 10: Protests continue across Hong Kong

January 11: Protests continue across Hong Kong

January 12: Protests continue across Hong Kong

January 13: Protests continue across Hong Kong

January 14: Protests continue across Hong Kong

January 15: Protests continue across Hong Kong

January 16: Protests continue across Hong Kong

January 17: Protests continue across Hong Kong

January 18: Protests continue across Hong Kong

January 19: Protests continue across Hong Kong

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January 23: Protests continue across Hong Kong

January 24: Protests continue across Hong Kong

January 25: Protests continue across Hong Kong

January 26: Protests continue across Hong Kong

January 27: Protests continue across Hong Kong

January 28: Protests continue across Hong Kong

January 29: Protests continue across Hong Kong

January 30: Protests continue across Hong Kong

January 31: Protests continue across Hong Kong

February 1: Protests continue across Hong Kong

February 2: Protests continue across Hong Kong

February 3: Protests continue across Hong Kong

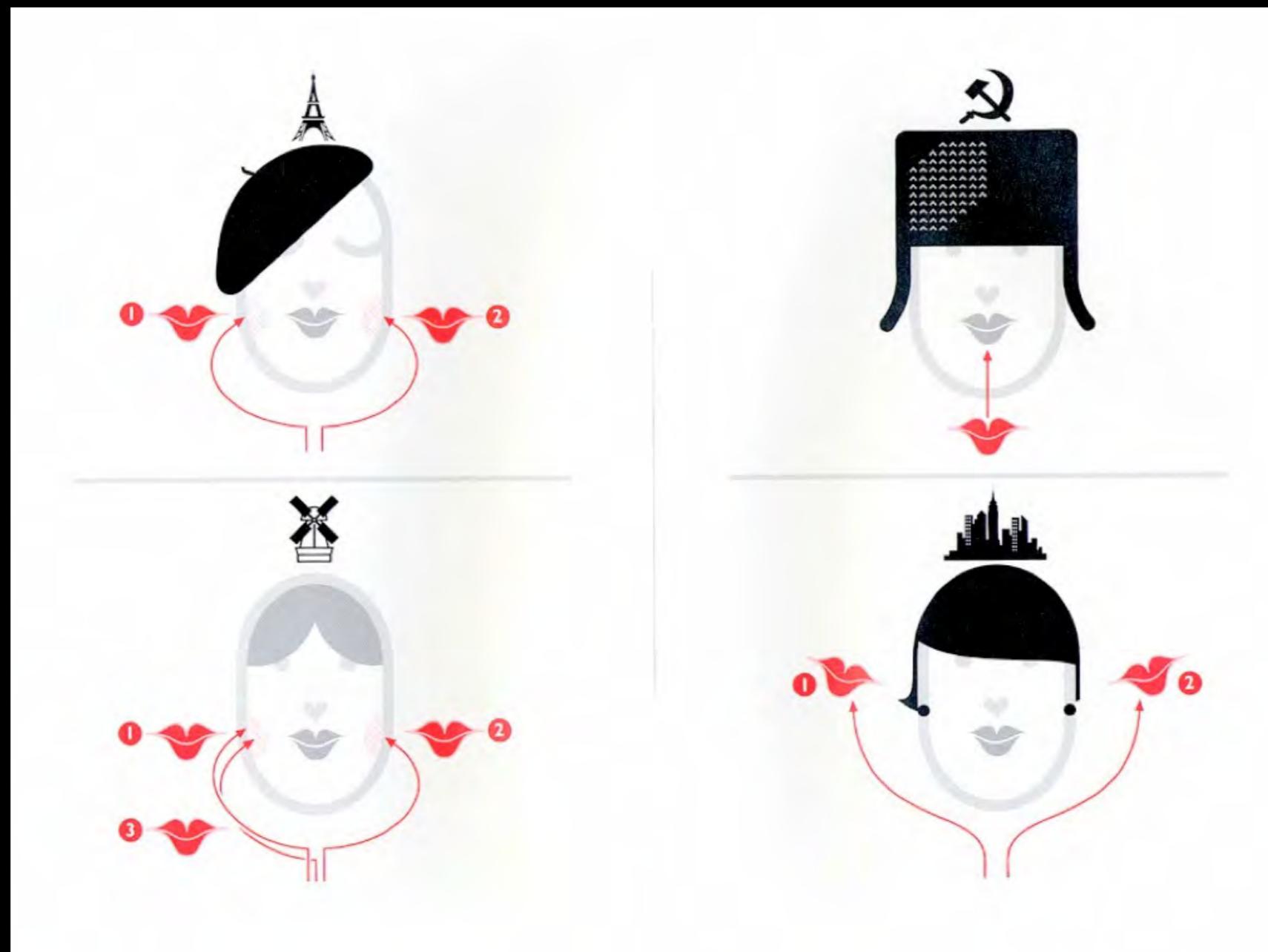
February 4: Protests continue across Hong Kong

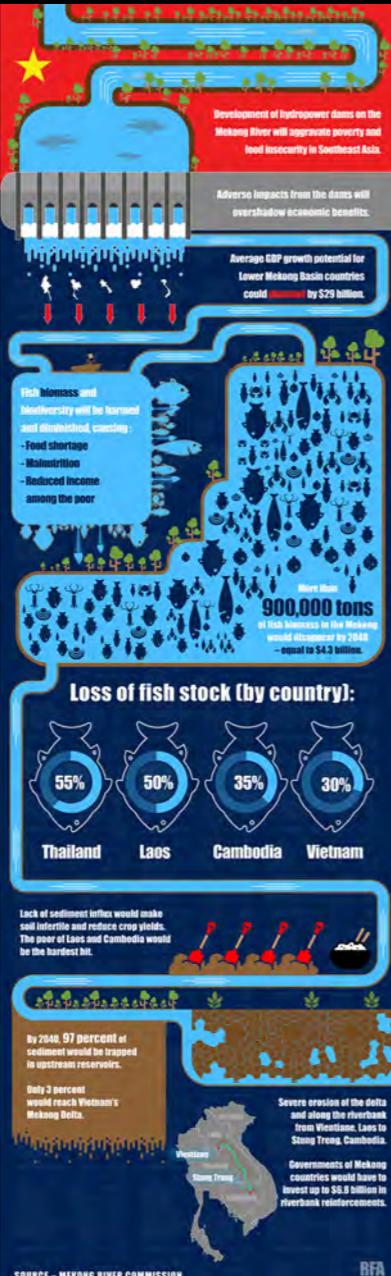
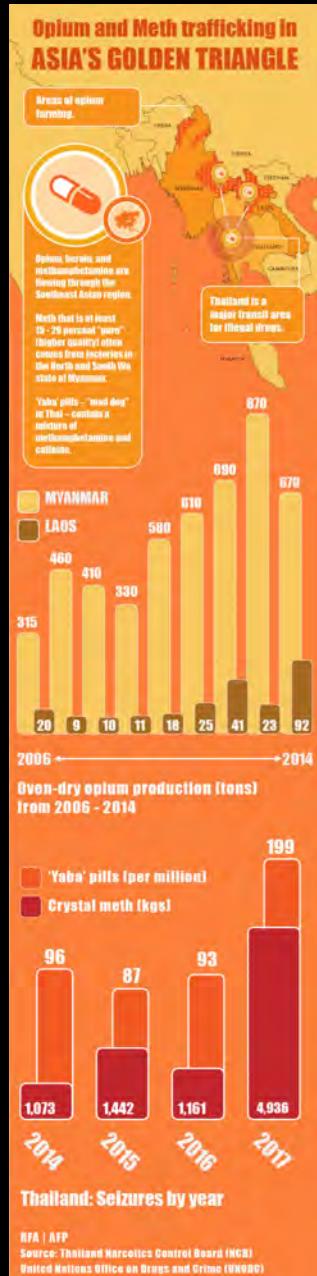
February 5: Protests continue across Hong Kong

February

“Finish your graphic entirely in black and white, and only then think about where some color can help bring attention”.

**Nigel Holmes**





# Branding/style guides for identity and efficiency

**BASIC STYLE**

**COLOR PALETTE**

For most graphics, using many colors will not improve comprehension and may even confuse. If we use too many colors, the user stops attaching meaning to them, and that destroys the power of color to add an extra level of information.

**BASIC COLOR**  
This is the basic color used for all graphics backgrounds, top bar, map lands and borders, and gray text.

**RICH BLACK**  
Main color  
0c 0m 50y 100k

**EMPHASIS AND CHART COLORS**  
All charts will always use the colors presented below.

Color	Description	100%	TINTS
RED	Emphasis color	0c 100m 100y 20k	100% 50% 20% 10%
TAN	Main color for charts	0c 75m 100y 25k	100% 50% 20%
ORANGE	Main color for charts	0c 65m 100y 0k	100% 50% 20%
<b>OTHER COLORS</b>			
BROWN	Mostly for maps backgrounds	0c 30m 90y 60k	100% 50% 20%
BLUE	Map's lakes and oceans	50c 15m 5y 10k	100% 50% 20%
GREEN	Map's parks, woods, etc	20c 0m 45y 15k	100% 50% 20%
PURPLE	Mostly for illustrations	50c 50m 0y 0k	100% 50% 20%
YELLOW	Mostly for illustrations	0c 25m 100y 0k	100% 50% 20%

**TINTS**  
Any tints based on the colors presented here can be used in the graphics. Shown here are only the ones we consider more useful to maintaining a good contrast and printability.

## Graphics color palette

BCJ's graphics color palette uses a range of shades of blue, and bright colors to highlight key elements. In the palette below, colors **with names in bold** are part of the overall BCJ color palette. The rest have been created specifically for graphics to facilitate color combinations.

**A. COLOR PALETTE FOR CHARTS AND MAPS**

**FULL RANGE** (a maximum of six should be used)

Name:	BCJ_Graph1	BCJ_Graph2	BCJ_Graph3	BCJ_Graph4	BCJ_Graph5	BCJ_Graph6
RGB:	195/222/235	159/205/224	108/186/214	57/149/178	0/113/148	0/65/91
CMYK:	22/4/4/0	36/7/7/0	55/10/10/0	73/24/19/4	90/37/21/17	100/50/28/50
HEX:	#C3DEEB	#9FCDE0	6CBAD6	#3995B2	#007194	#00415B

**COMBINATIONS OF 5 OR LESS COLORS**

Shades	BCJ_Graph1	BCJ_Graph2	BCJ_Graph3	BCJ_Graph5	BCJ_Graph6
5 shades					
4 shades					
3 shades					
2 shades					
1 shade					

**DIVERGENT COLOR SCALE** is used mostly in maps to show values in two categories (for example election results for Democrat and Republicans), to separate positive and negative values, and to differentiate high and low values more clearly.

Up to 8 shades	BCJ_DarkRed	BCJ_Red	BCJ_Red50%	BCJ_Red25%	BCJ_Graph1	BCJ_Graph3	BCJ_Graph5	BCJ_Graph6
RGB:	158/11/15	237/28/36	246/150/121	251/200/180				
CMYK:	24/100/100/24	0/100/100/0	0/50/50/0	0/25/25/0				
HEX:	#9E0B0F	#ED1C24	#F69679	#F69679				

**B. HIGHLIGHT COLORS**

They should be used very sparingly, only to call attention to a key element. Most charts don't need any, don't feel tempted to always use them. The red has the highest contrast. Apply consistently (the same color should carry the same meaning in a graphic with multiple charts).

Color	Color Hex	Color Name
BCJ_Red	237/28/36 0/100/100/0 #ED1C24	
BCJ_Gold	255/207/1 0/17/100/0 #FFCF01	

**C. NEUTRAL COLORS**

A light gray tone is used for backgrounds in some maps and other elements. Three darker shades allow for additional color combinations.

Color	Color Hex	Color Name
BCJ_Gray	235/234/233 6/5/5/0 #EBEAEC	
BCJ_Gray	219/218/218 11/10/10/0 #DBDADA	
BCJ_Gray	176/176/176 32/26/26/0 #BOB0B0	
BCJ_Gray2	118/124/125 62/50/50/0 #767C7D	

Brennan Center for Justice

6

Dr. Greenberg, left, has grouped most of the world's languages into a small number of clusters based on their similarities. Though controversial, his language classifications roughly coincide with clusters of genetically similar people and point to a close relationship between genetic and linguistic evolution.

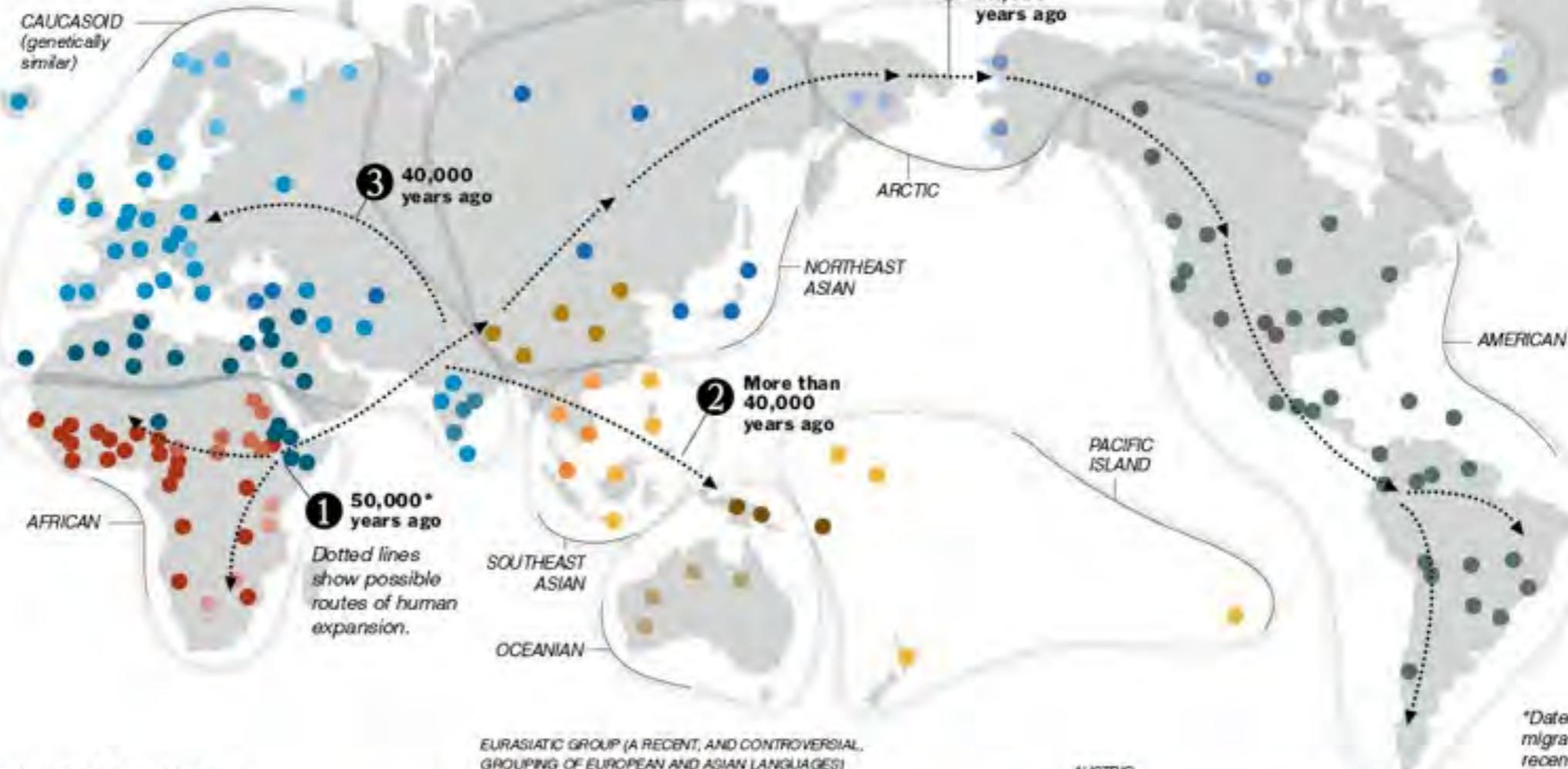
#### A THEORY OF HUMAN EXPANSION

As humans spread across the globe, they separated from one another again and again, gradually breaking into many different genetic and linguistic groups.

##### READING THE MAP

Each dot represents a distinct ethnic population of aboriginal descendants.

The boundaries show groups of ethnic populations that are similar.



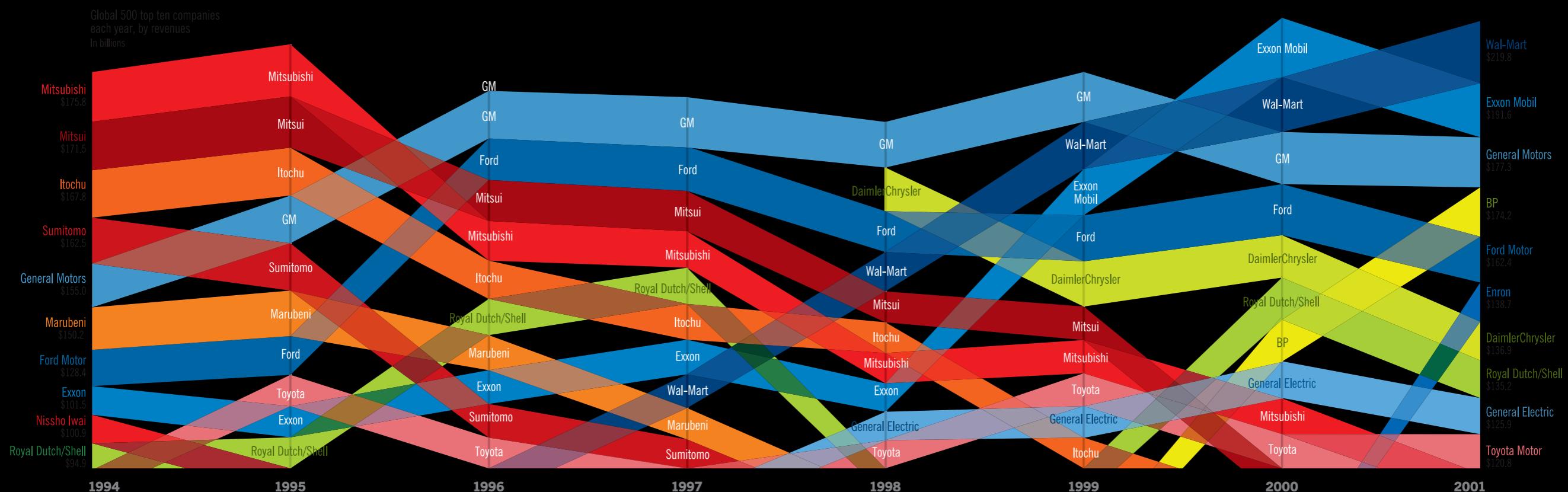
#### LANGUAGE CATEGORIES

	<b>NIGER-KORDOFANIAN</b>		<b>NILO-SAHARAN</b>		<b>KHOISAN</b>		<b>AFRO-ASIATIC</b>		<b>DRAMDIAN</b>		<b>INDO-EUROPEAN</b>		<b>URALIC-YU KAGHIR</b>		<b>ALTAIC</b>		<b>CHUKCHI-KAMCHATKAN</b>		<b>ESKIMO-ALEUT</b>		<b>SINO-TIBETAN</b>		<b>AUSTRALO-ASIATIC</b>		<b>DAIC</b>		<b>AUSTRONESIAN</b>		<b>INDO-PALEO</b>		<b>AUSTRALIAN</b>		<b>AMERIND</b>		<b>NA-DENE</b>
<i>Includes:</i>																																			

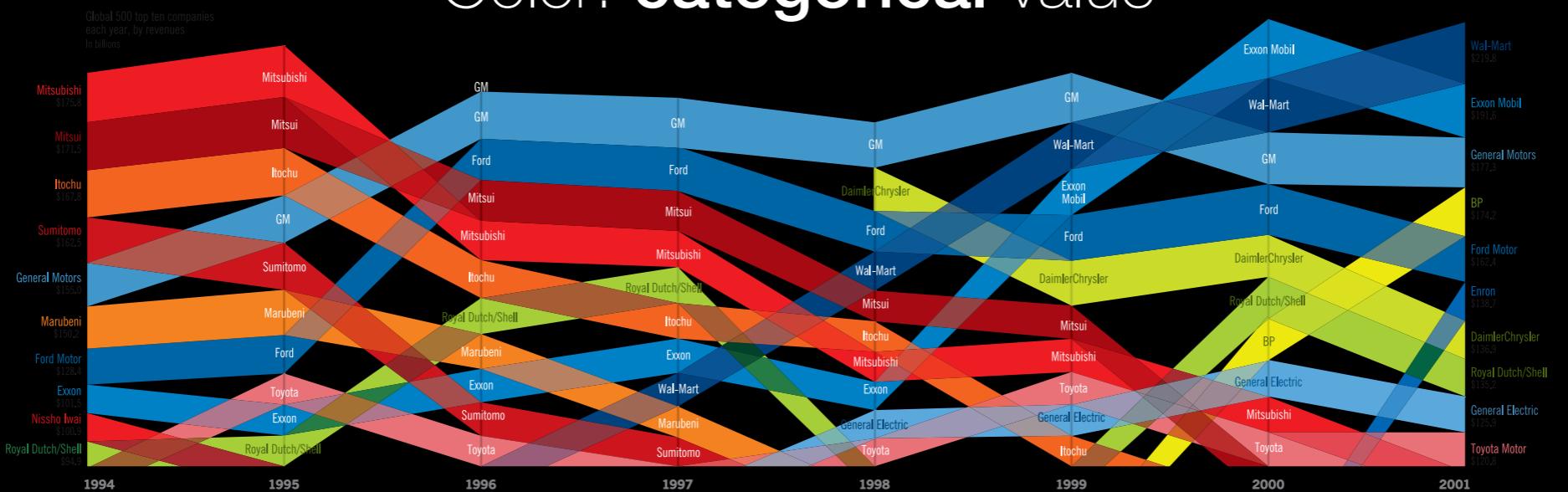
Sources: "A Guide to the World's Languages," by Merritt Ruhlen; "The History and Geography of Human Genes," by L. Luca Cavalli-Sforza

Steve Duenes/The New York Times

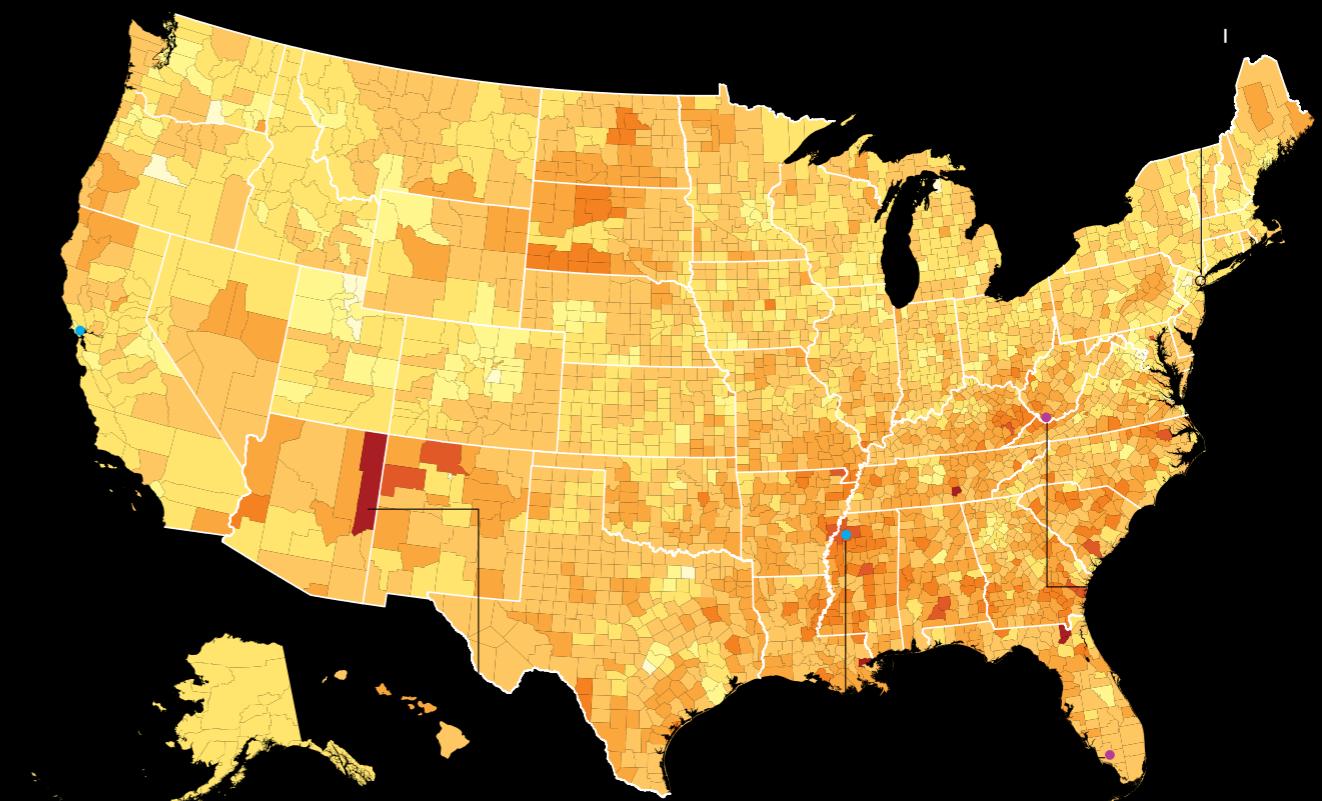
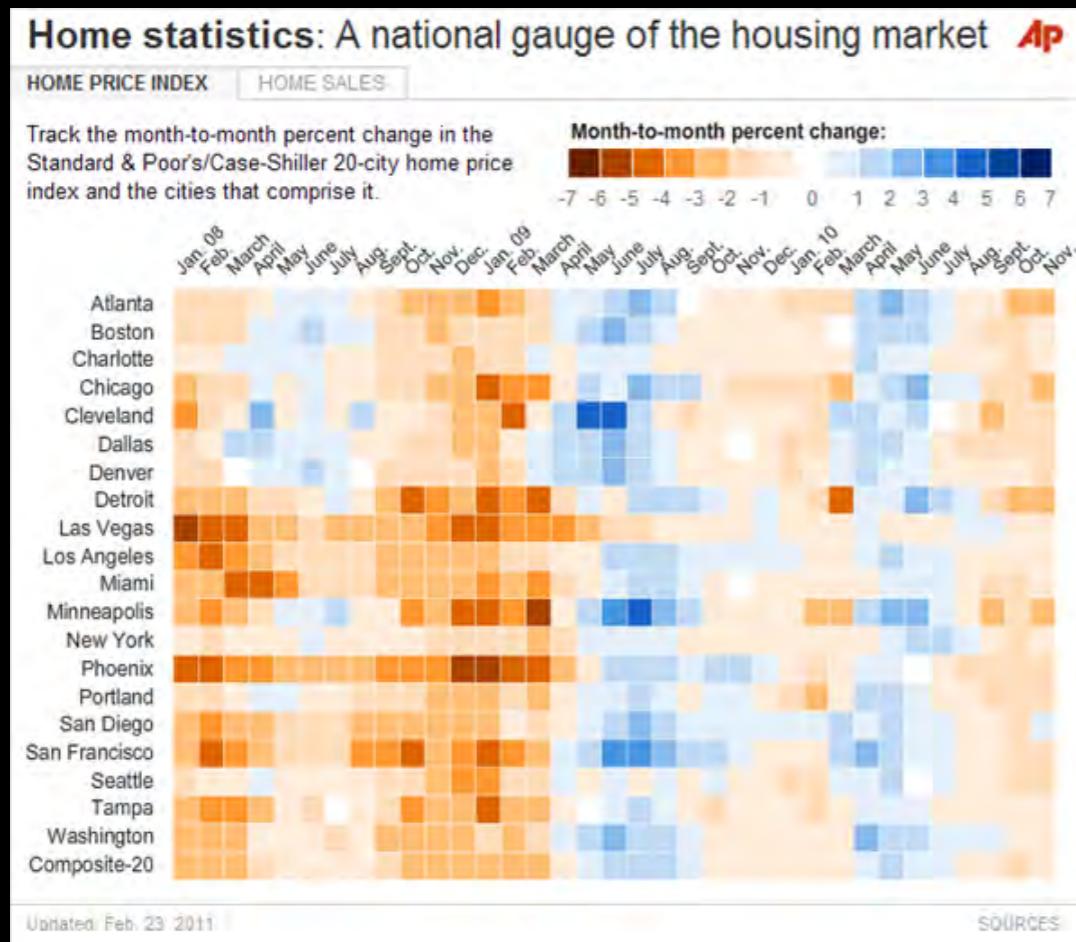
A change in **color** should correspond to  
a change in information



# Color: categorical value



# Color: quantitative value



# Ignore this

## Color Meaning Chart

**Black:** serious, distinctive, elegant, bold, powerful, sophisticated, expensive, night, death

**Dark Grey:** conservative, classic, responsible, dull, somberness, authority,

**Light Grey:** neutral, logical, rich, practical, reserved, trust

**Blue:** authority, nautical, dignity, security, confident, classic, stability, trust

**Light Blue:** calming, patient, cool, water, contentment, trusting

**Teal:** serene, sophisticated, water, coolness

**Green:** healthy, fertile, freshness, environmentally conscious, nature, reliable, appetite

**Light Green:** calm, soothing, refreshing, young

**Yellow:** youth, friendly, positive feelings, sunshine, surprise, cowardice, energetic, caution

**Orange:** fun, cheeriness, sunset, exuberance, spontaneous, optimistic, speed

**Amber/Gold:** history, autumn, earthiness, richness, tradition, conservative

**Brown:** earthy, wholesome, delicious, rich, rustic, warm, natural

**Dark Red:** rich, refined, tasty, expensive, luxurious

**Red:** aggressiveness, passionate, sexy, strength, powerful, assertive, vitality, fear, speed, danger

**Hot Pink:** exciting, playful, tropical, flirtatious

**Light Pink:** romantic, sweet tasting, femininity, innocence, softness, youthful

**Purple:** sophistication, mysterious, spirituality, dramatic, wealth, royalty, youth, creative

**Light Purple:** romantic, sentimental, nostalgic, fragrant

**Ivory/Cream:** classic, soft, comforting, natural, smooth

**White:** purity, truthfulness, faith, pristine, contemporary, refined, airy

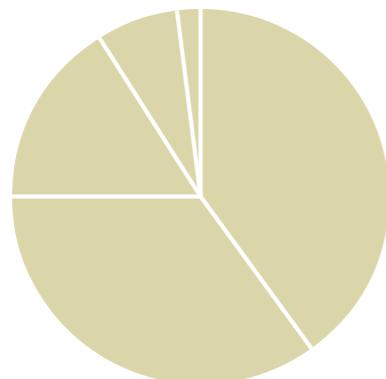
**Silver Metallic:** sleek, modern, classy  
metallics can't be reproduced online

**Gold Metallic:** rich, expensive, valuable, prestigious  
metallics can't be reproduced online

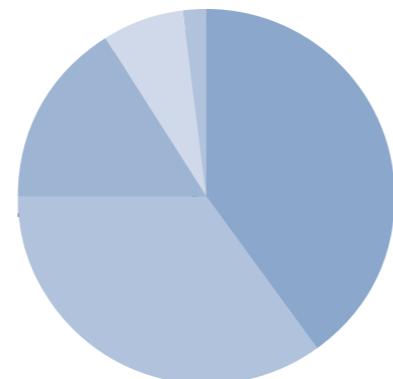
## In general

Use either one **muted** color or different shades or variations of the same color to display all data for a restrained and elegant look. Highlight the most important number with a **strong** tone if needed. Some strategies are:

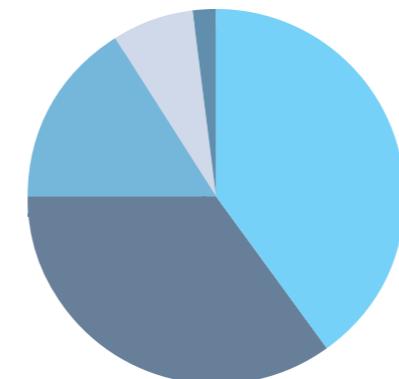
1. All the slices in the same color



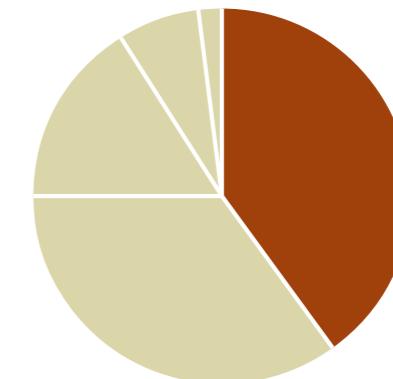
2. Shades of the same color



3. Different colors within the same family



4. A highlight color for the most important piece



# color.adobe.com

Adobe Color

CREATE EXPLORE TRENDS MY LIBRARIES

Color Wheel Extract Theme Extract Gradient Accessibility Tools New

Apply Color Harmony Rule

Analogous (radio button selected)

Monochromatic

Triad

Complementary

Split Complementary

Double Split Complementary

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Shades

Custom

Save to Infographic An...

Name My Color Theme

Tags Enter or Select from below

Green + Yellow + Fresh +

Publish to Color

Check for Accessibility

Save

#DED75B	#D1C999	#D1B256	#9D8049	#DE9C50
R 222	G 215	B 91		
G 209	G 201	G 153	G 178	G 128
B 209	B 153	B 86	B 73	B 80
B 87	B 82	B 82	B 62	B 87

Color Mode: RGB

# 5

Use a **grid** and look for alignments



# THE FORBIDDEN CITY

For nearly 500 years, from the early 15th century to the early 20th, 24 emperors of the Ming and Qing dynasties ruled China from a sweeping palace complex at the heart of Beijing. Built like a treasure box of walls within walls, the Forbidden City was a cloistered imperial residence, a seat of communal grandeur, and also the bustling apex of China's vast and intricate bureaucracy.

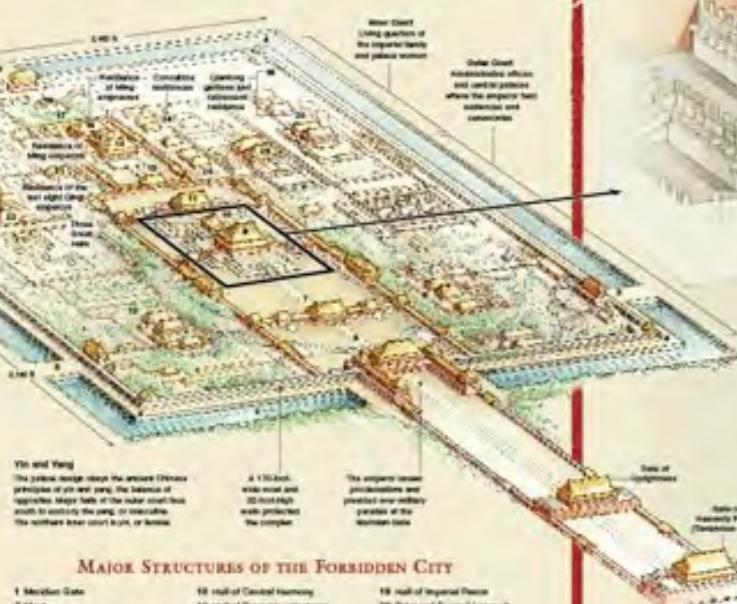
Every detail in this precise maze of crimson walls and yellow tile roofs—the imperial colors—made the Forbidden City (Zijincheng, in Chinese) a reflection of the emperor's heavenly mandate to preserve harmony and hierarchy.

**紫禁城**

ZI-PURPLE CITY: In traditional belief, the purple attributed to emperors was the color of an ideal society.

JIN-FORBIDDEN: Commoners were not allowed to enter.

CHENG- CITY: The world's largest palace complex, it housed 10,000 people at the peak of the Qing dynasty.



## MAJOR STRUCTURES OF THE FORBIDDEN CITY

- 1 Meridian Gate
- 2 Moat
- 3 Halls of the Forbidden City
- 4 Redoubts
- 5 West, East, and North Gates
- Outer Court (residential and administrative quarters)
- 6 Golden River Bridges
- 7 Hall of Supreme Harmony
- 8 Hall of Literary Glory
- 9 Hall of Supreme Harmony
- 10 Hall of Imperial Peace
- 11 Hall of Preserving Harmony
- 12 Hall of Mental Cultivation
- Inner Court (imperial quarters)
- 13 Gate of Heavenly Purity
- 14 Palace of Heavenly Purity
- 15 Hall of Union
- 16 Palace of Tranquility
- 17 Imperial Garden
- 18 Hall of Supreme Harmony
- 19 Hall of Central Harmony
- 20 Palace of Tranquility Longevity
- 21 Hall of Mental Cultivation
- 22 Palace of Compunction and Tranquility
- 23 Six West Palaces
- 24 Six East Palaces
- 25 Hall of Abundance
- 26 Hall of Nourishing Ancestral
- 27 Pavilion of the Seal of Peace



NATIONAL GEOGRAPHIC

APRIL 2002 VOL. 22 NO. 4

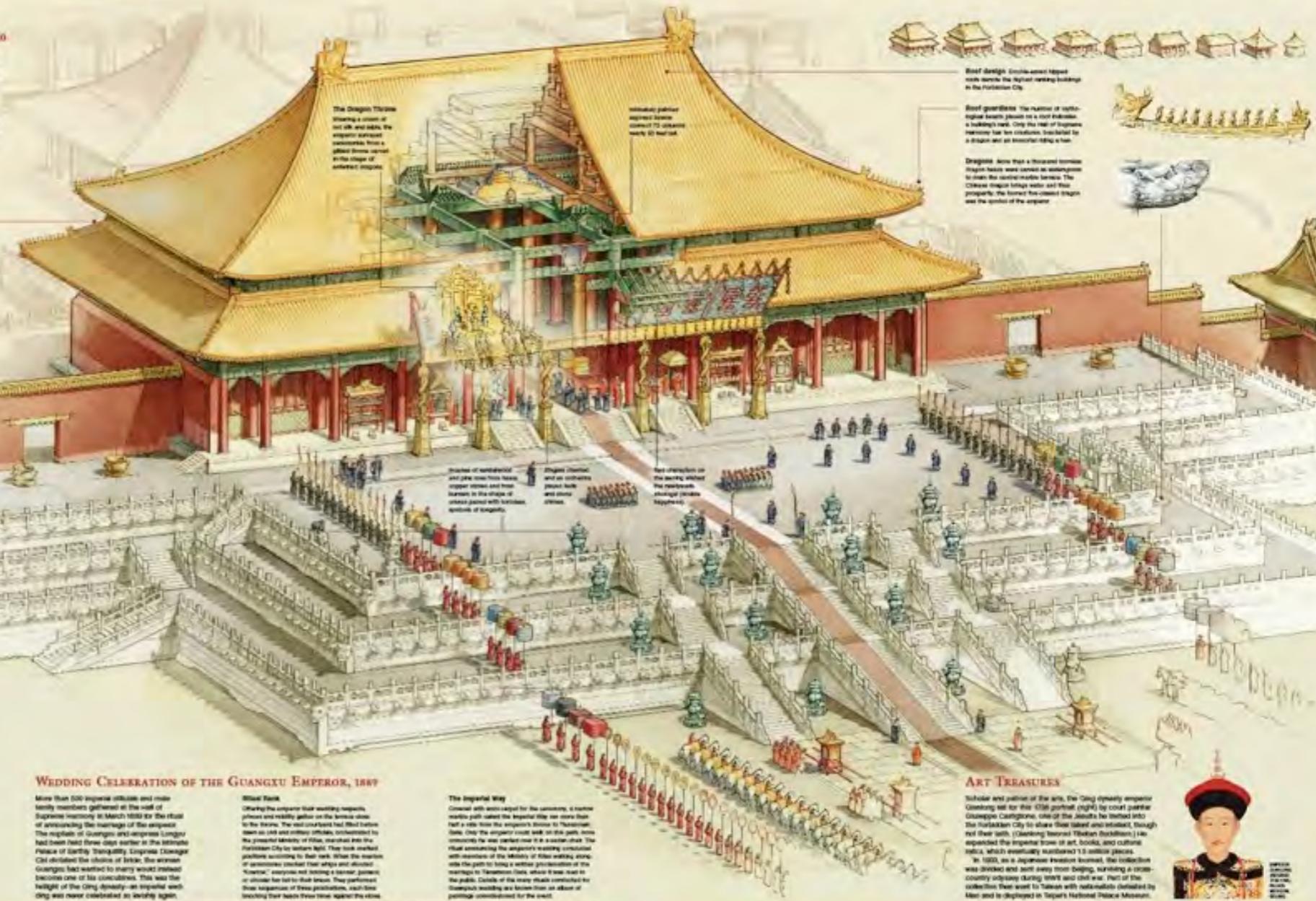
ILLUSTRATION BY JOHN CLARK; MAP AND DESIGN BY ANDREW MCKEE; RESEARCH BY SHIRLEY SPARKS; STYLING BY JENNIFER DUNN; HAIR AND MAKEUP BY KAREN LEE; HAIR AND MAKEUP BY KAREN LEE

## CONSTRUCTION, 1406-1420

A demolition of power by the young Ming dynasty, the Forbidden City followed 1,000-year-old tenets of city planning dictated by a classic Confucian text. Only a properly ordered capital could an emperor be the mediator of cosmic balance between heaven and earth. It was a constant effort to keep the human-themed buildings and palaces from other human-made structures. From other dynasties, the three central great halls burned to ash and were not reconstructed until 1446. Parts of the complex burned and were rebuilt at least eight times during the Qing dynasty, the last time in 1886.

## HALL OF SUPREME HARMONY

The grandest palace in the complex, situated on a three-tiered marble terrace, it had nothing but the emperor's own elaborate thrones. The Hall of Supreme Harmony was the primary place for public audiences, New Year celebrations, and marking the emperor's birthday and most weddings.



## WEDDING CELEBRATION OF THE GUANGXU EMPEROR, 1887

More than 500 imperial officials and male family members gathered at the Hall of Supreme Harmony in March 1887 for the ritual of announcing the marriage of the emperor. The nuptials took place in the Hall of Union, located three days earlier in the Imperial Palace of Literary Tranquility. Empress Dowager Cixi dictated the choice of bride; the woman Guangxi had wanted to marry would instead become one of his concubines. That was the height of the Qing dynasty—an imperial wedding was never celebrated as lavishly again.

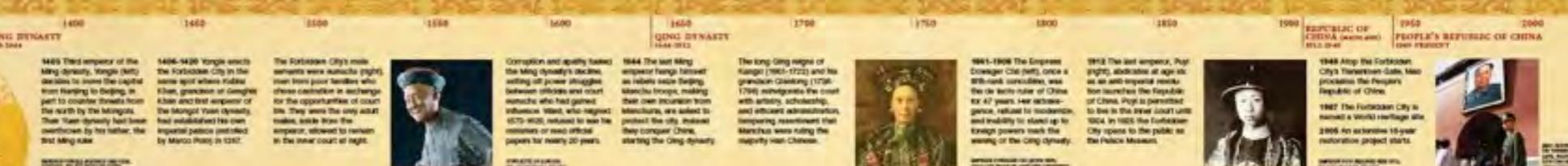
**White Silk**  
Offering the company that was waiting, white robes and red ribbons on the terrace show to the world the real court had. Red robes were for the nobles and blue for the commoners. The principal Ministry of Civilian, mounted on the Hall of Supreme Harmony in yellow silk. They took method positions according to their ranks. When the emperor or empress checked their robes and discovered a garment checked for white, they were rebuked or shamed for not to due honor. They performed three sequences of three prostrations, each time knocking their heads three times against the stone.

**The Imperial Way**  
Covered with white carpet for the ceremony, a narrow path called the Imperial Way for more than half a mile led the emperor's retinue to the Hall of Supreme Harmony. The way was lined with trees symbolizing he was carried over in a chariot chair. The ritual ceremony of the emperor's wedding concluded with a sequence of 100 steps walking clockwise past the gate to bring a welcome to the Hall of Supreme Harmony, where it was made to the public. Details of the many rituals conducted by the Imperial Wedding are known from an album of paintings commissioned for the event.

## ART TREASURES

Scholar and poet of the arts, the Qing dynasty emperor Gaozong set off in 1736 (right) by court painter Giuseppe Castiglione, one of the Jesuits he invited into the Forbidden City to share their art and interests, though not their religion. (Castiglione became the first Westerner to receive the imperial title of art, 1802.) 1000 cultural objects, which originally numbered 15 million pieces.

In 1959, as a Japanese Foreign Journal, the collection was divided and sent away to help, marking a cross-country odyssey during unrest and civil war. Part of the collection then went to Taiwan with Nationalist leader Chiang Kai-shek and displayed in Taipei's National Palace Museum.

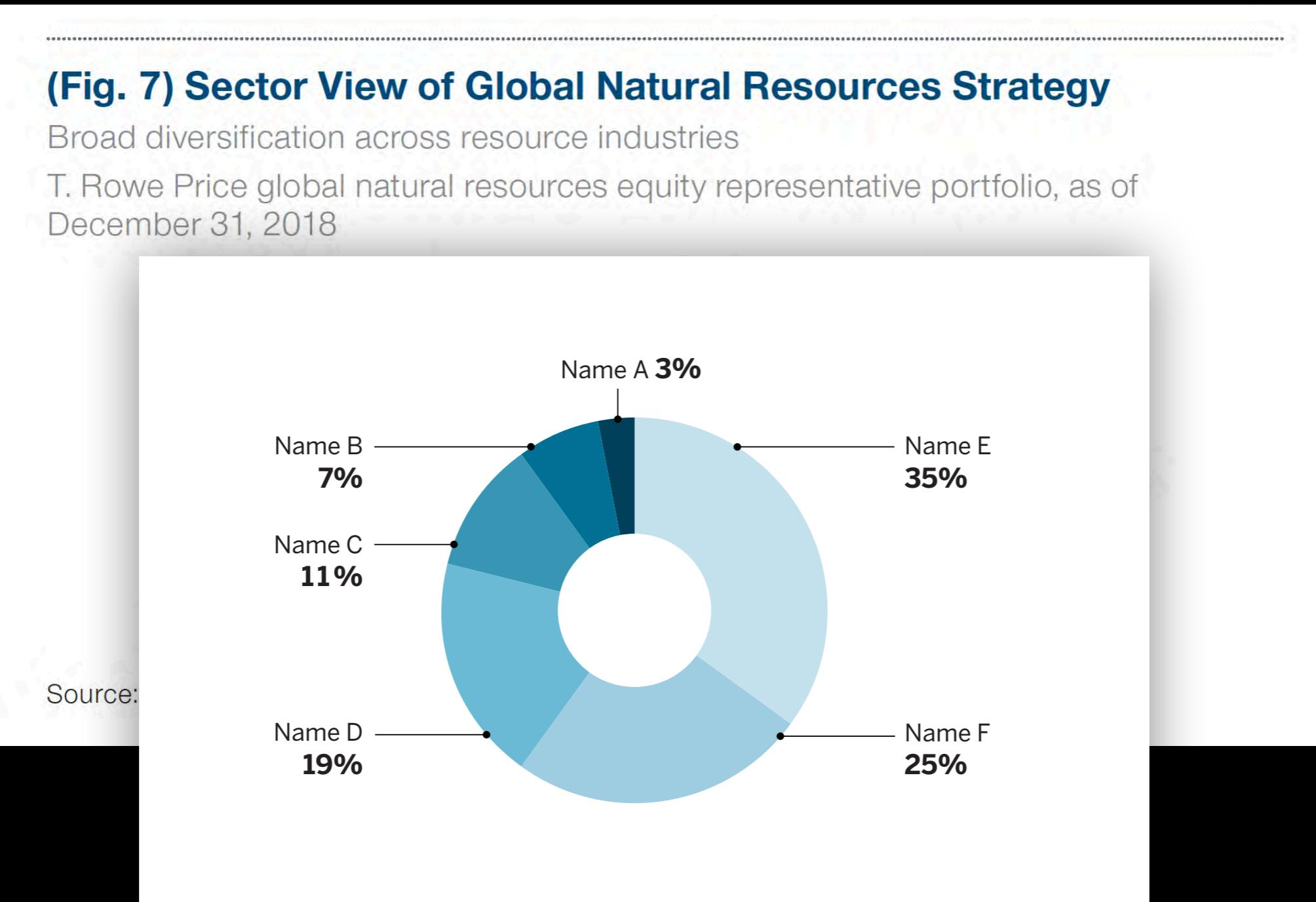


MING DYNASTY 1368-1644	1406	1460	1500	1566	1600	1644	1666	1700	1760	1800	1850	1900	1950	2000	
1406: Third emperor of the Ming dynasty, Yongle (right), decides to move the capital from Nanjing to Beijing, in part to counter threats from the north by the Mongols. Thus, Yuan dynasty had been overthrown by his father, the first Ming ruler.	1406-1420: Yongle enriches the Forbidden City in the same spot where Kublai Khan, founder of the Yuan dynasty, had established his own imperial palace shortly before Marco Polo's visit in 1290.					1644: The last Ming emperor fails to prevent peasant rebels (the Manchu) from taking control of Beijing, making them their own emperors. The Manchus, who had gained influence with the Ming, had established their own empire, Manchu, in 1616. They were the only adult males, aside from the emperor, allowed to wear official robes for nearly 20 years.	1644-1666: The Empress Dowager Cixi (left) rules as regent for her son, the Kangxi emperor (right). She and her husband, Emperor Shunzhi (1644-1661), migrate to the coast with artistry, scholarship, and efficient administration, temporarily assuaging their fears that Manchus were ruling the majority Han Chinese.	1666-1722: The Kangxi emperor (left) rules as the second Manchu emperor of China. He is a wise ruler, but his policies are strict. He is known for his love of art and literature, and for his efforts to unify the country.	1700	1760	1800	1850	1900	1950	2000
1406-1420: The Hall of Supreme Harmony is built.						1644: The last Ming emperor fails to prevent peasant rebels (the Manchu) from taking control of Beijing, making them their own emperors. The Manchus, who had gained influence with the Ming, had established their own empire, Manchu, in 1616. They were the only adult males, aside from the emperor, allowed to wear official robes for nearly 20 years.	1644-1666: The Empress Dowager Cixi (left) rules as regent for her son, the Kangxi emperor (right). She and her husband, Emperor Shunzhi (1644-1661), migrate to the coast with artistry, scholarship, and efficient administration, temporarily assuaging their fears that Manchus were ruling the majority Han Chinese.	1666-1722: The Kangxi emperor (left) rules as the second Manchu emperor of China. He is a wise ruler, but his policies are strict. He is known for his love of art and literature, and for his efforts to unify the country.	1700	1760	1800	1850	1900	1950	2000
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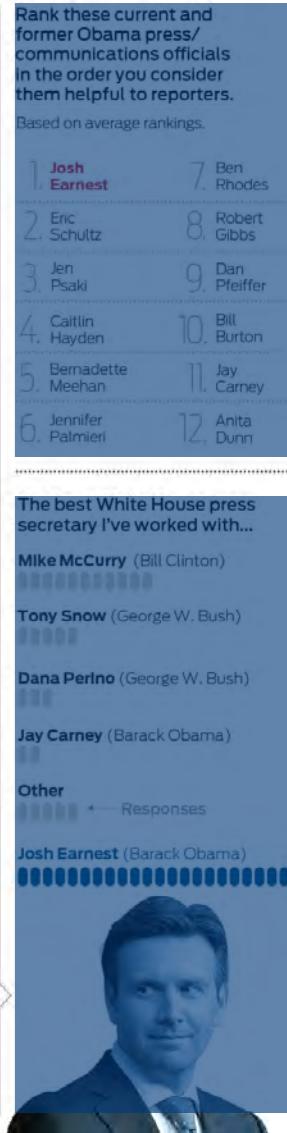
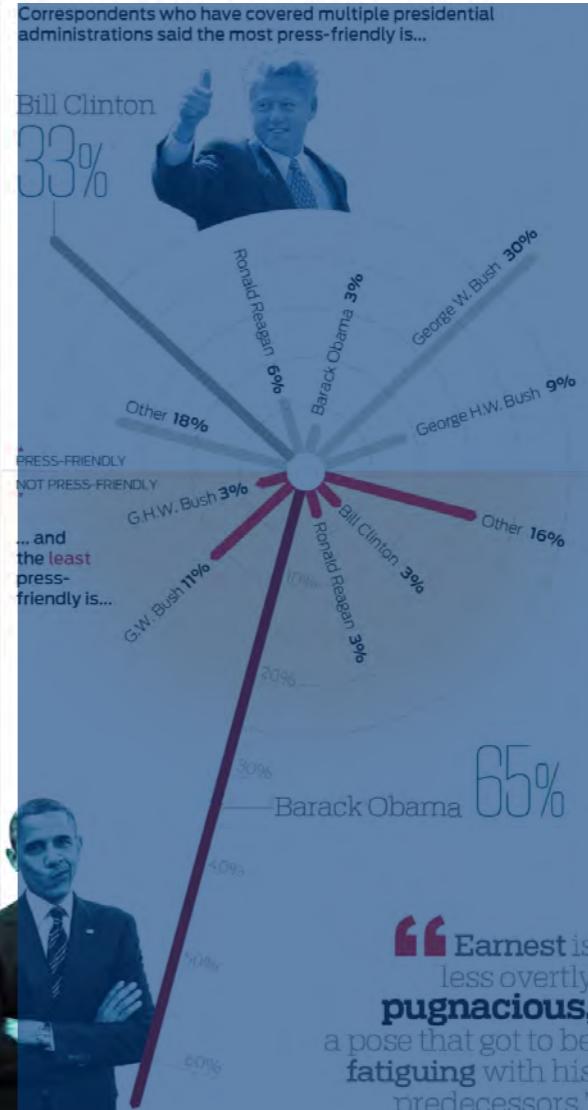
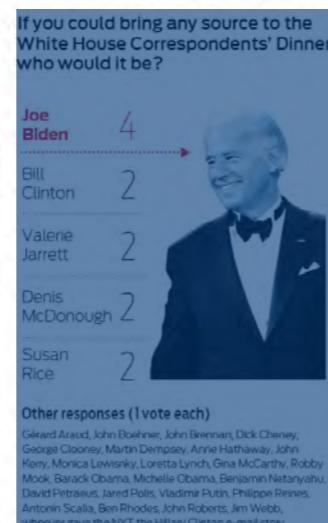
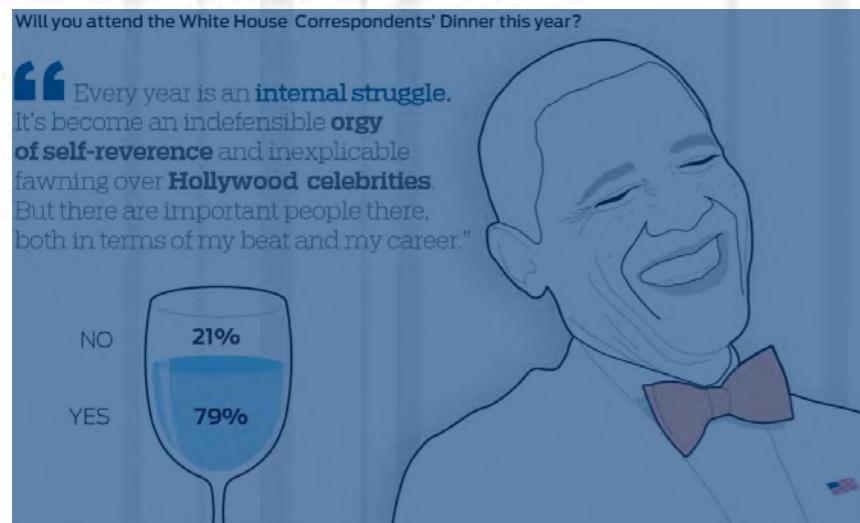
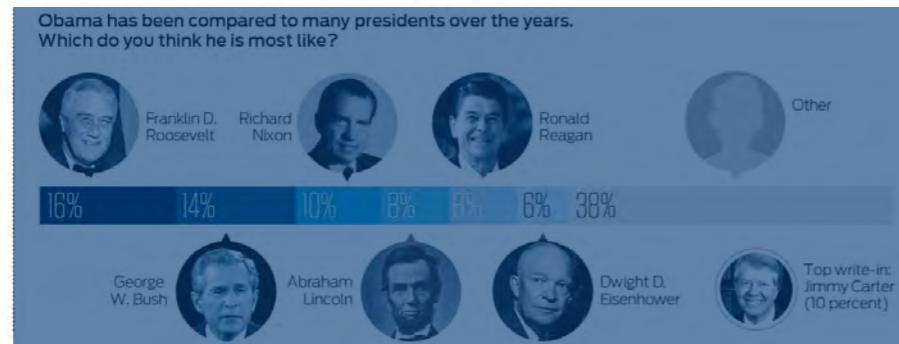
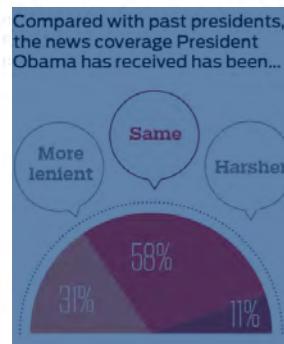
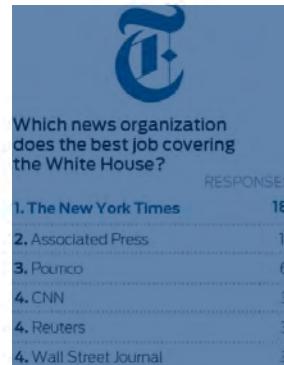
1406: King Zhu Yuanzhang, the first Ming emperor, moves the capital from Nanjing to Beijing. 1406-1420: The Hall of Supreme Harmony is built. 1460: Hall of Mental Cultivation is built. 1500: Hall of Union is built. 1566: Hall of Tranquility is built. 1600: Hall of Preserving Harmony is built. 1644: The last Ming emperor fails to prevent peasant rebels (the Manchu) from taking control of Beijing, making them their own emperors. The Manchus, who had gained influence with the Ming, had established their own empire, Manchu, in 1616. They were the only adult males, aside from the emperor, allowed to wear official robes for nearly 20 years. 1644-1666: The Empress Dowager Cixi (left) rules as regent for her son, the Kangxi emperor (right). She and her husband, Emperor Shunzhi (1644-1661), migrate to the coast with artistry, scholarship, and efficient administration, temporarily assuaging their fears that Manchus were ruling the majority Han Chinese. 1666-1722: The Kangxi emperor (left) rules as the second Manchu emperor of China. He is a wise ruler, but his policies are strict. He is known for his love of art and literature, and for his efforts to unify the country. 1700: Hall of Central Harmony is built. 1760: Hall of Imperial Peace is built. 1800: Hall of Supreme Harmony is built. 1850: Hall of Tranquility is built. 1900: Hall of Preserving Harmony is built. 1950: Hall of Union is built. 2000: Hall of Mental Cultivation is built. 1949: The People's Republic of China is founded. 1950: The Forbidden City is named a World Heritage site. 1959: An extensive 10-year restoration project starts. 1984: Along the Forbidden City's northern wall, Mao proclaims the People's Republic of China. 1987: The Forbidden City opens to the public as the Palace Museum.



Look for alignments. Gray lines. Bold numbers. Too many colors



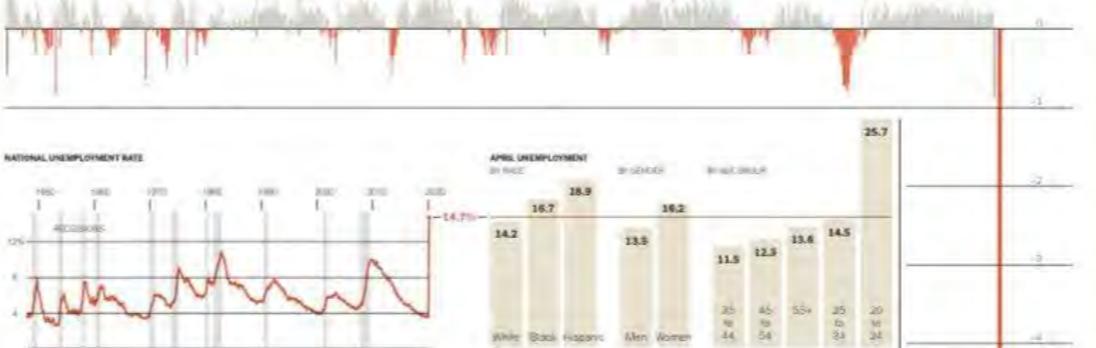
## COVERING THE OBAMA WHITE HOUSE



## U.S. UNEMPLOYMENT IS WORST SINCE DEPRESSION

1945 150 175 150 150 175 185 190 195 140 150 155 120 115 110

MONTHLY CHANGE IN JOBS SINCE THE END OF WORLD WAR II



### Georgia Killing Puts Spotlight on a Police Force's Troubled History

This article is by Rich Bojorquez, Richard Fausset and Serge F. Kovaleski.

BRUNSWICK, Ga. — When the Glynn County Police Department arrived at the scene of a fatal shooting in February in southeastern Georgia, officers encountered a former colleague with the victim's blood on his hands.

They took down his version of events and let him and his adult son, who had fired the shots, go home. Later that day, Wendy Cooper, the mother of the 25-year-old victim, Alton N. Arbery, received a call from a police investigator. She recanted later that the investiga-

tor said her son had been involved in a burglary and was killed by "the homosapien," an inaccurate version of what had happened.

More than two months after that fatal confrontation, the Georgia Bureau of Investigation, which took over the case this week, arrested the former officer, Gregory McMichael, and his son, Travis McMichael, on charges of murder and aggravated assault.

The charges — which came after the release of a video showing the killing of the two white men against Mr. Arbery, who was African-American — made clear the depths of the local department's biasing of the

case, which was just the latest in a series of troubling episodes involving its officers.

And it was one element of the broader potential breakdown of the justice system in South Georgia. Attorney General Chris Carr, who has been critical of the handling of the case, told reporters on Friday that he planned to start a review of all of the relevant players in that system.

Mr. Carr's office has already determined that George E. Barnard, a district attorney who was assigned the case in February but recused himself last month, should have never taken it on. Among his many conflicts: His son once worked alongside one of the suspects at the local prosecutor's office.

S. Lee Merritt, a lawyer representing Mr. Arbery's family, has called for a federal civil rights investigation, focusing on only one or the men who pursued Mr. Arbery, for the broader justice system.

"It's small-time America," Mr. Merritt said in an interview. Continued on Page A11

### NEWS ANALYSIS

### In Flynn Case, Russia Inquiry Is Barr's Target

By MARK MAZZETTI

WASHINGTON — Shortly after admitting guilt to a federal judge in December 2017 for lying to the F.B.I., Michael T. Flynn, a former national security adviser, what he did was wrong, and "enough my faith in God, I am working to set things right."

It turns out that the only higher power that Mr. Flynn needed was Attorney General William P. Barr.

Mr. Barr's extraordinary decision to drop criminal charges against Mr. Flynn shocked legal experts, won President Trump's praise and prompted a career prosecutor to quit the case. It was the latest in Mr. Barr's steady effort to undo the results of the investigation by Robert S. Mueller III, the special counsel.

Mr. Barr has portrayed his effort as a necessary intervention, and the president more bluntly as an exercise in political payback.

In his decisions and public comments over the past year, Mr. Barr has built an alternate narrative to the one that Mr. Mueller laid out in his voluminous report. When the special counsel focused on Russia's election interference effort to interfere in the 2016 election, the Trump campaign's spinners to it and the president's determination to impede the inquiry, Mr. Barr has focused instead on the investigation. He has suggested that they were underfunded by law enforcement and intelligence officials bent on bringing political harm to Mr. Trump.

Continued on Page A10

### WHITE HOUSE MEMO

### If West Wing Still Isn't Safe, Is Any Office?

By PETER BAKER  
and MICHAEL CROWLEY

WASHINGTON — In his emergency address to the country, President Trump said he had chosen to continue convincing Americans that it would be safe to go back to the workplace. But the past few days have demonstrated that even his own workplace may not be safe from the coronavirus.

Vice President Mike Pence's press secretary issued a positive update on Friday, noting a delay in the departure of Air Force Two while a half-dozen other members of his staff were taken off the plane for further testing. That came only a day after word that one of the president's own military valets had tested positive.

All of which raised an obvious question: If it is so hard to maintain a healthy environment in the White House, where staff members are tested regularly, same every day, then how can businesses across the country without any such testing and access to the same resources provide a safe space for their workers?

"The virus is in the White House, any way you look at it," said Juliette Kayyem, a former assistant secretary of homeland security under President Barack Obama. "Whether it's contained or not, we will have some issues with the fact that it's a place protected, with access to the best means to mitigate harm — it is not able to stop the virus from living under quarantine."

Continued on Page A10



A Mexican City crematory. Regional virus deaths are officially low.

### As Official Toll Ignores Reality, Mexico's Hospitals Are OVERRUN

By AZAM AHMED

MEXICO CITY — The Mexican government is not reporting hundreds, possibly thousands, of deaths from the coronavirus in Mexico City, disconcerting anxious officials who have called more than three times as many fatalities in the city as the government initially acknowledged, according to officials and confidential data reviewed by The New York Times.

The tensions have come to a head in recent weeks, with Mexico City alerting the government to the deaths repeatedly, hoping a call can bring the public attention to the true toll of the virus in the nation's biggest city, and, by extension, the country at large.

But that has not happened. Doctors and nurses in Mexico City say the reality of the epidemic is being hidden from the country in some hospitals, pa-

tients lie on the floor, splattered on mattresses. Elderly people are propped up on metal chairs because there are not enough beds, while patients are turned away to search for space in less-prepared hospitals. Medical staff while searching for beds.

"It's like we doctors are living in two different worlds," said Dr. Gustavo Avila, who works at Hospital de Especialidades Refugio Dominguez. "One is inside of the hospital with patients dying all the time. And the other is when we walk out onto the streets and see people walking around, countless of them in masks and how bad the situation really is."

Mexico City officials have falsified more than 2,500 deaths from the virus and serious respiratory illnesses that doctors suspect are related to Covid-19, the data review continued on Page A11

### April's Rate of 14.7% Touches All Parts of Economy

By NELSON D. SCHWARTZ  
and PEGGY CASSELMAN

The American economy plunged deeper into crisis last month, losing 20 million jobs as the unemployment rate jumped to 14.7 percent, the worst devastation since the Great Depression. The Labor Department's monthly report on Friday provided the clearest picture yet of the breadth and depth of the economic damage — and how swiftly a spread in the coronavirus pandemic swept the country.

Job losses have encompassed the entire economy, affecting every major industry. Areas like leisure and hospitality had the biggest losses in April, but even transportation, which includes a billion job losses, saw workers, including many women and members of racial and ethnic minorities, have hit especially hard.

"It's literally on the charts," said Michelle Meyer, head of U.S. economics at Bank of America. "What would typically take months or quarters to play out in a recession happened in a matter of weeks this time."

From almost any vantage point, it was a bleak report. The share of the adult population with a job, at 51.3 percent, was the lowest on record. Nearly 11 million people reported working part time because of concern about full-time work, up from about four million before the pandemic.

If anything, the numbers probably understate the economic distress.

Millions more Americans have filed unemployment claims since the data was collected in mid-April, when there, because it is easier for those workers to do so, the actual unemployment rate last month might have been closer to 26 percent.

It remains possible that the recovery, too, will be swift, and that as the pandemic retreats, businesses that were fundamentally healthy will return to work and resume travel and return trips or cross to travel. One encouraging sign in Friday's report was that nearly 80 percent of the unemployed said they had been temporarily laid off and expected to return to their jobs in the coming months.

President Trump endorsed this view in an interview Friday morning on Fox News. "These jobs will

continue on Page A11

### THE FACTS

### A Look at 21 People Who Have Lost Their Jobs Since the Pandemic

PAGE B5

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BIENVENUE, MICHEL PLANTIN

VOTRE PLAN

INFORMATIONS COMPLEMENTAIRES

VOS DÉPOTS

VOTRE COMPTE

## Votre portefeuille

VOTRE PORTEFEUILLE: PROFIL TRENTENAIRE

### Répartition

29%  
Actions71%  
Obligations

SUPPORT

% DE  
PORTEFEUILLEVALEUR  
ACTUELLE

US	33,50 %	50,54 €
Amérique Latine	2,17 %	71,98 €
Europe	12,00 %	124,40 €
Asie sans Japon	19,31 %	37,98 €
Japon	7,07 %	69,45 €
Petites capitalisation mondiales	5,50 %	98,31 €
Obligations américaines gvt + entreprises	10,00 %	53,89 €
Eurobond	5,45 %	31,95 €
International obligations enterprises	5,00 %	72,72 €
<b>TOTAL</b>	<b>100,00 %</b>	<b>611,22 €</b>

### Evolution de votre portefeuille

- Performance théorique long terme
- Performance réelle
- Livret A
- Contributions

DÉBUT  
OCT. 2011

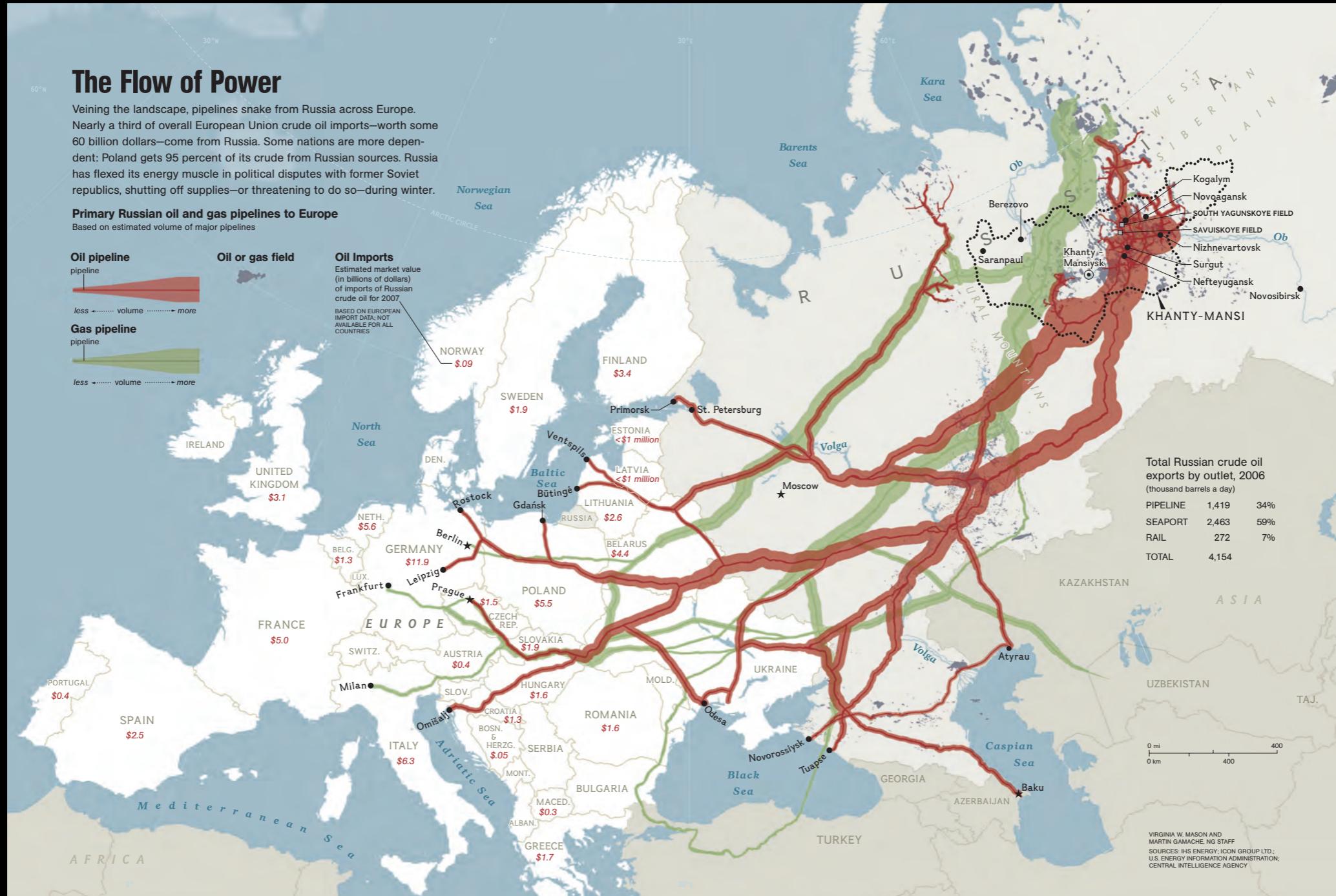
## Votre patrimoine

Cela ne vous prendra que quelques minutes pour établir votre plan pour investir au mieux votre épargne. 4 étapes et vous aurez. Cela ne vous prendra que quelques minutes pour établir votre

PLACEMENTS	MONTANT ACTUELLE	% ACTUELLE	MONTANT IDÉALE	% IDÉALE
Compte en banque	12 000 €	3,00 %	12 000 €	3,00 %
Livrets	12 000 €	5,00 %	12 000 €	5,00 %
Maison	12 000 €	23,50 %	12 000 €	23,50 %
Assurance vie	12 000 €	19,31 %	12 000 €	19,31 %
EPARGNONS.FR				
Actions	12 000 €	7,00 %	12 000 €	12,00 %
Obligations	12 000 €	20,00 %	12 000 €	20,00 %
<b>TOTAL</b>	<b>68 000 €</b>	<b>100,00 %</b>	<b>68 000 €</b>	<b>100,00 %</b>

## 6

Eliminate ALL noise, **clutter** and decoration



# Data-ink and junk-ink

## Junk-ink

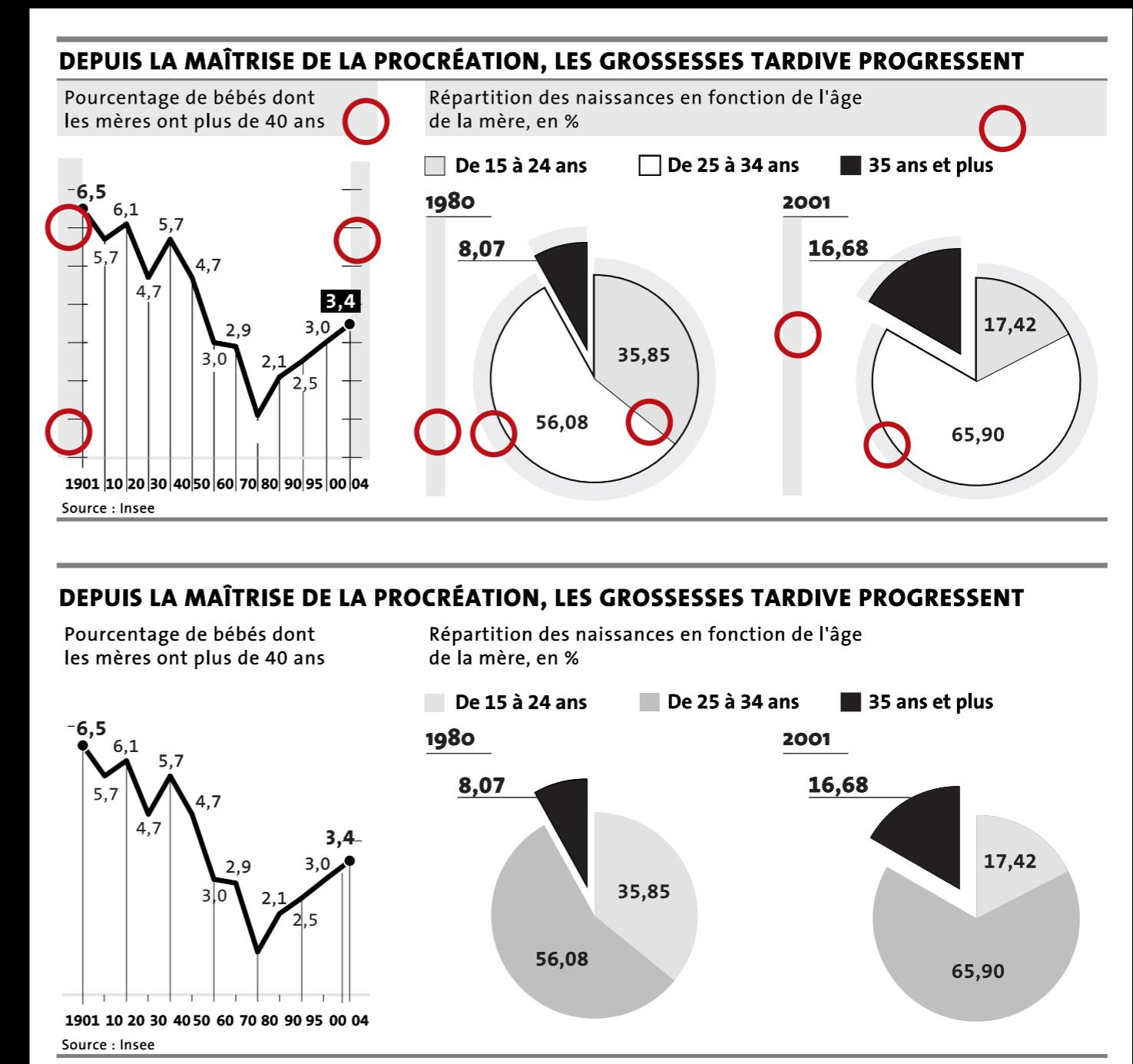
Any element in a graphic that can be deleted without loss of information.

Junk-ink should be deleted in most cases

## Data-ink

Non-erasable, non-redundant core of a graphic

From Edward Tufte,  
“The Visual Display of Quantitative Information”



# 7

## **White space** brings clarity

Well organized empty space can direct the attention of the reader. Fight the inclination to fill every square inch. White space separates and keeps things together that belong together. Let content breath with abundant spacing

*In a dark, dank warehouse in the Blue Ridge foothills of Virginia, Bill Martin picks up a bucket of brown pellets and slings them into a long concrete tank. Fat, white tilapia the size of dinner plates boil to the surface.*

Martin, president of Blue Ridge Aquaculture, one of the world's largest indoor fish farms, smiles at the feeding frenzy.

"This is St. Peter's fish, the fish Jesus fed the multitudes," he says, his raspy voice resonating like a preacher's. Unlike Jesus, however, Martin does not give his fish away. Each day he sells 12,000 pounds of live tilapia to Asian markets from Washington, D.C., to Toronto, and he's planning another farm on the West Coast. "My model is the poultry industry," he says. "The difference is, our fish are perfectly happy."

"How do you know they're happy?" I ask, noting that the mat of tilapia in the tank looks thick enough for St. Peter to walk on.

"Generally they show they're not happy by dying," Martin says. "I haven't lost a tank of fish yet."

An industrial park in Appalachia may seem an odd place to grow a few million natives of the Nile. But industrial-scale fish farms are popping up everywhere these days. Aquaculture has expanded about 14-fold since 1980. In 2012 its global output, from silvery salmon to homely sea cucumbers only a Chinese cook could love, reached more than 70 million tons—exceeding beef production clearly for the first time and amounting to nearly half of all fish and shellfish consumed on Earth. Population growth, income growth, and seafood's heart-healthy reputation are expected to drive up demand by 35 percent

or more in just the next 20 years. With the global catch of wild fish stagnant, experts say virtually all of that new seafood will have to be farmed.

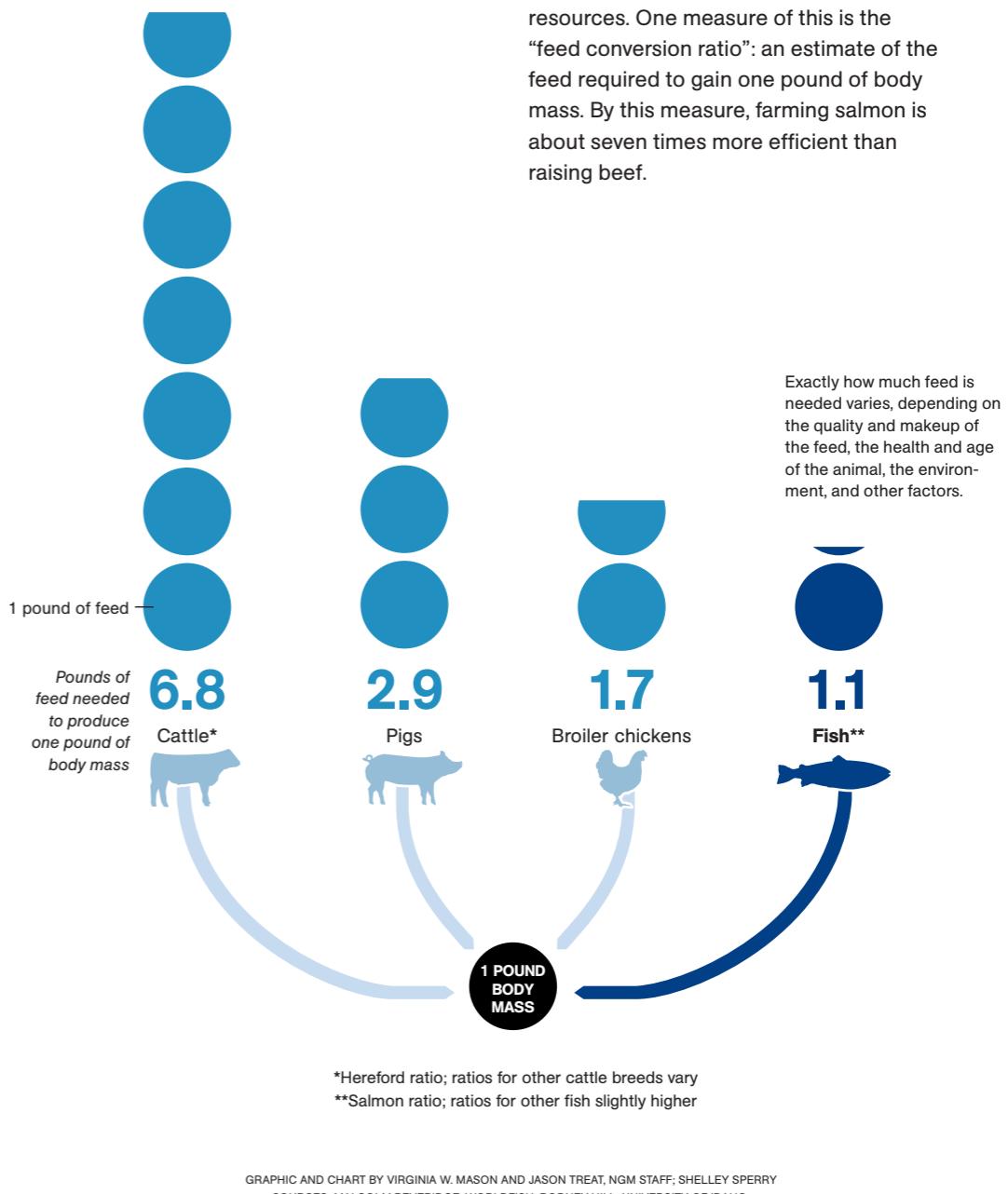
"There is no way we are going to get all of the protein we need out of wild fish," says Rosamond Naylor, a food-policy expert at Stanford University who has researched aquaculture systems. "But people are very wary that we're going to create another feedlot industry in the ocean. So they want it to be right from the start."

There are good reasons to be wary.

THE NEW "BLUE REVOLUTION," which has delivered cheap, vacuum-packed shrimp, salmon, and tilapia to grocery freezers, has brought with it many of the warts of agriculture on land: habitat destruction, water pollution, and food-safety scares. During the 1980s vast swaths of tropical mangroves were bulldozed to build farms that now produce a sizable portion of the world's shrimp. Aquacultural pollution—a putrid cocktail of nitrogen, phosphorus, and dead fish—is now a widespread hazard in Asia, where 90 percent of farmed fish are located. To keep fish alive in densely stocked pens, some Asian farmers resort to antibiotics and pesticides that are banned for use in the United States, Europe, and Japan. The U.S. now imports 90 percent of its seafood—around 2 percent of which is inspected by the Food and Drug Administration. In 2006

### Pounds for Pound

Different sources of animal protein in our diet place different demands on natural resources. One measure of this is the "feed conversion ratio": an estimate of the feed required to gain one pound of body mass. By this measure, farming salmon is about seven times more efficient than raising beef.



# 8

Invisibility: good  
design disappears

# 9

## Use a style guide

Branding/style guides for identity and efficiency

### UNICEF USA Infographics

#### Bar Charts — Time Series I

Time series bar charts track the evolution of a variable that starts from zero for each period of time. While there is flexibility with line charts, bar chart scales must always start at a uniform baseline to avoid visually misrepresenting a dataset. Use relatively thin bars, with the gaps in between about  $\frac{1}{3}$  the width of the bars.

**SCALE OR NUMBERS, BUT NOT BOTH /** Use a scale on the left side of the bar chart, or show the value above each bar instead, but don't do both.

**TIME /** Time series should be shown with time running horizontally on the x-axis. Bar charts that show evolution in time should be done as vertical bar charts.

**SCALE LABELS**

- Always spell out the first time period on the x-axis. After that use abbreviations only if you don't have the space.
- Place labels and tick marks at regular intervals, but don't use too many. Just enough to provide a visual guide.
- Always include the most recent datapoint in the x-axis, even if it doesn't fall into your regular intervals.

**UNIT NAME AND SCALES NUMBERS**  
Linotype Univers  
430 Regular  
Size: 9 pt  
Color: USA Gray-Med

**LABEL**  
Linotype Univers  
530 Medium  
Size: 9 pt  
Line-Height: 11 pt  
Color: Black

**BASELINE & TICK MARKS**  
Stroke: 0.4 pt  
Text Color: Black

**Bar Charts: With Scale**  
Unit name  
5,000 -  
4,000 -  
3,000 -  
2,000 -  
1,000 -  
0 -  
2012 2014 2016 2018 '19

**Label about a significant data point**

**GAPS BETWEEN BARS**  
 $\frac{1}{3}$  of the bar width

**PROJECTED DATA**  
Bar Color: UNICEF BLUE  
Tint: 30%  
LABEL: Linotype Univers  
430 Regular, all caps  
Size: 7 pt  
Color: UNICEF BLUE

**Bar Charts: With Numbers**  
20 23 58 30 41 50  
2012 2014 2016 '17

**NUMBERS**  
REGULAR  
Linotype Univers  
430 Regular  
Size: 9 pt  
Color: Black

**HIGHLIGHT**  
DIN Next Slab Pro  
Black  
Size: 10 pt  
Color: Same as bar

**BAR COLOR**  
Default Color: UNICEF BLUE  
Tint: 100%  
Highlight color choices:

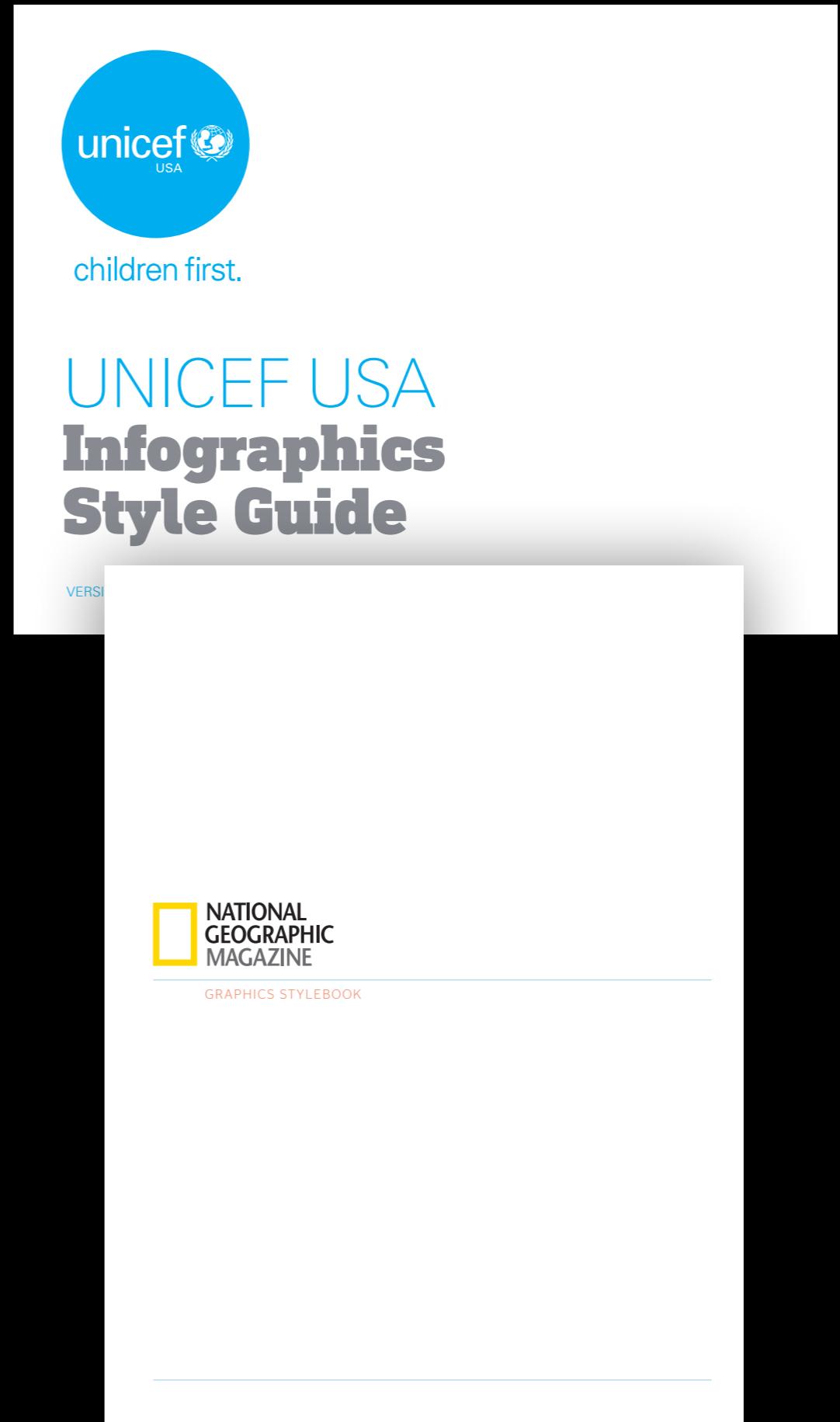
- UNICEF BLUE +60K
- USA Orange
- USA Green

VERSION 1.0 • October 2018

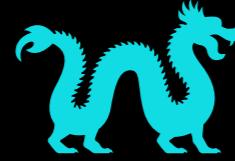
UNICEF USA INFOGRAPHICS STYLE GUIDE • Page 15

## Why a graphics stylebook?

- Improve the everyday graphics.  
**Best practices** with scales, labeling, type hierarchy, etc are embedded in the style
- **Cohesive, consistent** style is perceived as more **reliable**.
- - **Efficiency and speed** with simple graphics saves time to dedicate to larger projects



Design of **online** graphics



In China there are  
802 million netizens,  
and **98%** of them  
are **mobile users**



“The battle for the future of news will absolutely  
be won or lost on smartphones”

The New York Times CEO Mark Thompson

We have not given enough thought to the presentation of infographics in smartphones

Our fat fingers don't help



**88%** of tablet use happens while seated,  
compared to **19%** of phone use

SOURCE: HOOVER AND SHANK SURVEY





## Small screens, full art, can't lose: Despite their size, phones open up new opportunities for interactives

Here's how some top news publishers are shaping their interactives for mobile:  
"These devices are there, they have these capabilities built into them, so how do we use them in our storytelling?"

By SHAN WANG @shansquared March 10, 2016, 11:43 a.m.

"It's better to use **imprecise, easy-to-repeat motions** on mobile, especially since people are sometimes holding the device with the **same hand** they are using to navigate. **Scrolling and swiping are preferable to tapping**"

"Loop a **GIF** to see change over time"

"Break down into **small, scrollable bits** of text and images"

"**Change the orientation** if needed. Don't expect anyone to turn their phones for horizontal viewing"

"Maps are hard to do on a small screen. Panning and zooming around is slow and disorienting. Implement **search** for people to locate where they are. Or use **geolocation** to narrow down to hyperlocal info from the start"

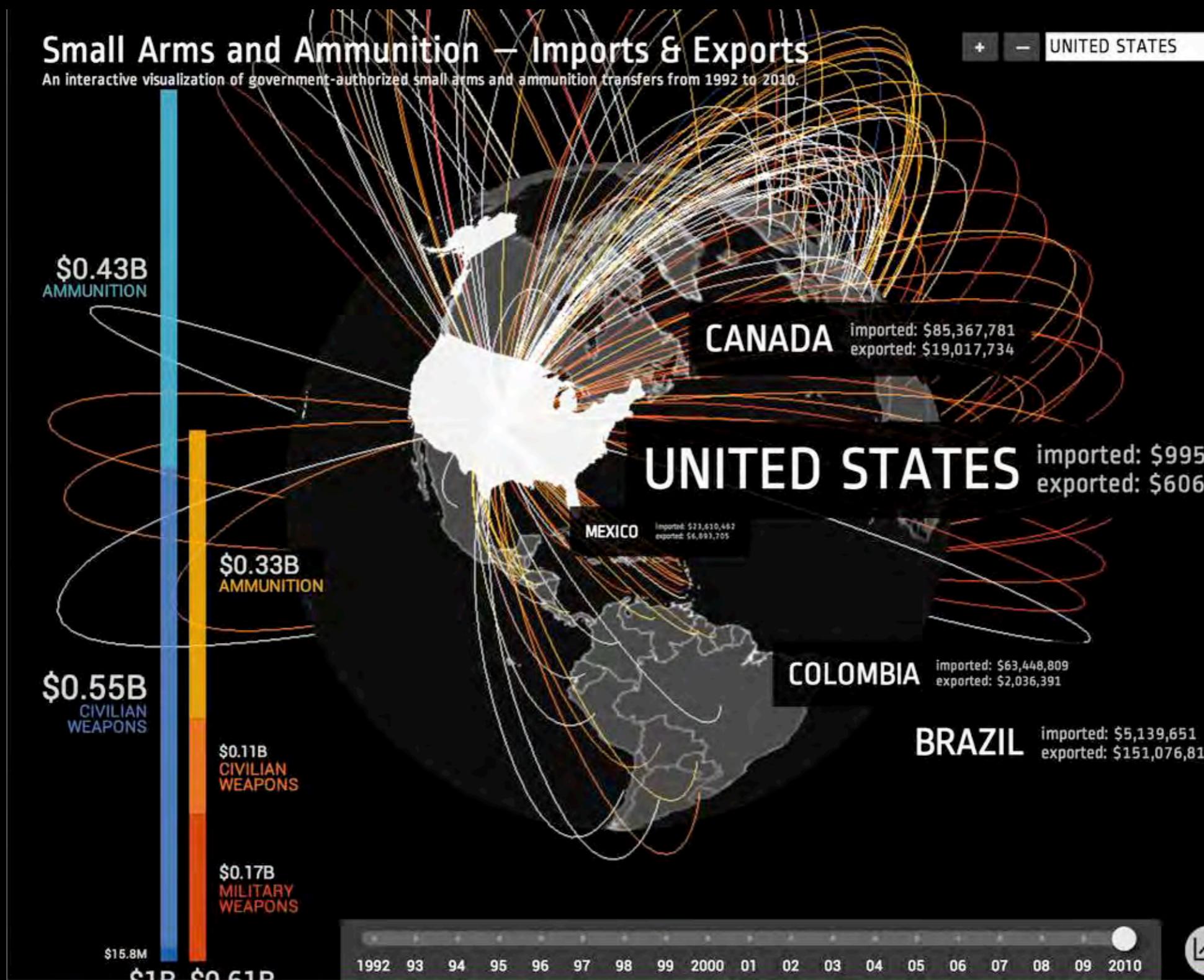
"The screen size is not the only big difference: it's also the **limited attention** the user is going to give to your interactive"

## The ultimate tip

Save people some time and elbow grease by reducing the number of taps and interactions needed to move through your design



# The problem with web data visualization



# Lately, the tendency is towards more static and less interactive graphics

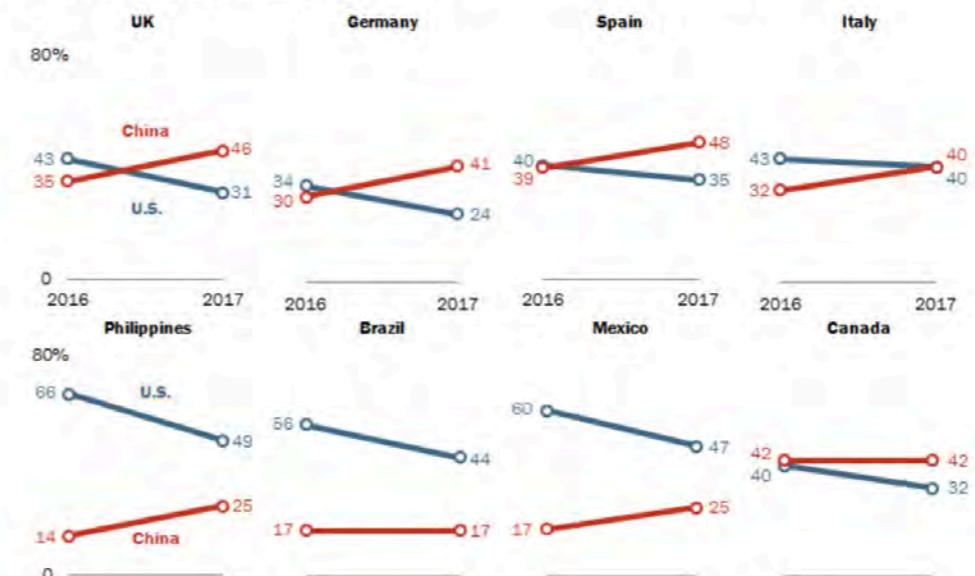
“  
As we matured, we realized the best form of dataviz and infographics storytelling is often static.  
”

ARCHIE TSE  
*THE NEW YORK TIMES*

again, and in countries such as Germany, the United Kingdom and Spain, China is once more seen as occupying the top spot. But these shifts are not limited to Europe; perceptions have also changed significantly in countries such as Canada, Brazil, Mexico and the Philippines.

## In UK, Germany and Spain, more now see China as top economic power

*— is the world's leading economic power*



Source: Spring 2017 Global Attitudes Survey, Q23  
PEW RESEARCH CENTER

One thing that China and the U.S. share is that leaders of both countries are currently viewed negatively around much of the world. A median of 53% say they do not have confidence in Chinese President Xi Jinping to do the right thing in world affairs. Still, a much greater share (74%) express little or no confidence in U.S. President Donald Trump. Xi is less well-known globally than Trump, however: Roughly one-in-five do not have an

Online publications are  
doing **fewer** interactives

## Some things that are done frequently

- Steppers (step by step clickable narrative)
- Tabs and buttons
- Sliders

} Often just a way for the reader to see more content



## Some things that are done frequently

- Steppers (step by step clickable narrative)
- Tabs and buttons
- Sliders

But readers  
**are not**  
getting to all of  
the content

Readers **just want to scroll**

# The New York Times

Readers **just**  
want to scroll

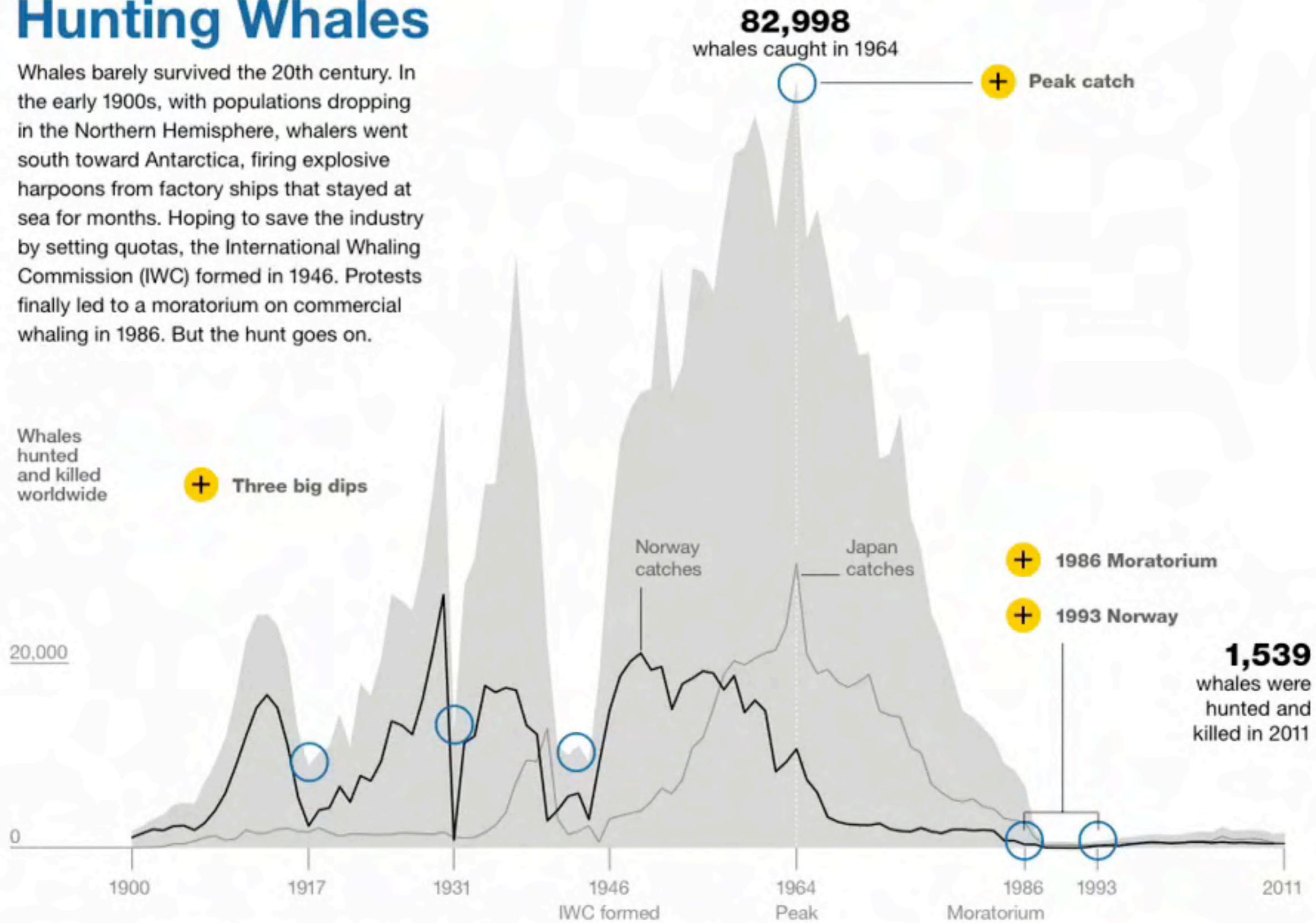


## Three rules for visual storytelling (2020 edition)

- If you make the reader click or do anything other than scroll, something **spectacular** has to happen.
- If you make tooltip or rollover, assume **no one will ever see it**. If content is important for readers to see, don't hide it.
- When deciding whether to make something interactive, remember that getting it to work in all platforms is **expensive and time consuming**

# Hunting Whales

Whales barely survived the 20th century. In the early 1900s, with populations dropping in the Northern Hemisphere, whalers went south toward Antarctica, firing explosive harpoons from factory ships that stayed at sea for months. Hoping to save the industry by setting quotas, the International Whaling Commission (IWC) formed in 1946. Protests finally led to a moratorium on commercial whaling in 1986. But the hunt goes on.

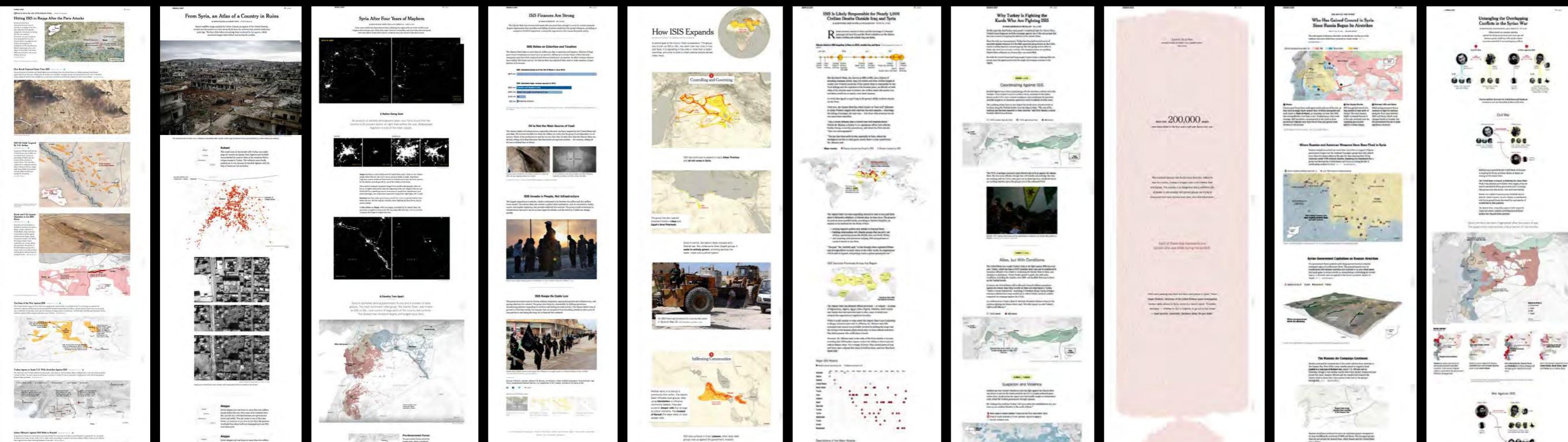
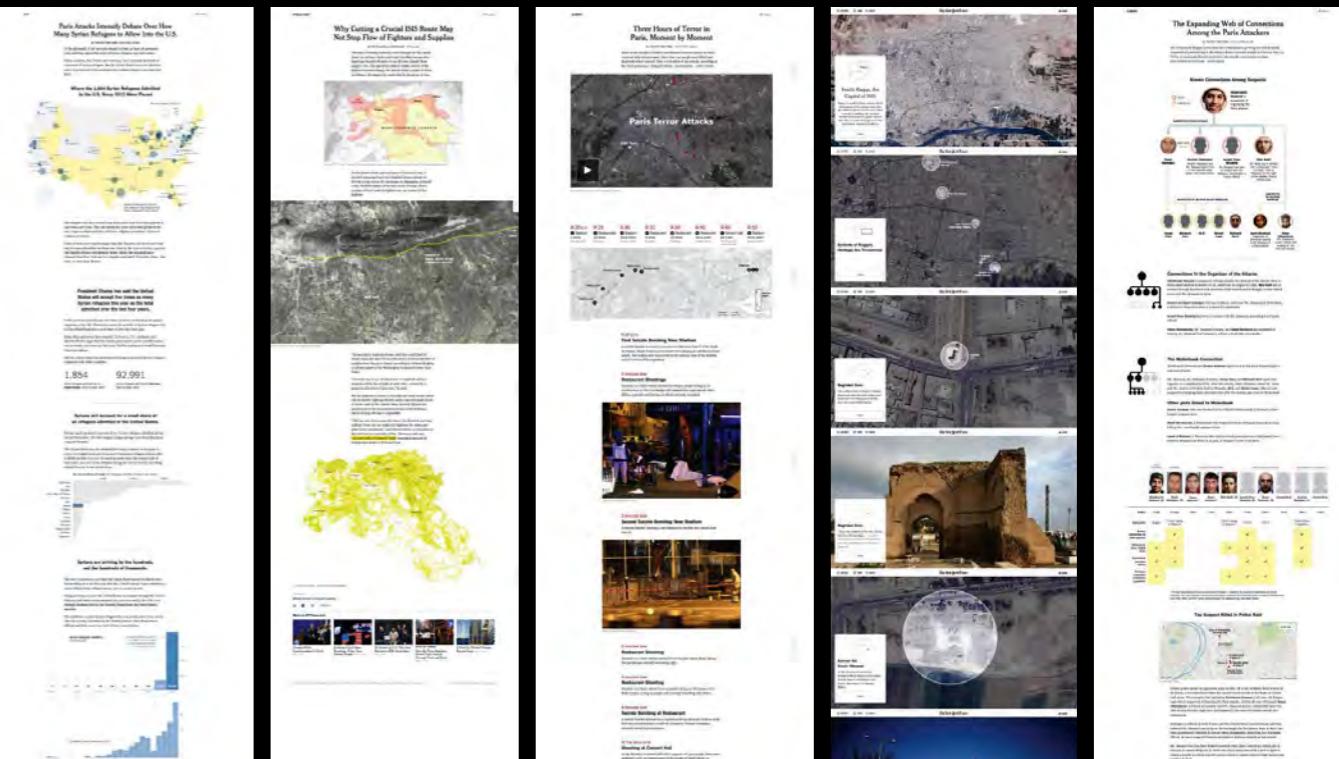


ÁLVARO VALÍÑO AND TONY SCHICK. SOURCES: CHERRY ALLISON, INTERNATIONAL WHALING COMMISSION; PHILLIP CLAPHAM AND YULIA IVASHCHENKO, NATIONAL MARINE MAMMAL LABORATORY, SEATTLE

Fewer interactives

Fewer small graphics  
embedded in articles

More stand-alone visual  
stories with static graphics  
and short text





# Scrollytelling



Telling data stories that reveal  
themselves as users scroll down



Behind the Issues:

- |   |                |   |            |
|---|----------------|---|------------|
| 1 | ENERGY         | 5 | HEALTHCARE |
|   | INDEPENDENCE   | 6 | NATIONAL   |
| 2 | JOB CREATORS   |   | SECURITY   |
|   | 3 STUDENT DEBT | 7 | TAXES      |
| 4 | IMMIGRATION    | 8 | INNOVATION |

GOOD



## WHERE DOES OUR ENERGY COME FROM?

In the United States, all of the energy we use come from one of five sources:



SOURCES:  
#1  
#2

www.nytimes.com/specials/chinarises/cityofdreams/index.html

The screenshot shows the homepage of the "CHINA RISES" website. At the top, there's a banner for the "BROADCAST SCHEDULE" and a link to "Order Online". Below the banner, the title "CHINA RISES" is prominently displayed in large, stylized letters. A subtitle reads "A Four-Part Television Series and Interactive Web Site" and "AN INTERNATIONAL CO-PRODUCTION OF THE NEW YORK TIMES, DISCOVERY TIMES, THE CANADIAN BROADCASTING CORPORATION, ZDF, FRANCE 5 AND S4C". A navigation bar at the bottom of the banner includes links for "THE SERIES", "INTRODUCTION", "POLITICS", "PARTY GAMES", "ECONOMY", "GETTING RICH", "ENVIRONMENT", "FOOD IS HEAVEN", "SOCIETY", and "CITY OF DREAMS". The main content area features an "INTERACTIVE ATLAS" titled "People and Society". It includes a map of China with various provinces highlighted in different shades of red, representing population density. A legend on the right side lists five metrics: Population, Population Density, Life Expectancy (which is selected and highlighted in blue), Birth Rate, and Adult Literacy Rate. Below the map, there's a "TABULAR DATA" section showing life expectancy statistics for several Chinese provinces. At the bottom of the page, there are sections for "INSIDE", "PEOPLE", "SCENES", "HOT TOPICS", and "FEEDBACK".

## Overloaded with Interface Elements – Navs, Buttons, Headlines, Summaries

This image provides a detailed view of the "TABULAR DATA" section from the "CITY OF DREAMS" page. It displays a table comparing life expectancy across five Chinese provinces. The table includes columns for Province, Population, Pop. Density, Life Expectancy, and Birth Rate. A color-coded legend indicates life expectancy ranges: 70-75 years (dark red), 65-70 years (medium red), and Under 65 years (light gray). The table shows the following data:

Province	Population	Pop. Density	Life Expectancy	Birth Rate
Anhui Province	64.6 million	1,196 per sq. mile	71.9 years	11.6 per 1,000 people
Fujian Province	35.1 million	739 per sq. mile	72.6 years	11.6 per 1,000 people
Gansu Province	26.2 million	185 per sq. mile	67.5 years	12.4 per 1,000 people
Guangdong Province	83.0 million	1,091 per sq. mile	73.3 years	13.1 per 1,000 people
Guizhou Province	20.0 million	591 per sq. mile	66.0 years	15.1 per 1,000 people

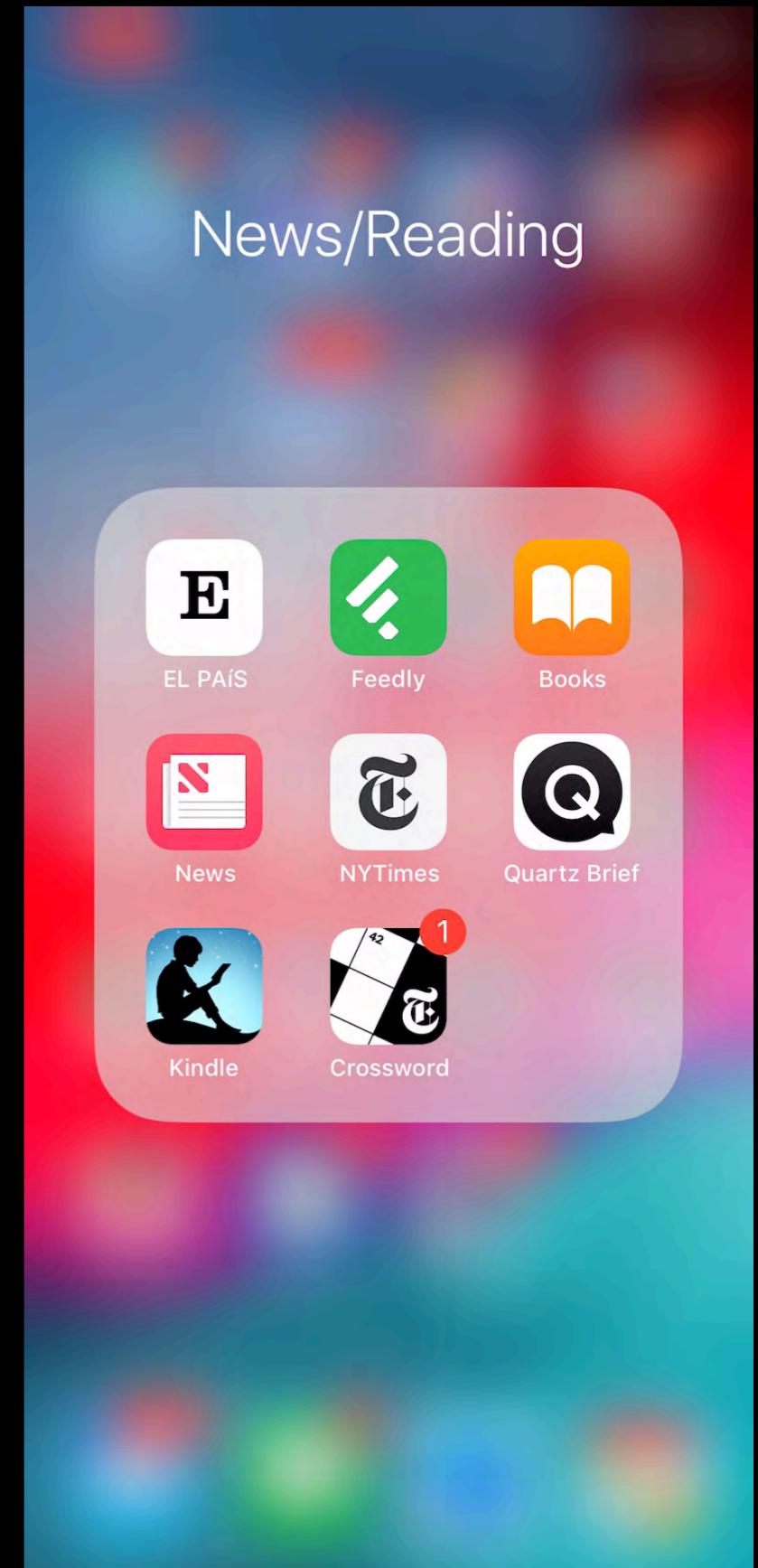
Below the table, there are sections for "INSIDE", "PEOPLE", "SCENES", "HOT TOPICS", and "FEEDBACK". The "PEOPLE" section highlights individuals like Jenny Ji, Ma Liang, Hu Yang, and Wei Qin. The "SCENES" section features a link to "A New 'Cultural Revolution'". The "HOT TOPICS" section includes "Society and Culture". The footer contains standard links: Home, Privacy Policy, Search, Corrections, XML, Help, Contact Us, Work for Us, Site Map, and Back to Top.

## Quartz app

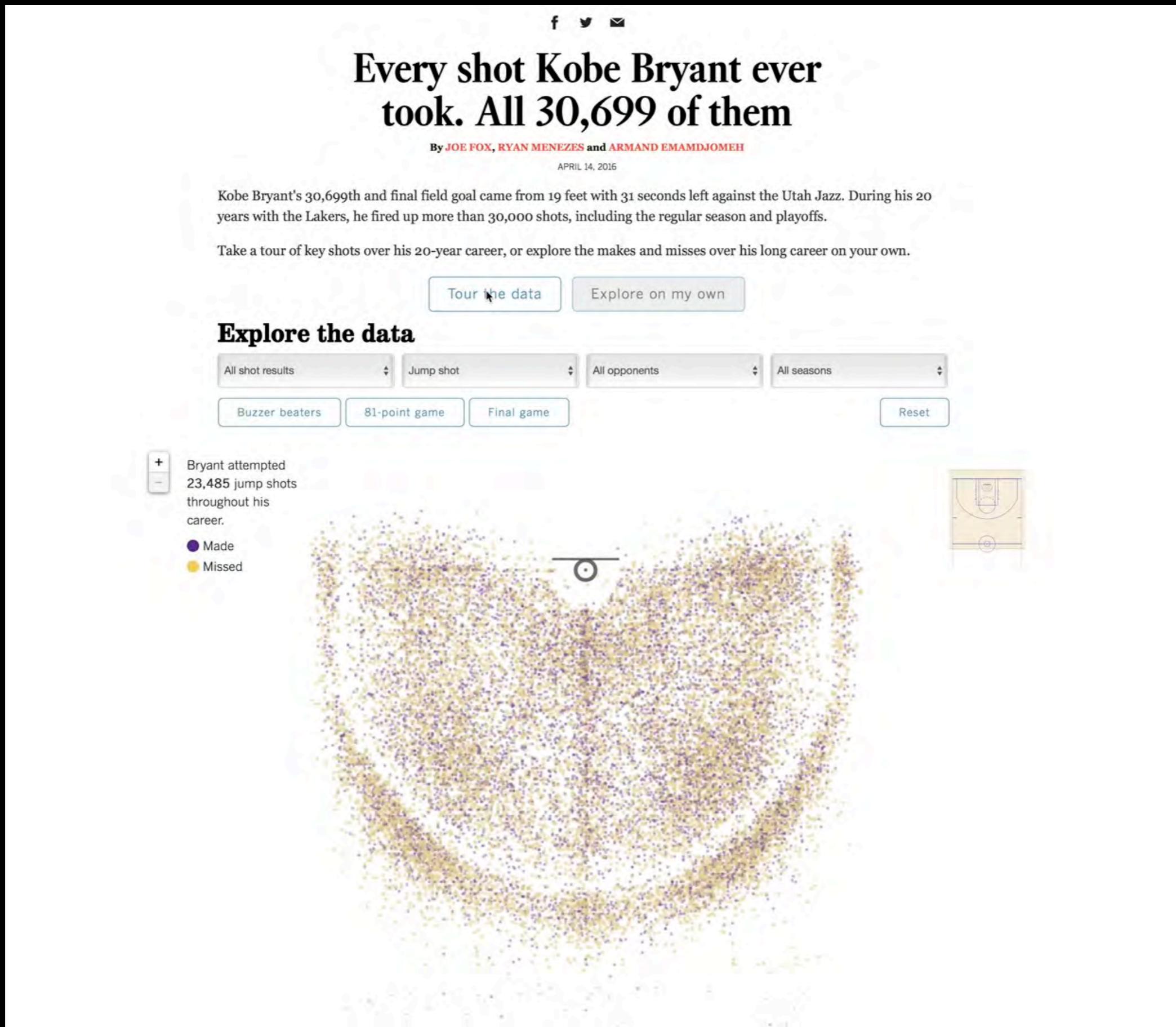
A “chat” with readers

## Linear visual storytelling

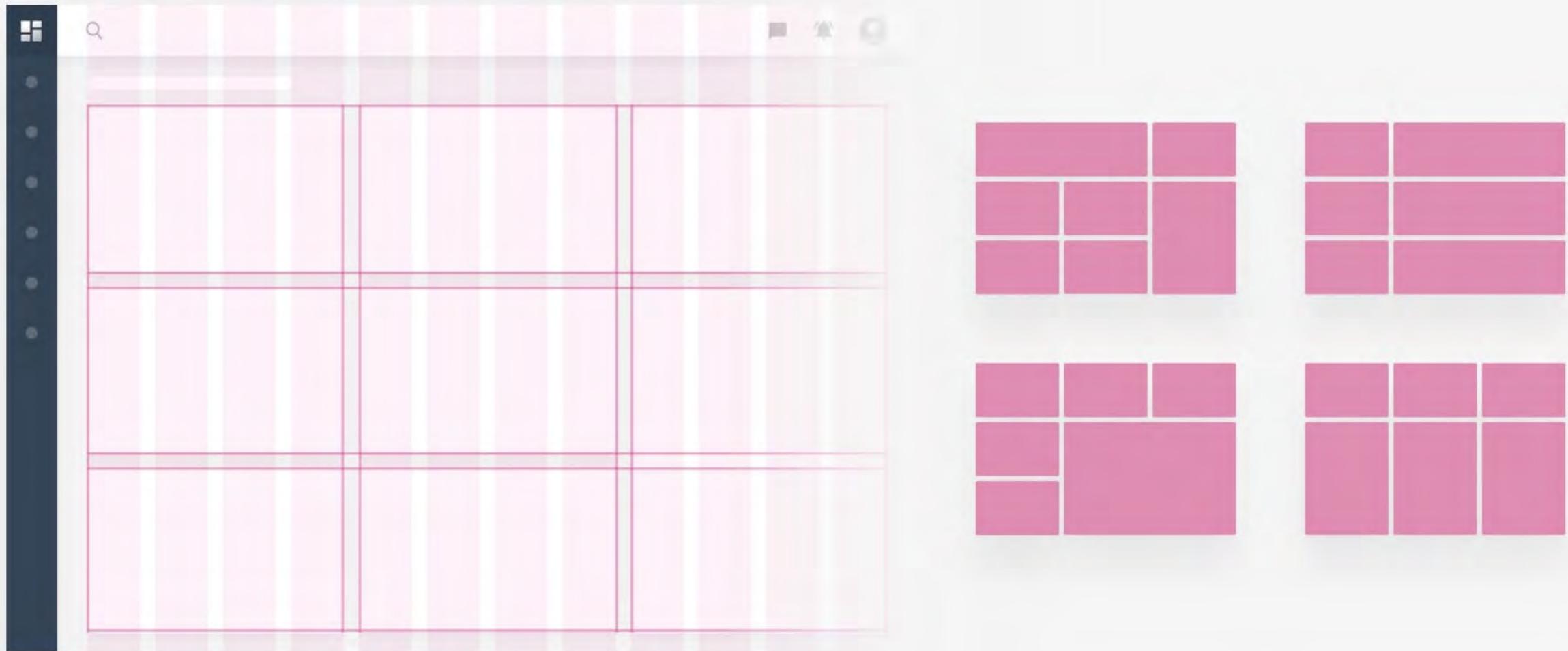
The narrative and visuals flow in a linear way from top to bottom, the way we communicate when we text or use WhatsApp in our phones



# Exploratory/data filtering

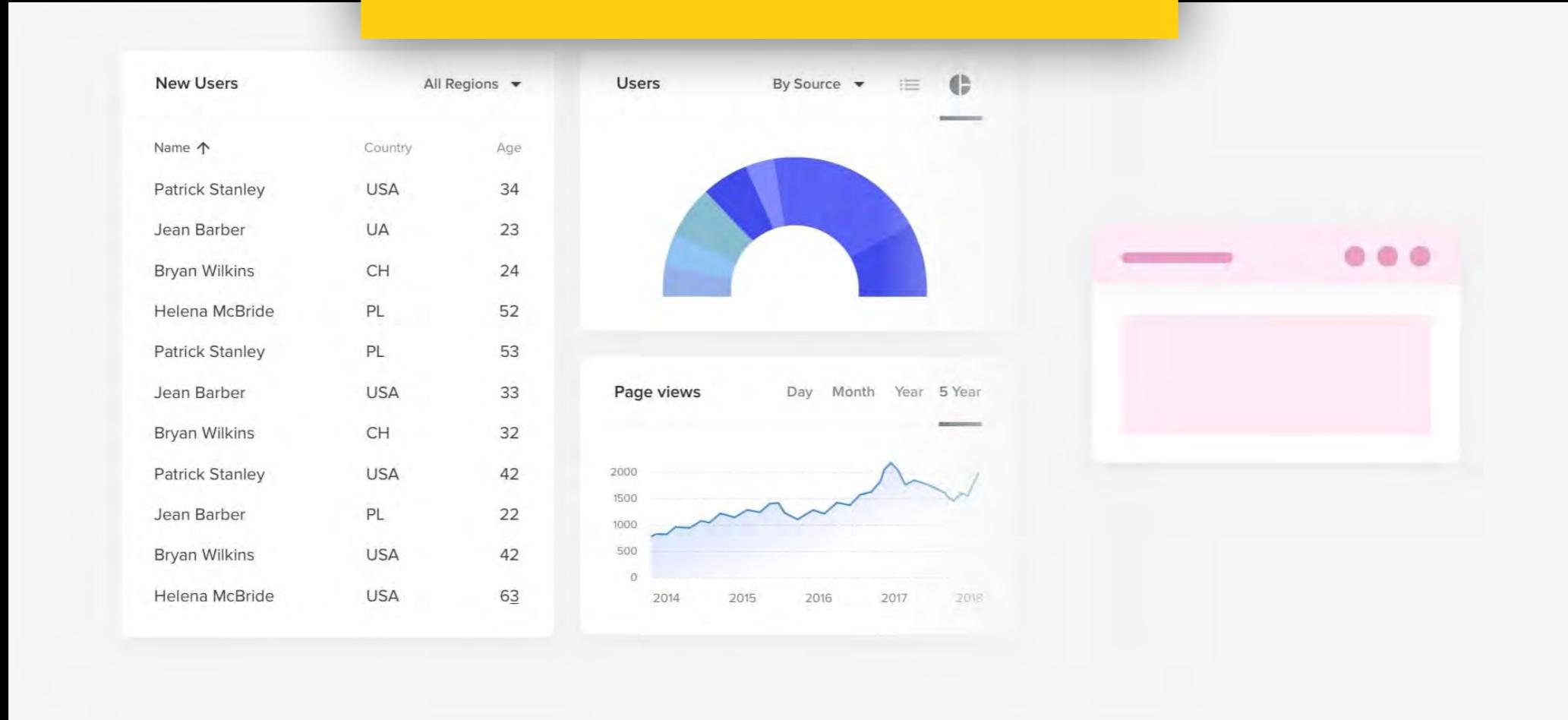


## Data-tracking dashboards



Flexible modular design

# Data-tracking dashboards

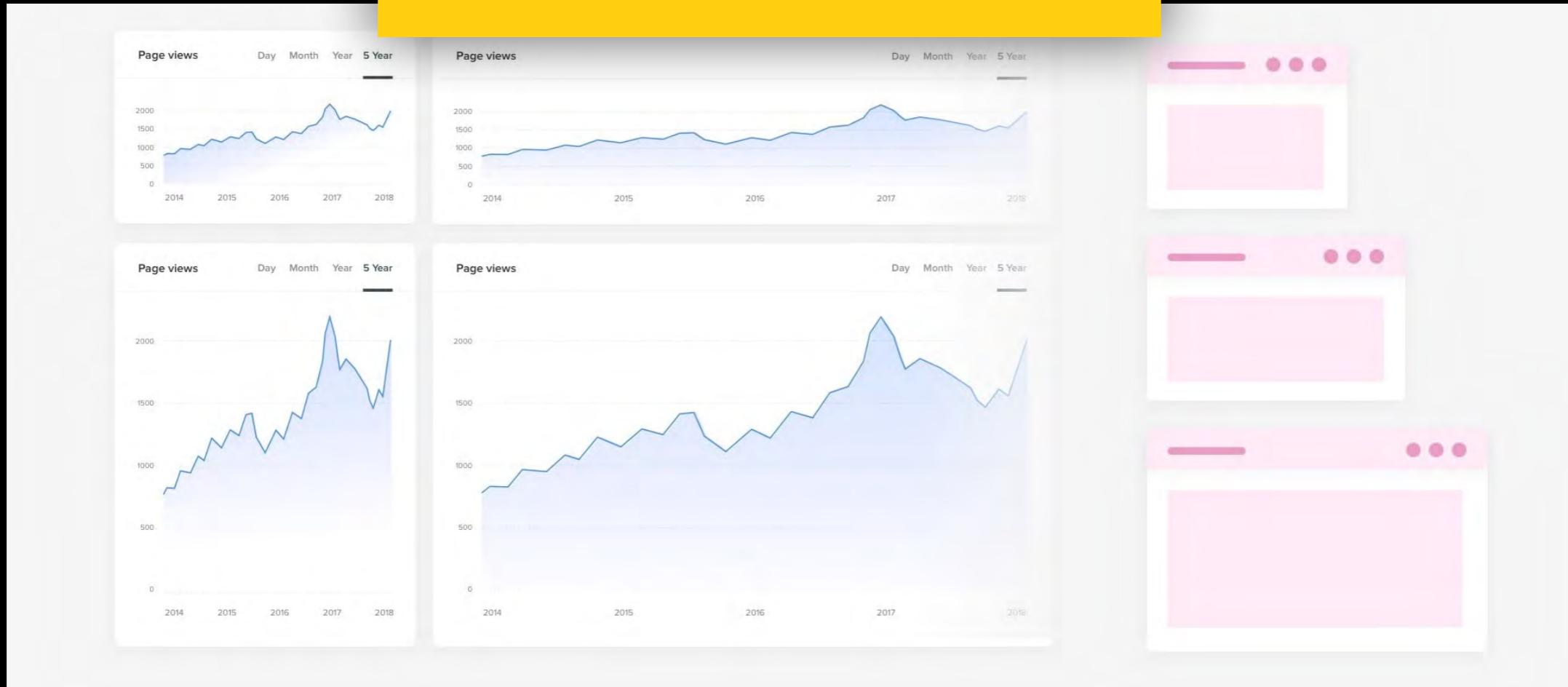


## Use building blocks with consistent structure

After we define a grid, we can work with multiple cards or “widgets” that will hold the info, charts, and controls.

Cards easy to arrange. They are a good choice for responsive design since cards act as content containers that easily scale up or down.

# Data-tracking dashboards



## Use consistent layout of controls and data

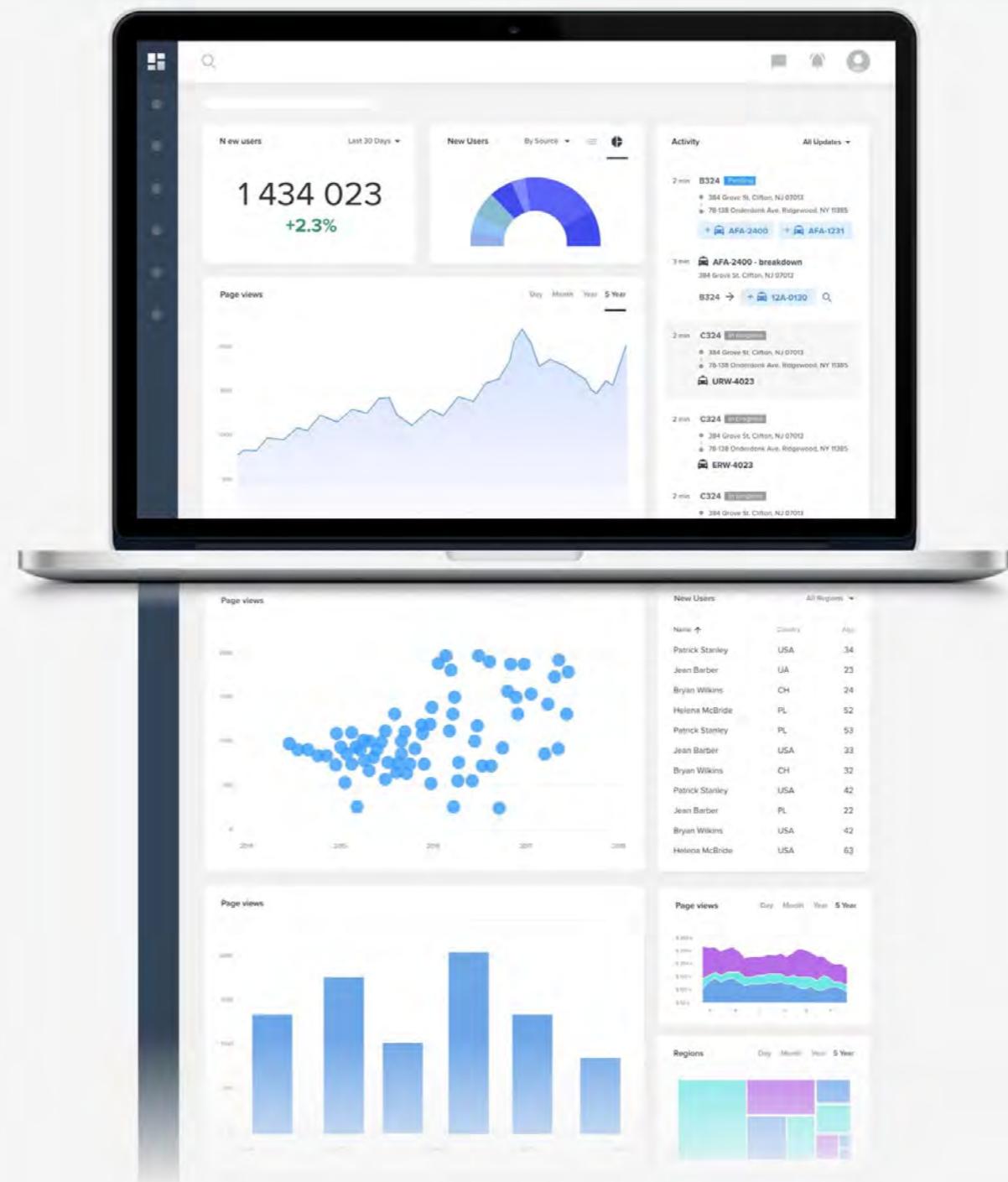
Put the name in the top left corner, align view controls or actions in the top right corner of the card, leave the rest for the content. When all have a consistent structure, it's easier for the users to work with the interface, they find everything where they expect it.

# Data-tracking dashboards

**Don't hide information.**  
**Or rely on interactions too much**

As one of the primary goals of the dashboard is to surface information at a glance, relying on scrolling, many interactions or multiple pages dilutes the whole purpose.

Don't



# Data-tracking dashboards

Don't

The dashboard displays a variety of data visualizations and lists:

- Products**: By Source (Scatter plot)
- Users**: By Source (Donut chart)
- Regions**: Day, Month, Year, 5 Year (Stacked bar chart)
- New Users**: All Regions (Table)

Name ↑	Country	Age
Patrick Stanley	USA	34
Jean Barber	UA	23
Bryan Wilkins	CH	24
Helena McBride	PL	52
Patrick Stanley	PL	53
Jean Barber	USA	33
Bryan Wilkins	CH	32
Patrick Stanley	USA	42
Jean Barber	PL	22
Bryan Wilkins	USA	42
Helena McBride	USA	63
- Activity**: All Updates (List)
  - 2 min B324 Pending
    - 384 Grove St, Clifton, NJ 07013
    - 78-138 Onderdonk Ave, Ridgewood, NY 11385
    - + AFA-2400 + AFA-1231
  - 3 min AFA-2400 - breakdown 3 min late
    - 384 Grove St, Clifton, NJ 07013
    - B324 → + 12A-0130
  - 2 min C324 In progress
    - 384 Grove St, Clifton, NJ 07013
    - 78-138 Onderdonk Ave, Ridgewood, NY 11385
    - URW-4023
- Page views**: Day, Month, Year, 5 Year (Line chart)
- Budget**: Day, Month, Year, 5 Year (Bar chart)
- Income**: Day, Month, Year, 5 Year (Bar chart)

Trying to make your dashboard very informative may lead to confusion. Use max **5–7 different widgets** to create a view. Otherwise, it will be hard for a user to focus and get a clear overview.

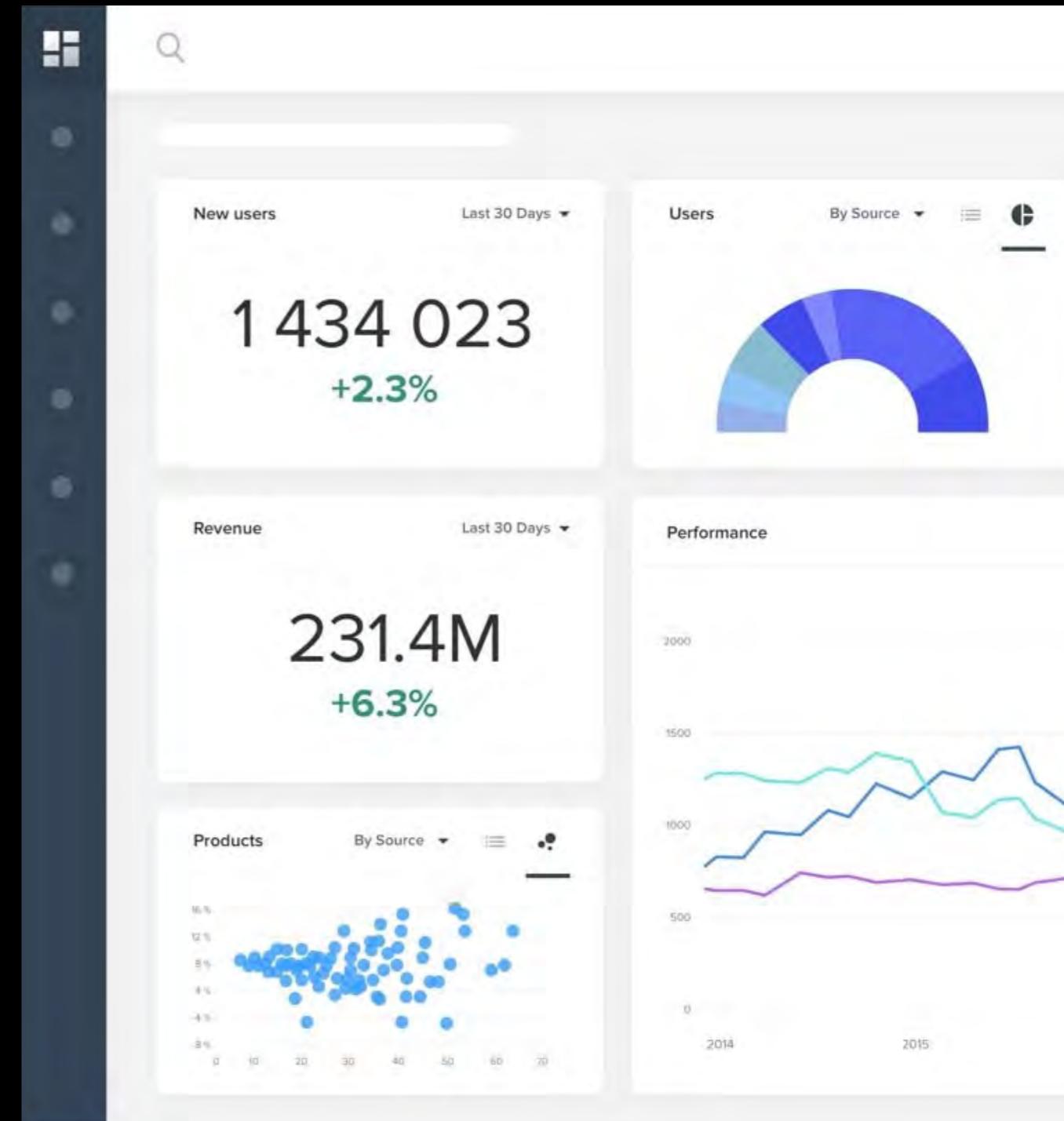
# Data-tracking dashboards

## Use BANs (Big A\*\* Numbers)

Don't bury the most important facts in a chart. Show it as a Big A\*\* Number (BAN)!

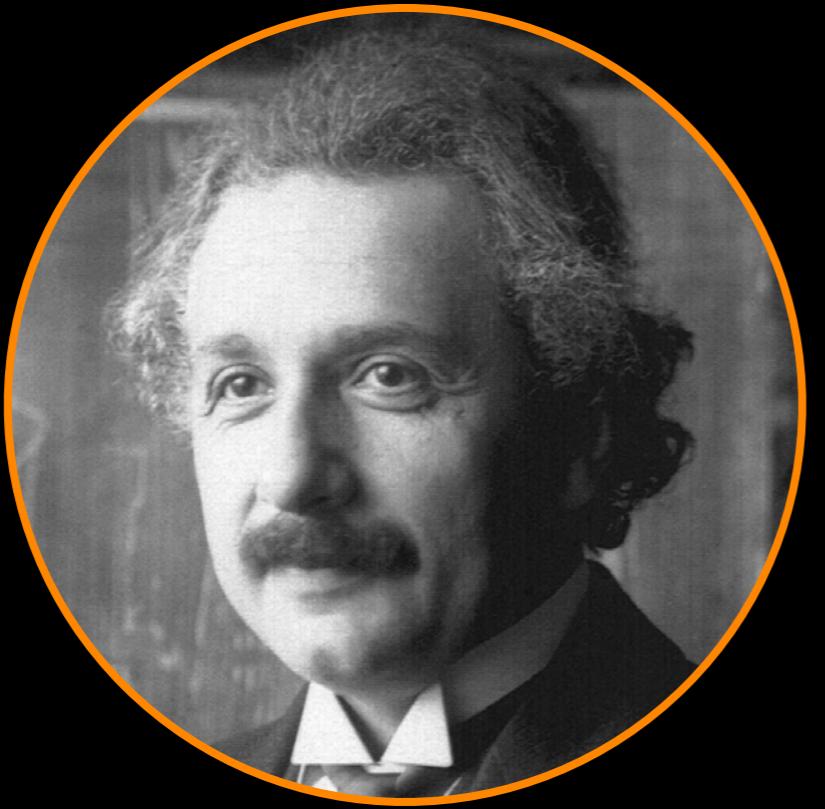
This hits users with the most vital information immediately, and charts provide further context.

At Tableau, the research team studied the impact of BANs using eye-tracking software. Dashboards with very large numbers showed concentration of visual attention directly on the big number. Additionally, this attention happened very early in the viewing sequence.



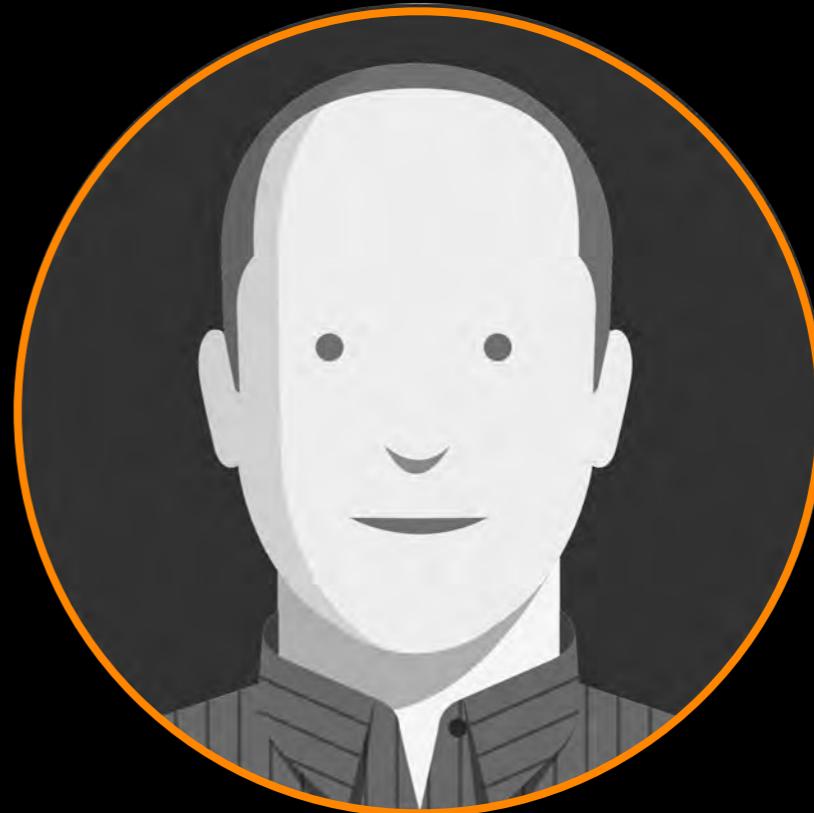
**DAY 2**

Writing for clarity and **insight**



*Everything should be  
made as simple as  
possible, but not simpler*

ALBERT EINSTEIN



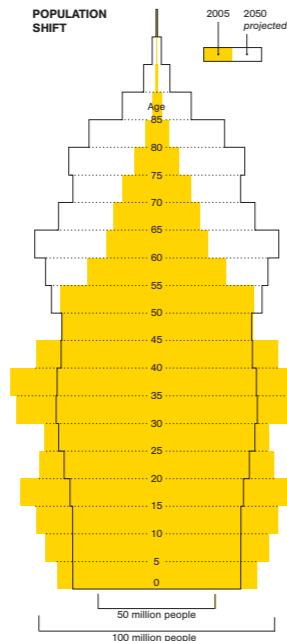
*Text should be made as  
short as possible,  
but not shorter*

JUAN VELASCO

## SHRINKING WORKFORCE

It's the biggest demographic revolution in history: The number of China's elderly is ballooning thanks to improvements in medicine and sanitation, while the number of people born after the government's one-child policy went into effect in 1979 is dwindling. China's immense workforce, key to today's boom, will shrink after 2015. The country should be able to fill jobs by continuing to tap underemployed rural laborers. But by 2050 close to a third of China's citizens will be over 60—three times the current proportion. With little social security and few pensions to ease the burden, China's only children will have to support two parents (and in many cases four grandparents) apiece—a heavy load even for urban factory workers, who typically save a quarter of their wages.

—Karen E. Lange



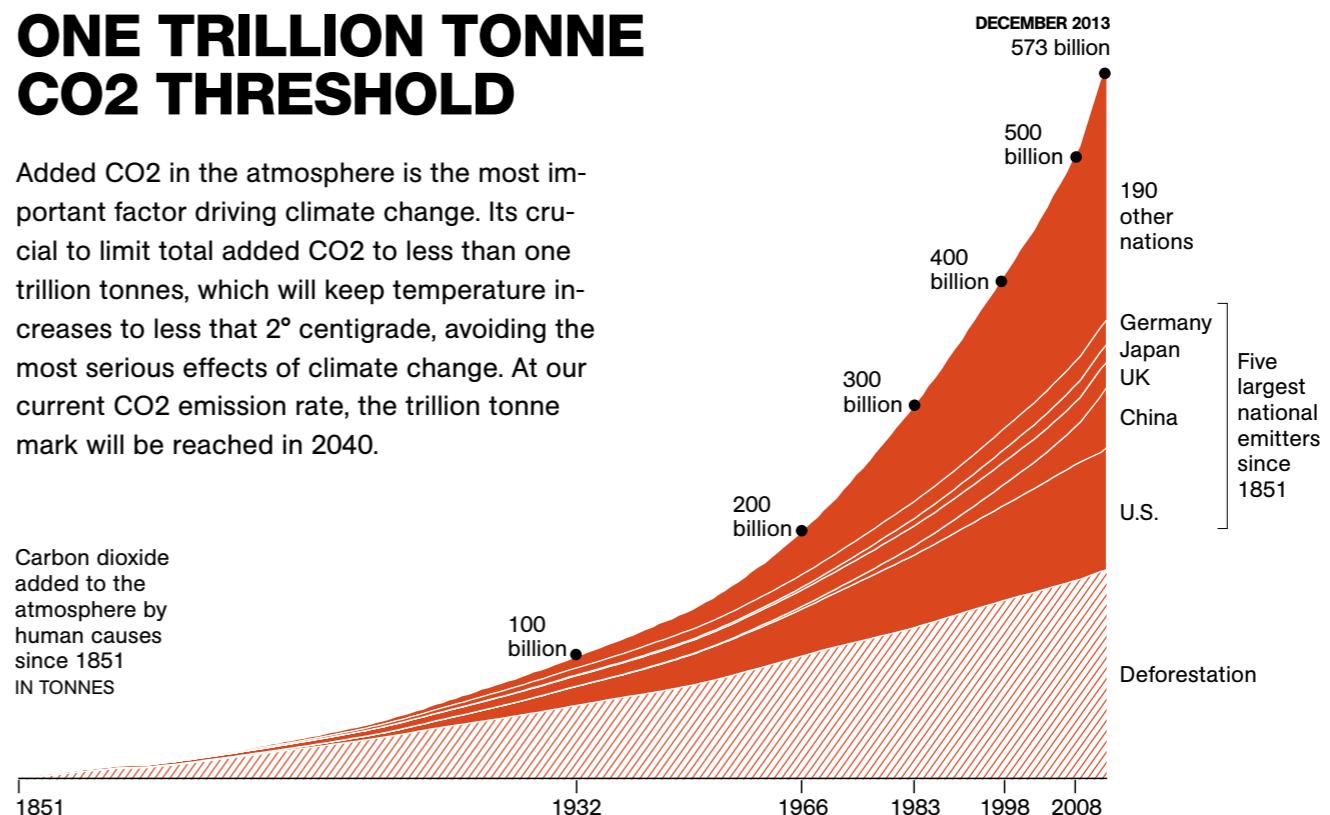
A good graphic stands alone and summarizes a story

### Coal and Climate Change

## THE ONE TRILLION TONNE CO<sub>2</sub> THRESHOLD

Added CO<sub>2</sub> in the atmosphere is the most important factor driving climate change. It's crucial to limit total added CO<sub>2</sub> to less than one trillion tonnes, which will keep temperature increases to less than that 2° centigrade, avoiding the most serious effects of climate change. At our current CO<sub>2</sub> emission rate, the trillion tonne mark will be reached in 2040.

Carbon dioxide added to the atmosphere by human causes since 1851  
IN TONNES



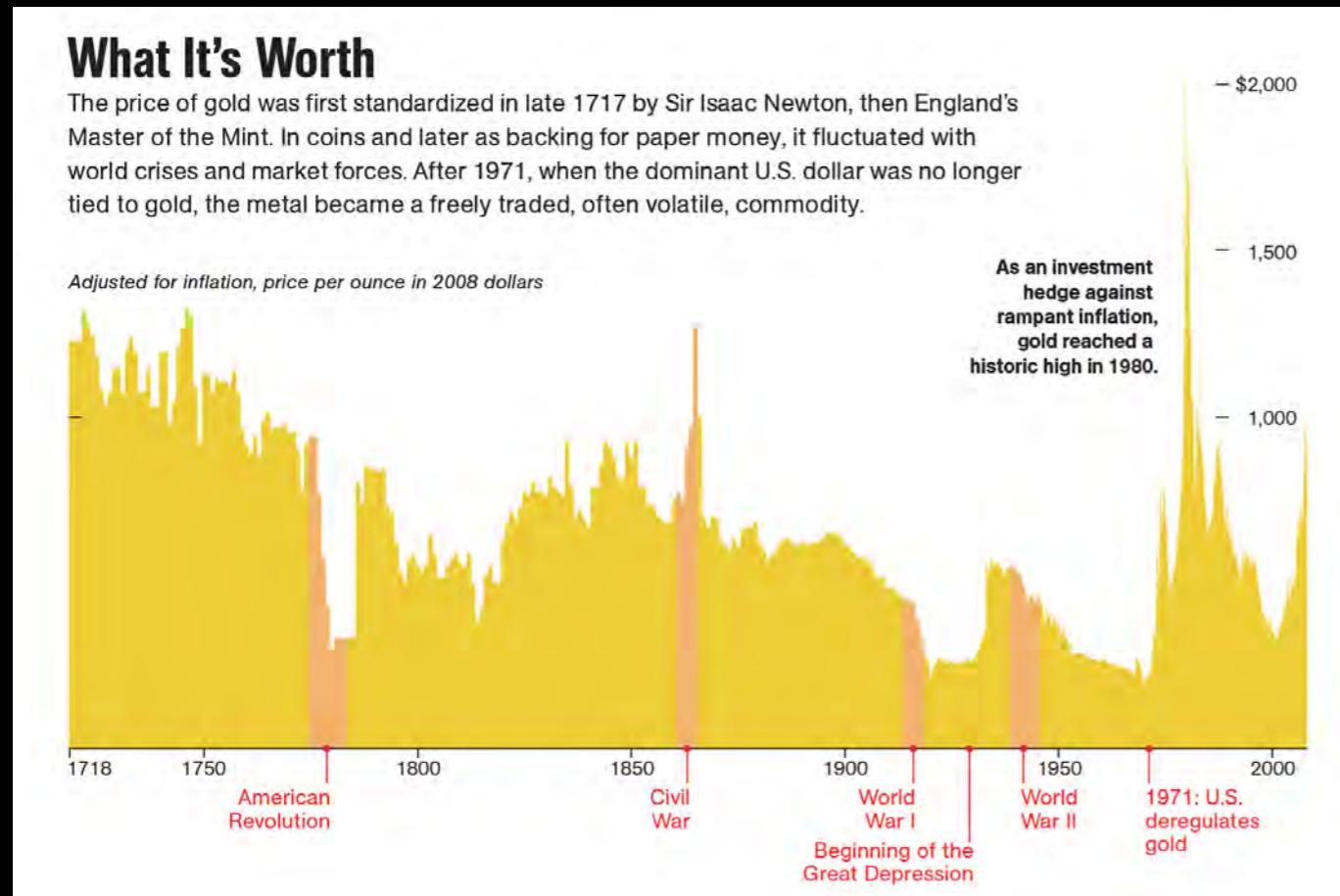
Make sure to have a proper **headline** and **intro paragraph** so the graphic makes sense if read independently from other content

problem, he does sometimes wonder if the solution he's been working on will ever be put to use. His toy carbon capture system, 50 feet high, is a

and too cold in winter. But the region is blessed with mineral resources, including some of the country's richest deposits of coal. "God is fair"

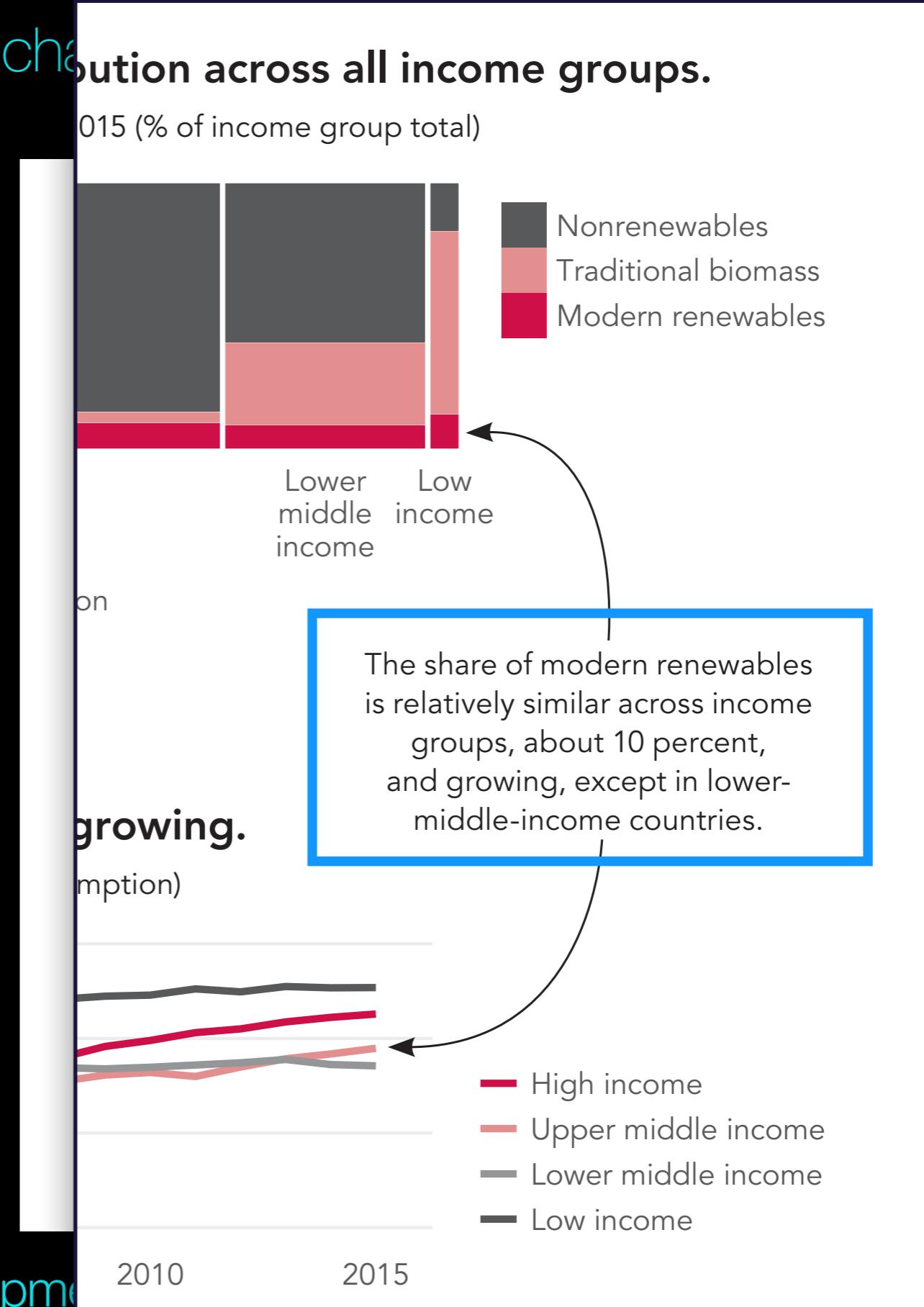
“The **annotation layer** is the most important thing we do”

AMANDA COX, THE NEW YORK TIMES



The careful use of labels, introductions, explanatory text and captions to provide content and explanation

# Annotate interesting key parts of your chart



A good **headline** drives readers in

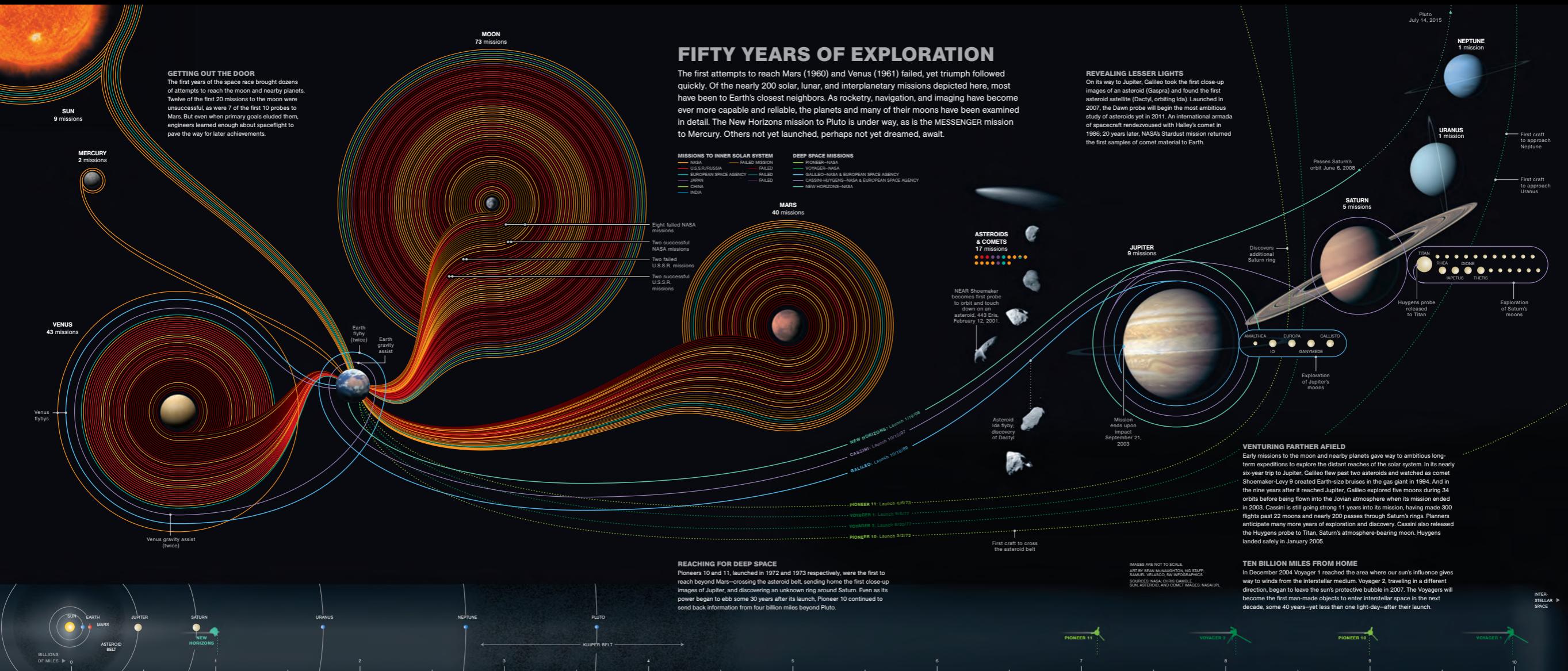
## Four approaches

1. **Descriptive** Just saying what's plotted. Subtitle can do it too.  
“U.S. trade balance with China 2010-2017”
2. **Statement** Summarize finding/key message supported by graphic.  
“U.S. trade deficits with China are growing larger”
3. **Question** What the graphic will attempt to answer  
“U.S.-China trade War. Who wins?”
4. **“Sticky”** Intrigue-inducing, enigmatic, artistic, provoking  
“Soybean showdown”

# Writing for graphics is often more difficult than writing long articles

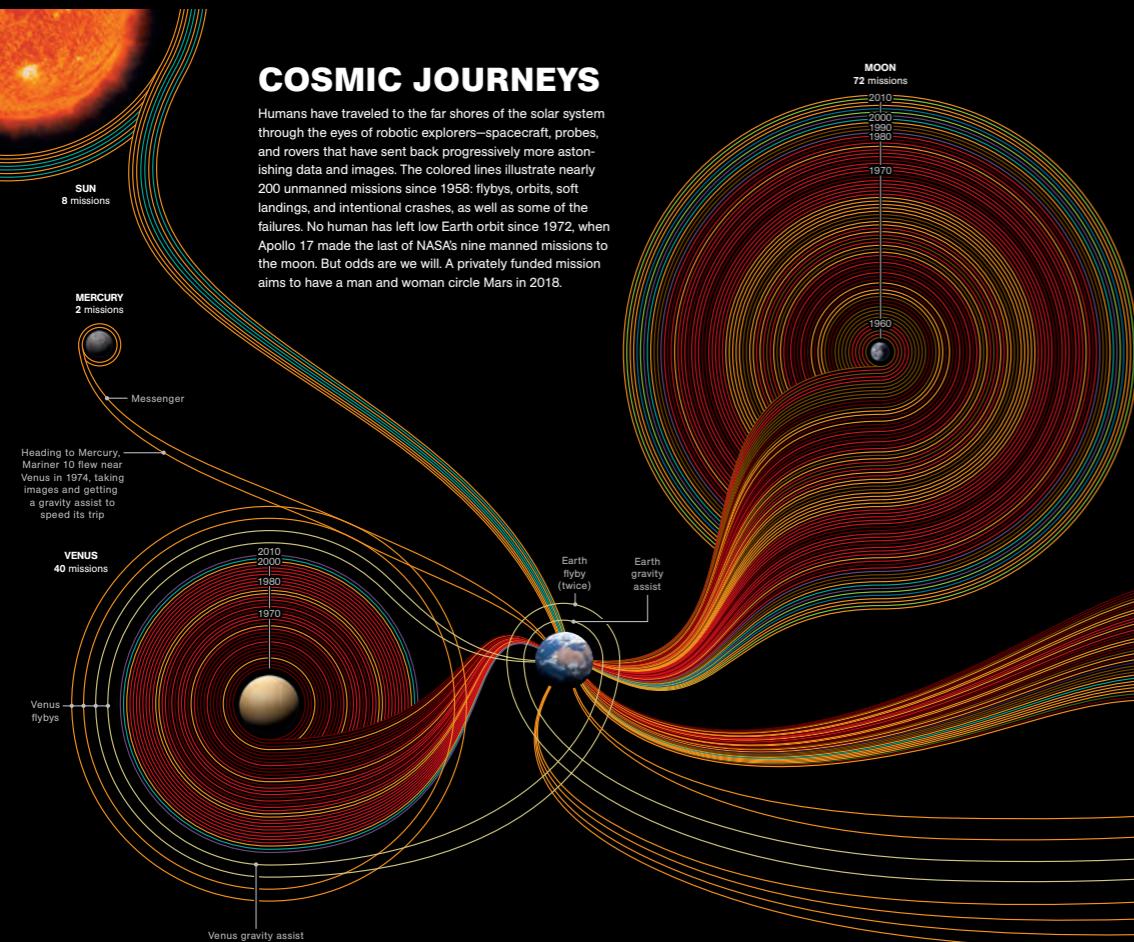
1. Short
2. Precise
3. Non-redundant. Add value to the visual
4. Editing constrains. Consistent length.





## COSMIC JOURNEYS

Humans have traveled to the far shores of the solar system through the eyes of robotic explorers—spacecraft, probes, and rovers that have sent back progressively more astonishing data and images. The colored lines illustrate nearly 200 unmanned missions since 1958: flybys, orbits, soft landings, and intentional crashes, as well as some of the failures. No human has left low Earth orbit since 1972, when Apollo 17 made the last of NASA's nine manned missions to the moon. But odds are we will. A privately funded mission aims to have a man and woman circle Mars in 2018.



### THE INNER SOLAR SYSTEM

Soviets reached the moon first, deliberately crashing Luna 2 into the surface in 1959. NASA made the first successful trip to Venus with the Mariner 2 flyby in 1962; Mariner 4 sent images from Mars in 1965. NASA's current Messenger mission is the first to orbit and map Mercury. A fleet of solar missions monitors the sun's activity—and its impact on Earth.

### MISSIONS TO INNER SOLAR SYSTEM

**SUCCESS**: FAILURE

- NASA
- U.S.R./RUSSIA
- EUROPEAN SPACE AGENCY
- JAPAN
- CHINA
- INDIA

### ASTEROIDS AND COMETS

On its way to Jupiter, in 1991, Galileo took the first close-up images of an asteroid (Gaspra) and found the first asteroid satellite (Dactyl, which orbits Ida). NASA's Dawn will reach the asteroid/dwarf planet Ceres in 2015. The European Space Agency's Rosetta probe will try to land on a comet in 2014.

### TO JUPITER AND BEYOND

Reaching the gas giant in 1995, Galileo sent images and data from Jupiter and its moons for eight years. The craft Juno arrives there in 2016. Cassini still transmits images of Saturn and its moons; its probe, Huygens, landed on Titan in 2005. In 2015, nine years after launch, New Horizons will study Pluto and the planetary debris of the Kuiper belt.

### DEEP SPACE MISSIONS

— NASA

— NASA AND EUROPEAN SPACE AGENCY

New Horizons passed Uranus's orbit March 18, 2011; It will reach Pluto July 14, 2015

Voyager 2: First craft to approach Neptune, 1989

Neptune 1 mission

URANUS 1 mission

Voyager 2: First craft to approach Uranus, 1986

SATURN 5 missions (including the Huygens probe)

Cassini: Exploration of Saturn's moons

TITAN TITAN, Dione, Iapetus, Tethys

Huygens probe released to Titan

### REACHING FOR DEEP SPACE

Pioneers 10 and 11, launched in 1972 and 1973, were first to travel beyond Mars and capture close-up images of Jupiter. Both have shut down but sail on. Voyagers 1 and 2 set out in 1977. Each studied Jupiter and Saturn; Voyager 2 then sent the first close-up images of Uranus and Neptune. Both continue to transmit as they leave the solar system for interstellar space.



Images not to scale.  
Missions launched through the end of 2012. Failures shown reached at least Earth orbit; many others failed at launch.

NATIONAL GEOGRAPHIC

ART BY SEAN MCNAULTON, SAMUEL VON KLEINHORN, MATTHEW TWOMBLY AND JANE VESSELS, NGM STAFF;  
SOURCES: NASA, CHRIS GAMBLE,  
SUN, ASTEROID, AND COMET IMAGES:  
NASA/JPL



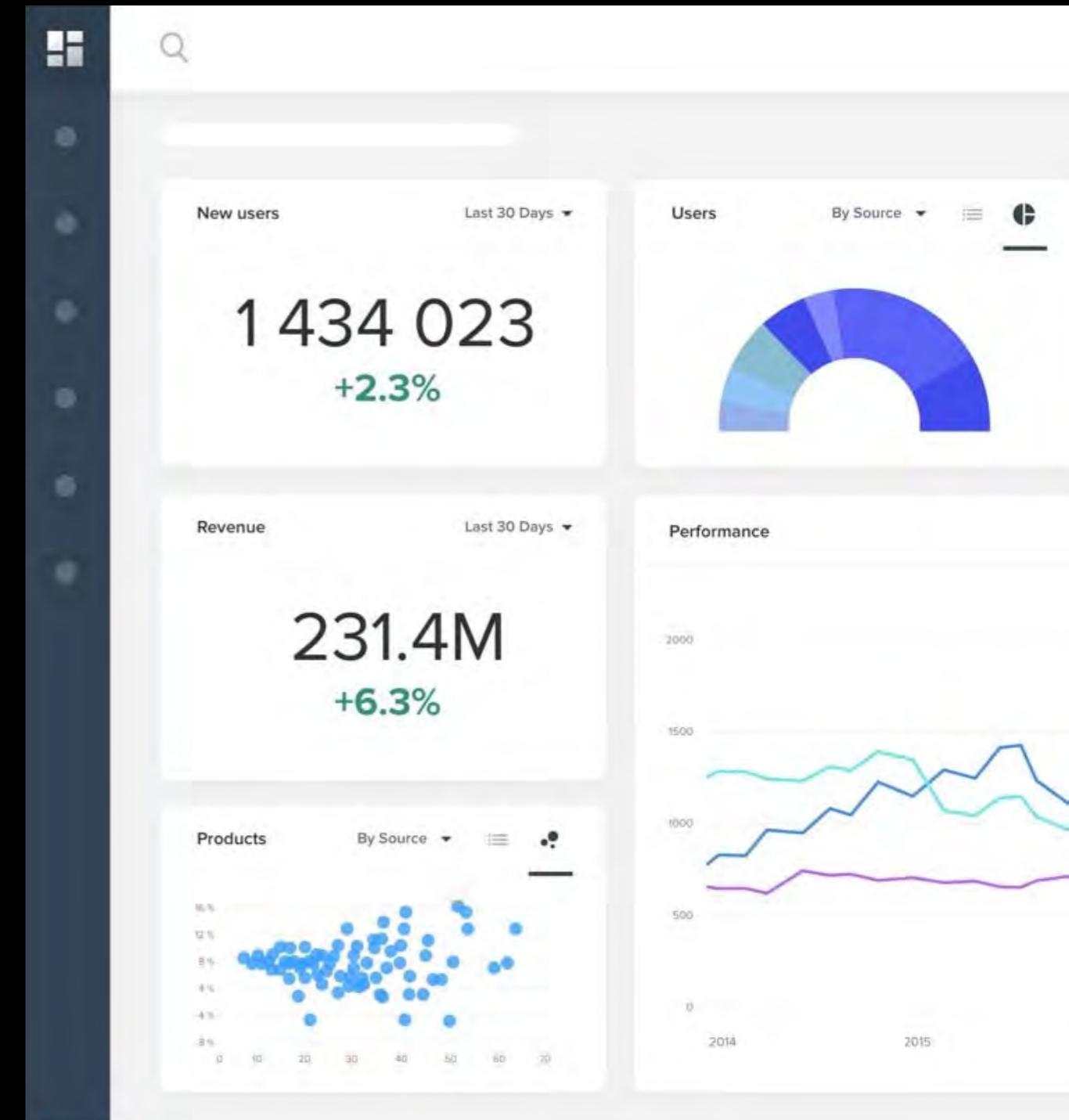
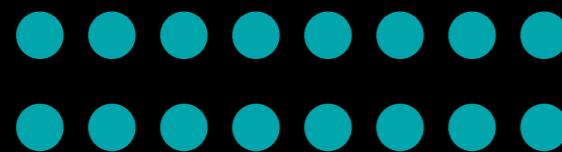
## A big number is a graphic

Visualizing our numbers with chart is the right instinct for quicker understanding.

But a big number is also visual device, faster to read than any chart

“16”  
(BIG)

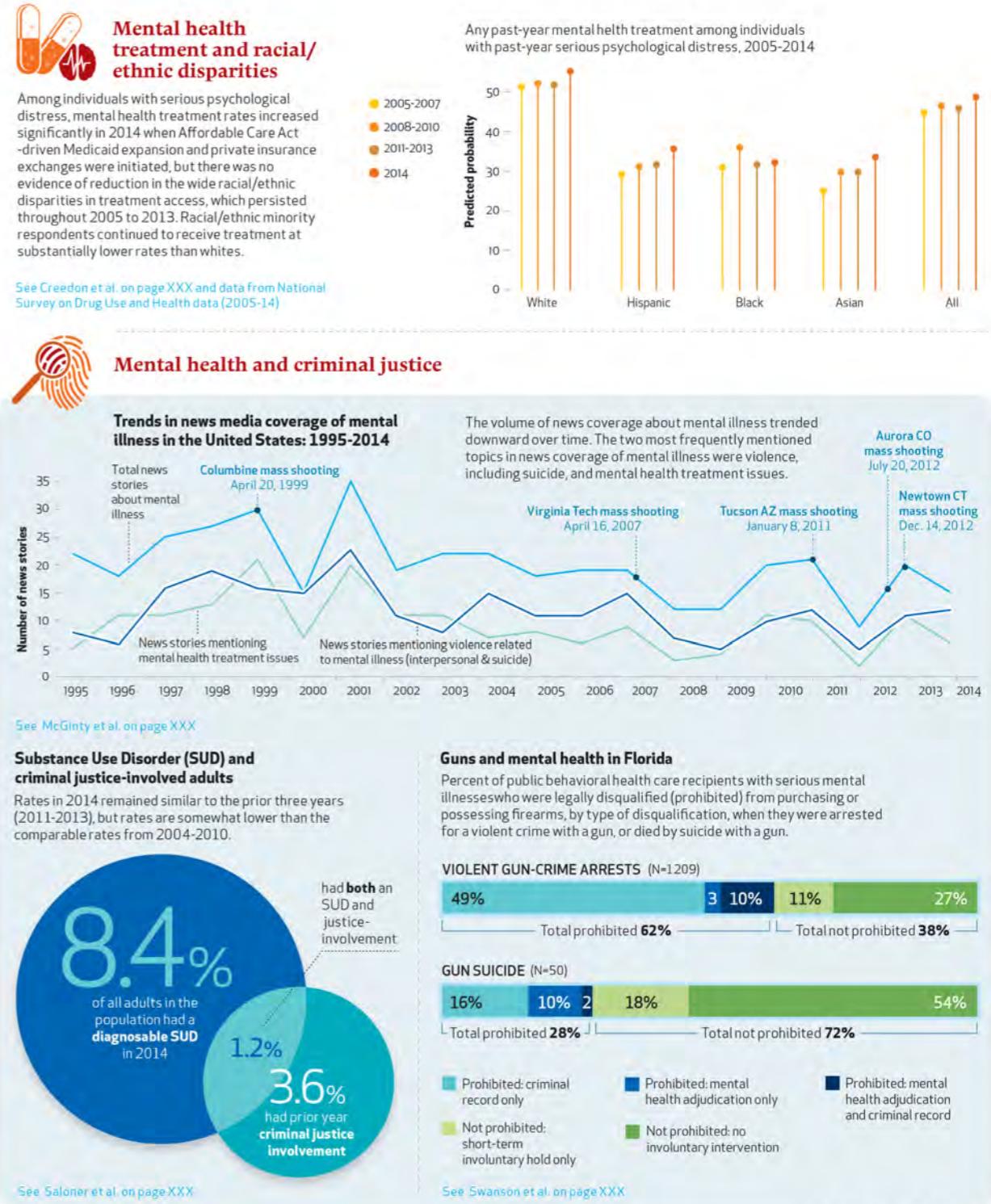
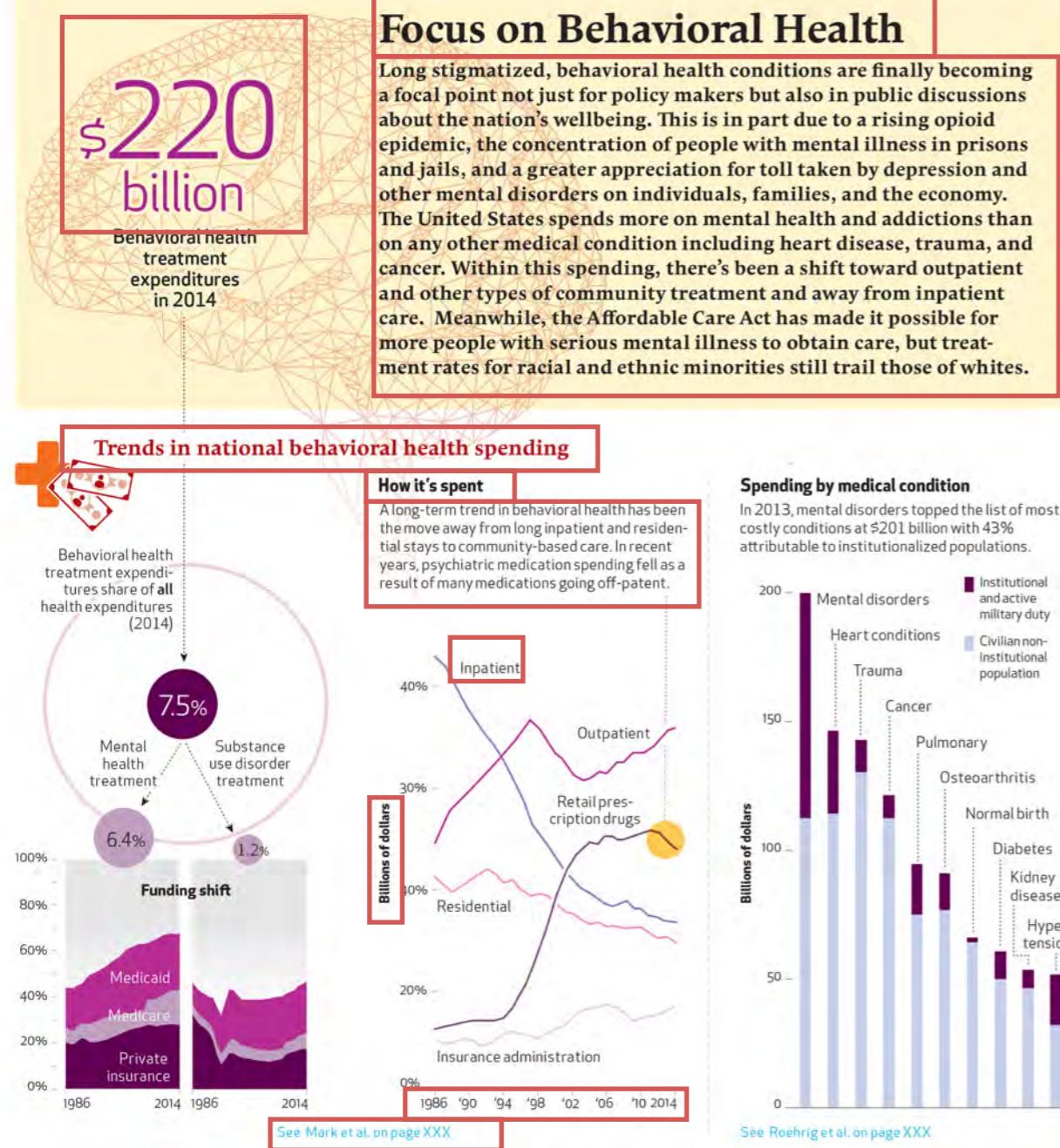
reads faster than



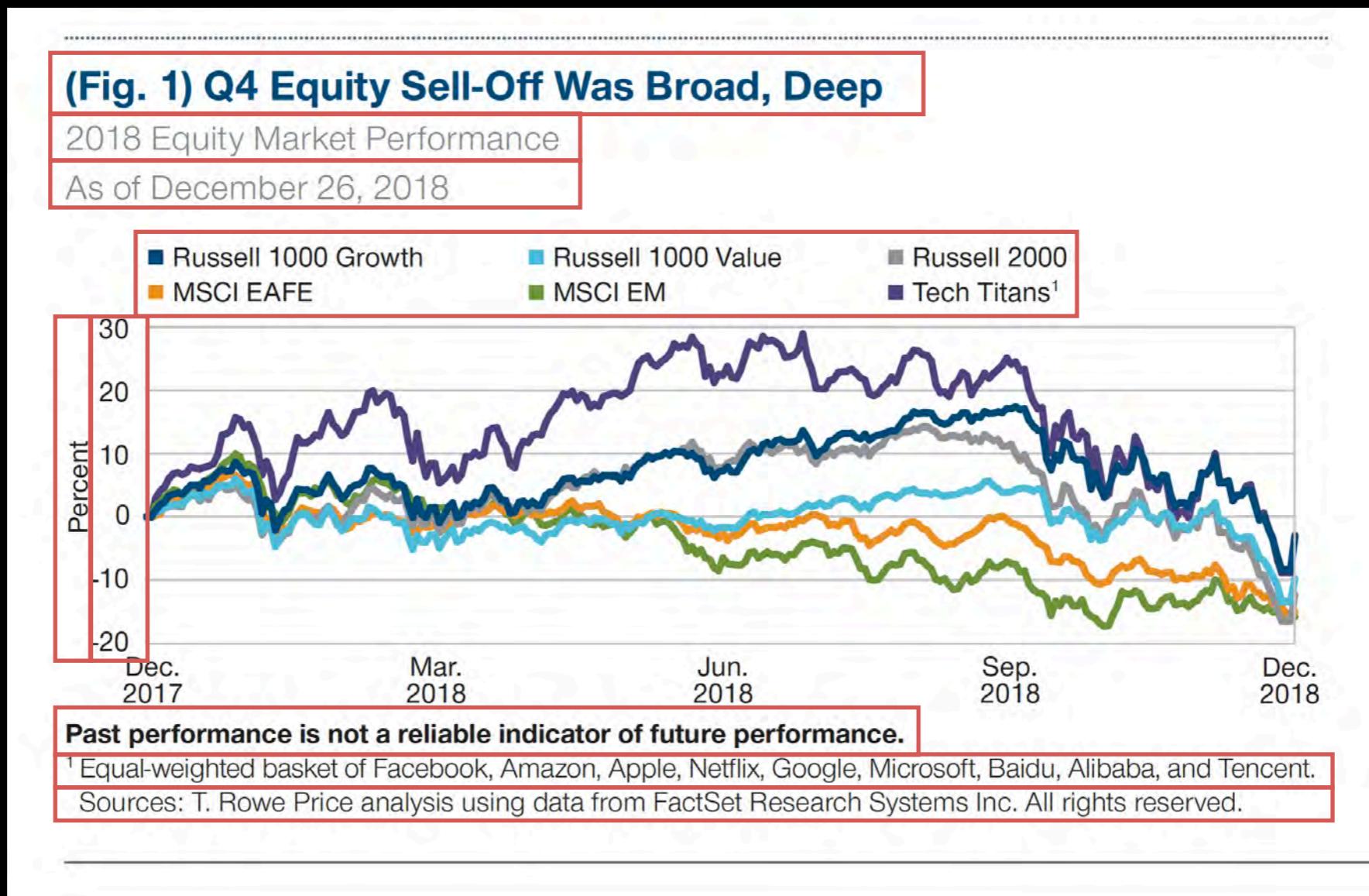
# No other type of information design presents more complexity problems than infographics/data visualization

## DATA VISUALIZATION

DOI: 10.1377/hlthaff.2015.1444



No other type of information design presents more complexity problems than infographics/data visualization



## Layout and typography

TWO-COLUMN GRAPHIC HEADLINE

### Headline infographic ①

Two column graphics use a larger title, but all other elements remain the same. The introduction paragraph should be 30p2 wide at most (longer lines are hard to read). The careful use of the **annotation layer** (introduction, labels and captions that provide context and explanation) is critical for a successful graphic.

Two-columns intro width: 30p2

ONE COLUMN GRAPHIC HEADLINE

### One-column headline infographic ③ can be in one or two lines ④

One column intro width: 19p9

#### TIPS

##### EDITING

Deciding how much information we keep or discard is critical. After research, some good information may need to be edited out for the sake of focus and legibility.

**LARGE NUMBERS**  
Large display typography can be used to highlight an important number, or when we don't have enough data to build a complete chart.

##### REGULAR

Paragraph label: Lorem Ipsum dolor sit amet, consectetur adipiscing. Nullam quis

Short label: Label

Number: 75

Large numbers: \$80.4 million

\$80.4 million

Display numbers (large graphics or special display)

\$80.4 million

##### HIGHLIGHTED

Paragraph label: **Highlighted:** Use Benton Sans Bold

Label

Number: 75

\$80.4 million

\$80.4 million

\$80.4 million

#### SPECS

TWO-COLUMNS  
Intro is 30p2 wide

① Headline: Benton Sans Bold 14 pt.  
② Intro: Benton Sans Regular 8.5 pt, leading 12.

ONE COLUMN  
Intro is 19p9 wide

③ Headline: Benton Sans Bold 12 pt., leading 14  
④ Intro: Benton Sans Regular 8.5 pt, leading 12.

#### CAPTIONS, LABELS AND NUMBERS

Benton Sans Regular 8 pt, leading 10.

⑥ **Highlighted:** Use Benton Sans Bold

LARGE NUMBERS  
Three sizes:  
⑦ 10 pt number,

8 pt unit, Benton Sans Bold, Black or BCJ\_Red

⑧ 13 pt number,  
8 pt unit, Benton Sans Bold, 30% BCJ\_Gray or BCJ\_Red

⑨ 28 pt number,  
10 pt unit, Editor Extra Bold, 30% BCJ\_Gray or BCJ\_Red. Tracking: -50

## Layout and typography II

BCJ's infographics are not enclosed in a background box. The top black line and a headline should be part of all graphics. The figure number, introduction paragraph, source, credit and bottom rules are all optional elements depending on the needs and placement of the graphic. If they are present, use the style below.

#### TIPS

##### DESCRIPTIVE SUBHEAD, UNITS AND QUALIFIERS

The descriptive subhead is an exact description of what a graphic shows (for example "Revenue of the top ten car manufacturers". The unit and other qualifiers appear in the line below (for example "2018, in millions of dollars")

##### BREVITY

To avoid lengthy text in the body of the graphic, qualifiers and explanations that are not critical to understand a graphic should be shown as footnotes.

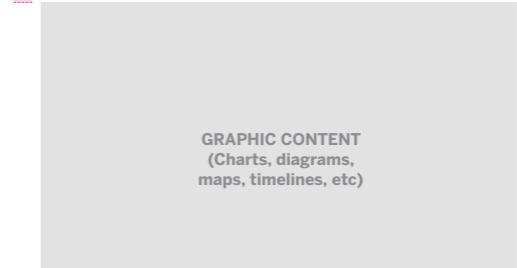
#### FIGURE 1 ①

### Headline infographic ③

12 pt →  
6 pt →

#### DESCRIPTIVE SUBHEAD ④

Unit name or qualifier, if needed ⑤



12 pt →  
6 pt →  
12 pt →  
6 pt →  
6 pt →  
Note: Lorem ipsum dolor sit amet, consectetur adipiscing elit. ⑥  
\*Lorem ipsum dolor sit amet  
Source: name of graphic source here ⑦  
Graphic by XXXXXX XXXXX / BRENNAN CENTER FOR JUSTICE ⑧

#### LINE, SOURCE AND CREDIT IN TWO-COLUMN GRAPHICS

⑦ Source: name of graphic source here

⑧ Graphic by XXXXXX XXXXX / BRENNAN CEN ⑨ FOR JUSTICE

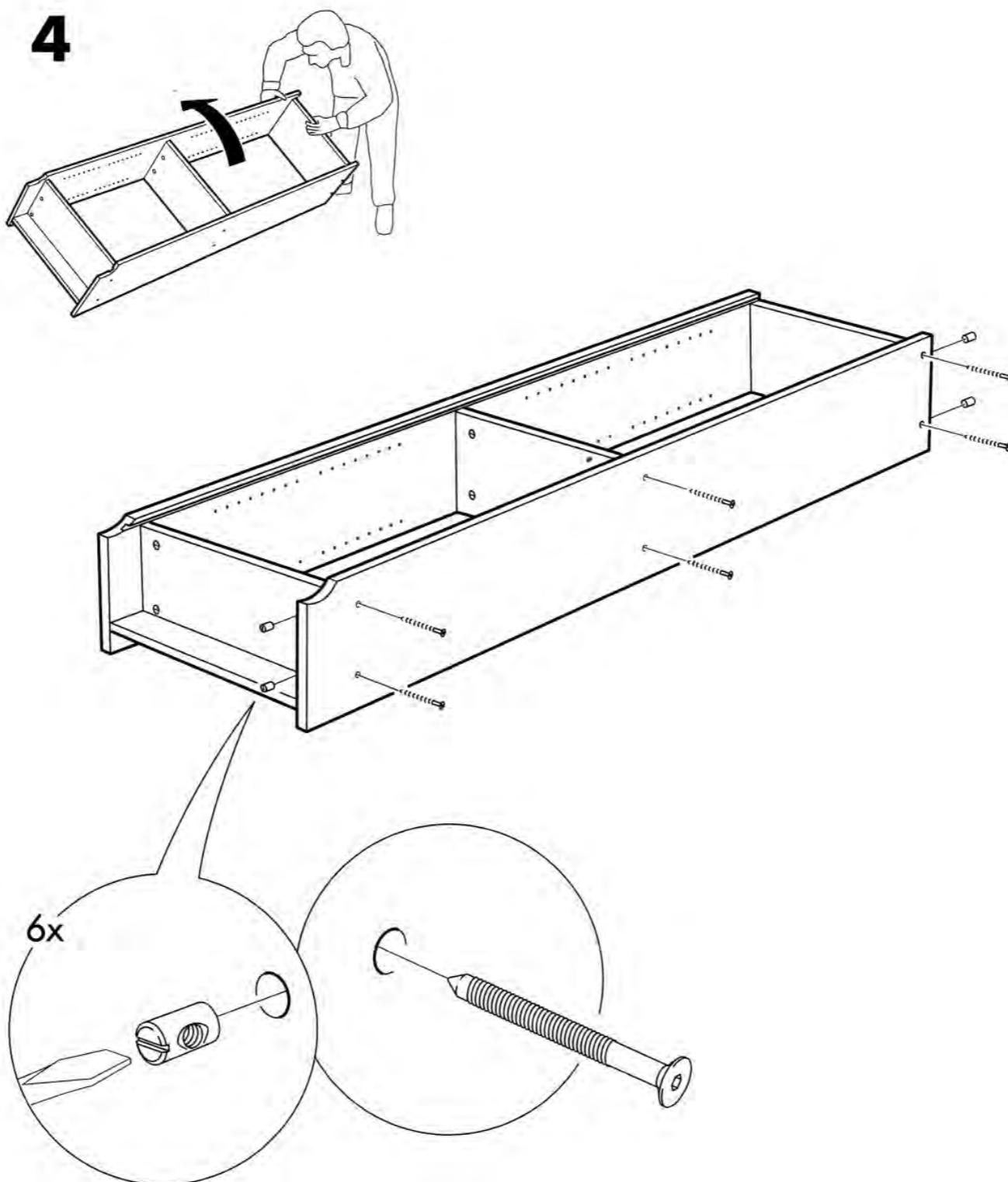
⑦ SOURCE  
Benton Sans Regular, 7 pt. "Source" in Benton Sans Medium, followed by colon. Left-aligned.

⑧ FREELANCER CREDIT  
(if needed)  
Benton Sans Regular, 6 pt, BCJ\_Red, followed by "/" and BCJ credit.

⑨ BCJ CREDIT  
Benton Sans Medium, 6 pt, all caps. Right-aligned in 2-col graphics.

⑩ BOTTOM LINE (OPTIONAL)  
1 pt black

**4**



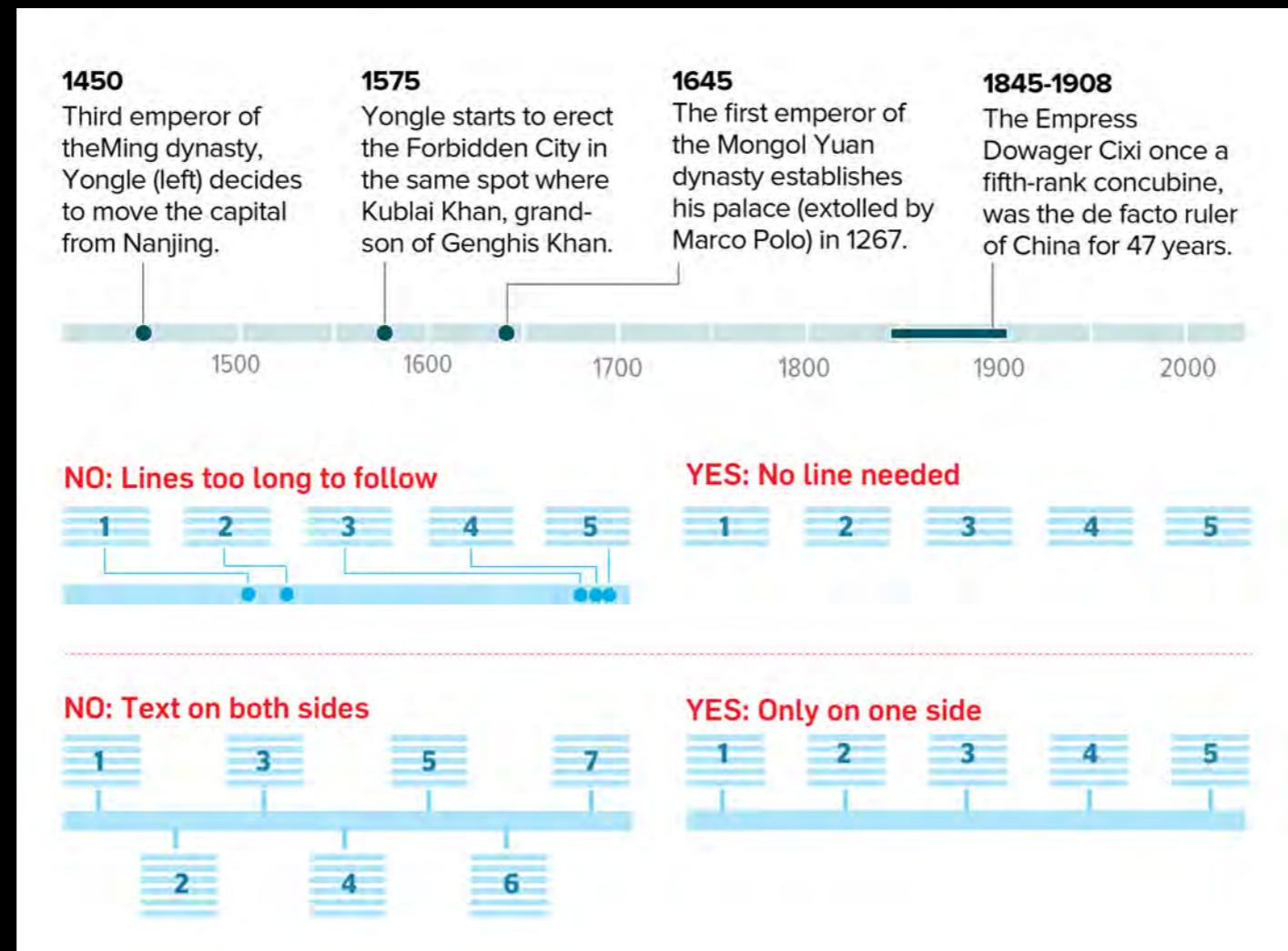
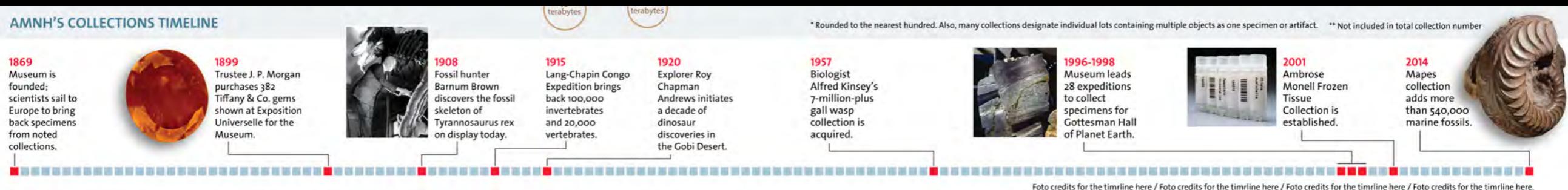
**DAY 2**

# Beyond graphs and charts



# Timelines

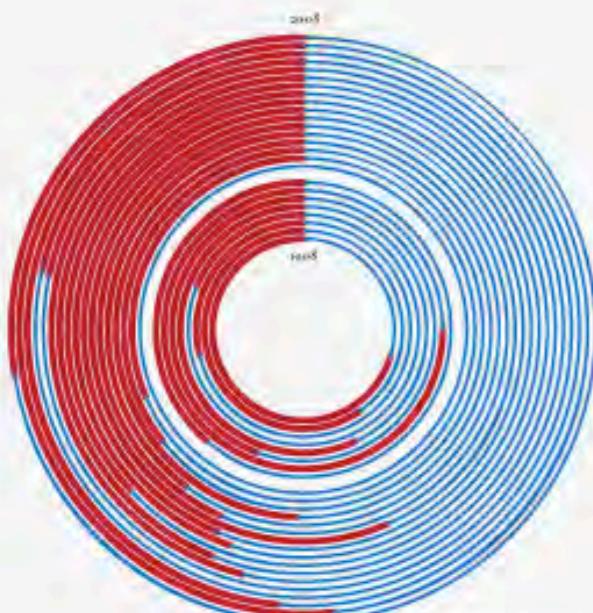
## AMNH'S COLLECTIONS TIMELINE



# Relational timelines

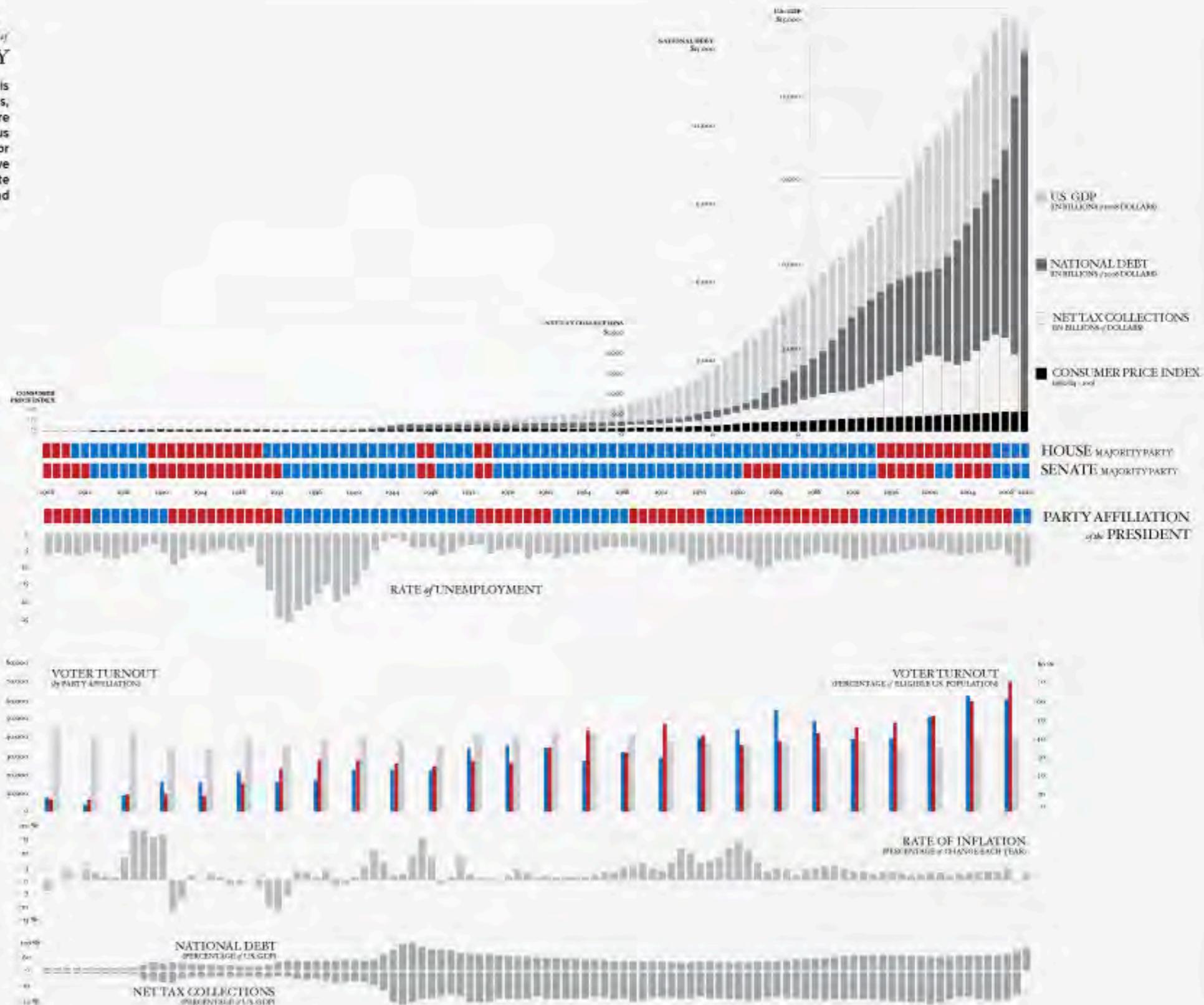
## 100: ONE HUNDRED YEARS of GOVERNMENT versus ECONOMY

We learn from our mistakes. Hindsight is a prompt path to clarity. This historical perspective visualizes economic trends and spending patterns, during good times and bad. Present-day assumptions regarding core party values have had major shifts over time, and the ridiculous extremes in voter alignment, lobbying, and legislative action are due for revision. As a basis for future shift, this data can educate a presumptive public, empowering citizens that might otherwise continue to vote straight-party to realize their historical assumptions are incorrect, and move to make an informed decision on each and every election day.

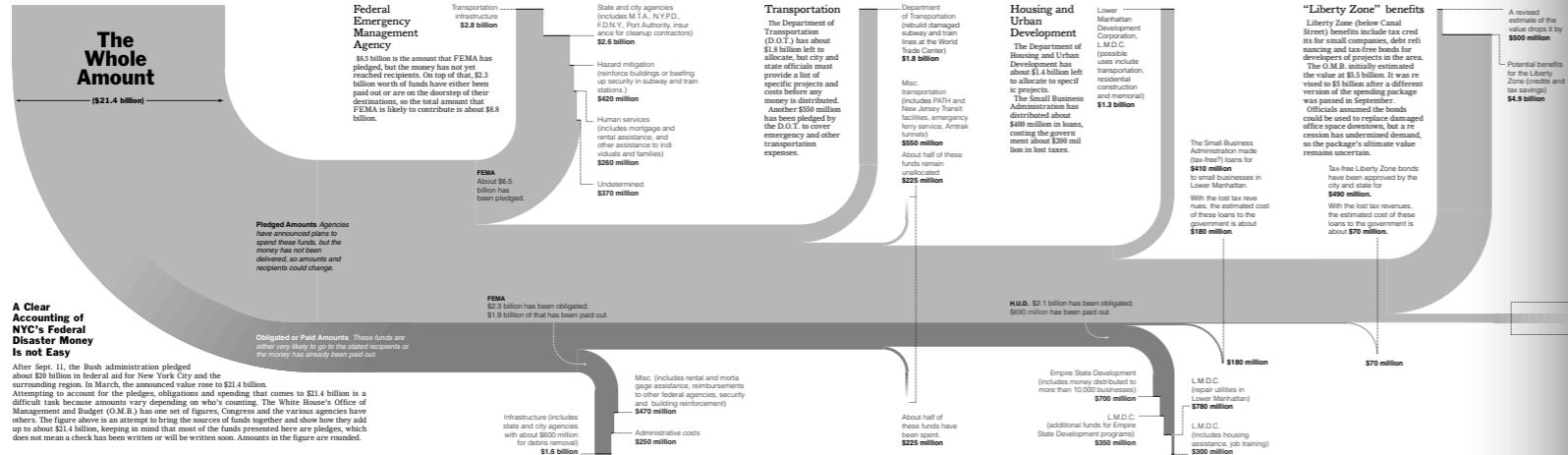


Sources: [www.treasurydirect.gov](http://www.treasurydirect.gov), [www.bea.gov](http://www.bea.gov), [data.bls.gov](http://data.bls.gov), [www.census.gov](http://www.census.gov), [clerk.house.gov](http://clerk.house.gov), [www.irs.gov](http://www.irs.gov), IRS/BIR Commissioner's Annual Reports, 1901-1968, and the original 1863-1961 Federal Statistics of Income books from some very nice folks at the archives of the Indiana State Library.

Addendum: Annual campaign expenditures for 1972 and 1976 were not available to this designer; those bands are missing above. Final 2010 data were averaged when not complete (CPI, Unemployment), or left blank (Net Tax Collections), all current as of October 2010.



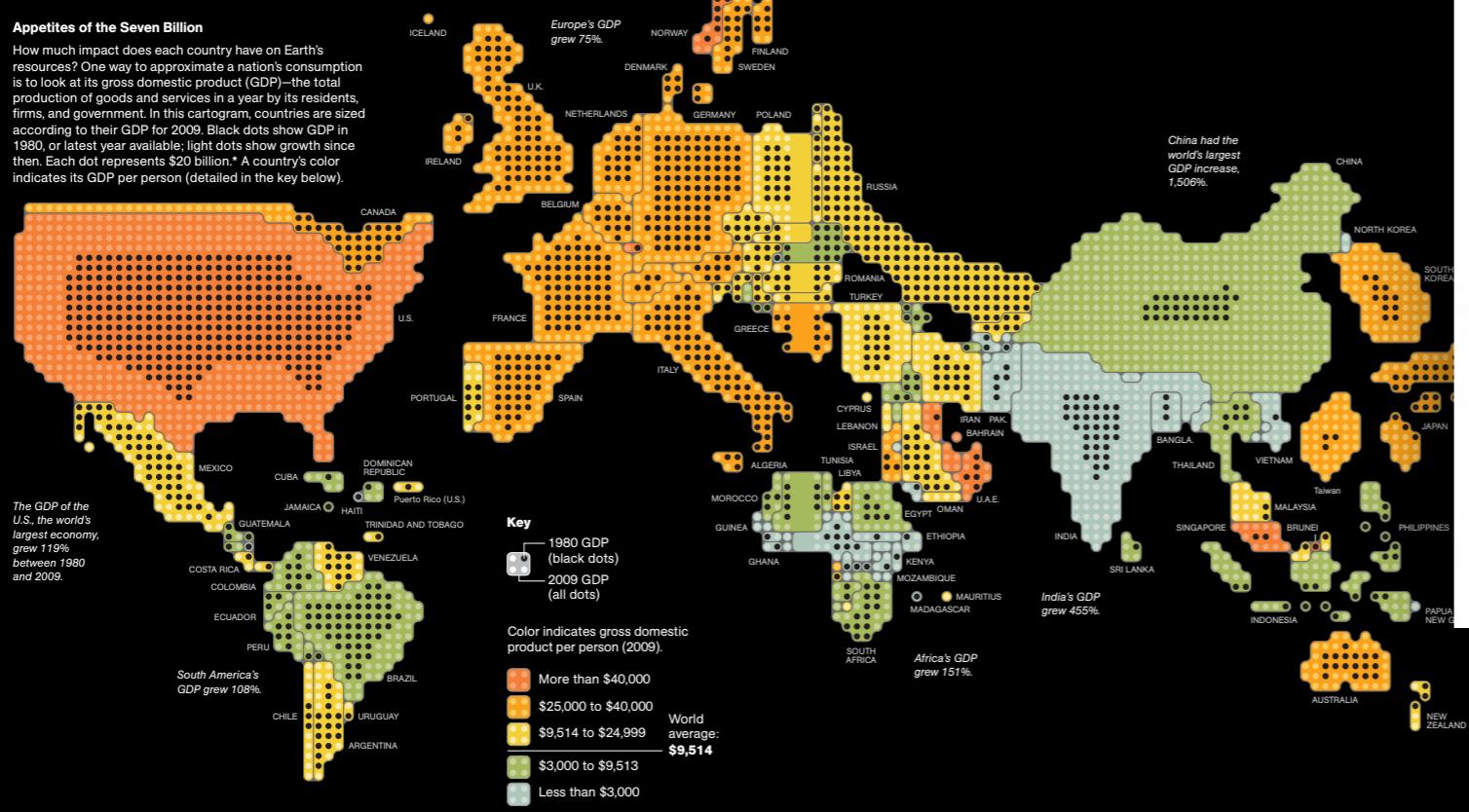
# FLOW CHART



# CONSUMPTION

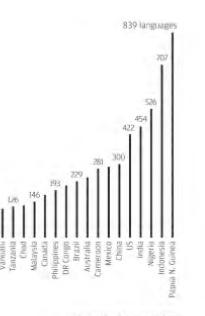
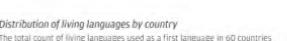
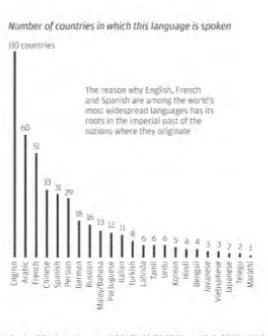
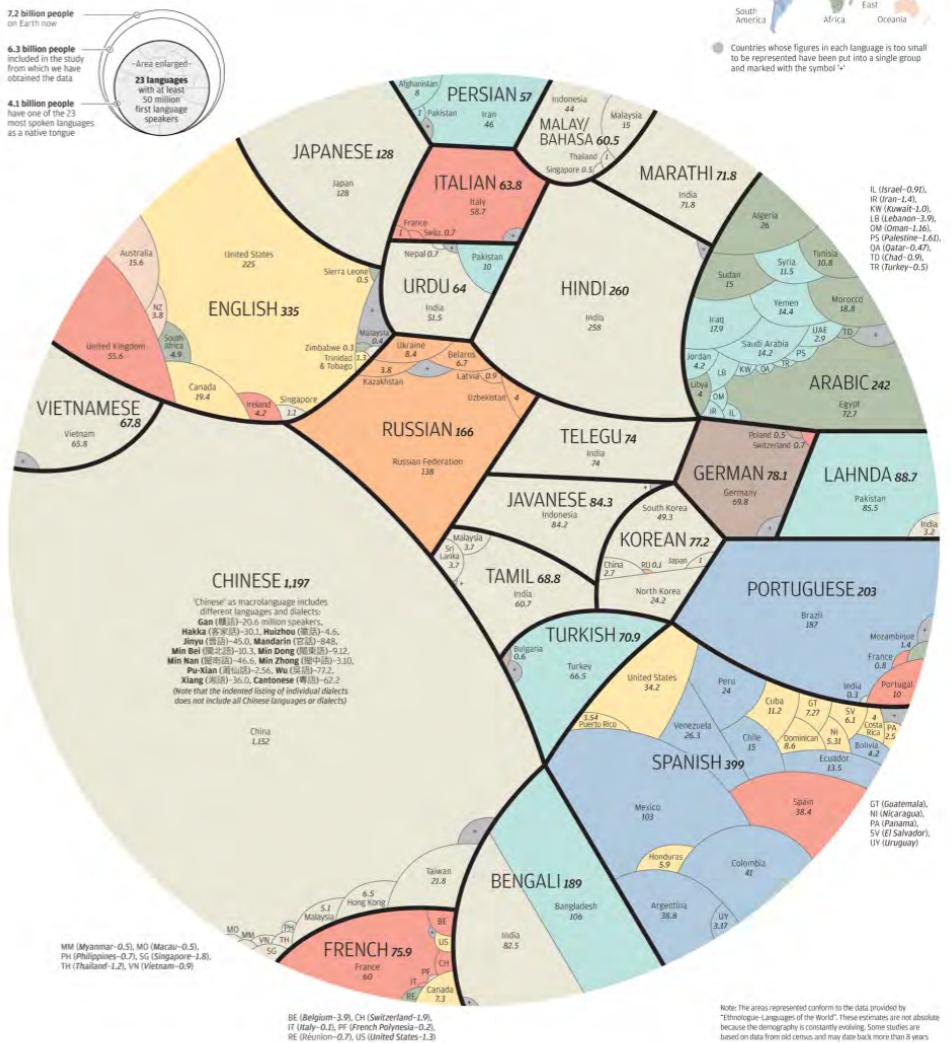
#### **Wealthy nations use the most**

**resources now, but emerging economies are catching up**



## A world of languages

There are at least 7,102 known languages alive in the world today. Twenty-three of these languages are a mother tongue for more than 50 million people. The 23 languages make up the native tongue of 4.1 billion people. We represent each language within black borders and then provide the numbers of native speakers (in millions) by country. The colour of these countries shows how languages have taken root in many different regions



# VORONOI

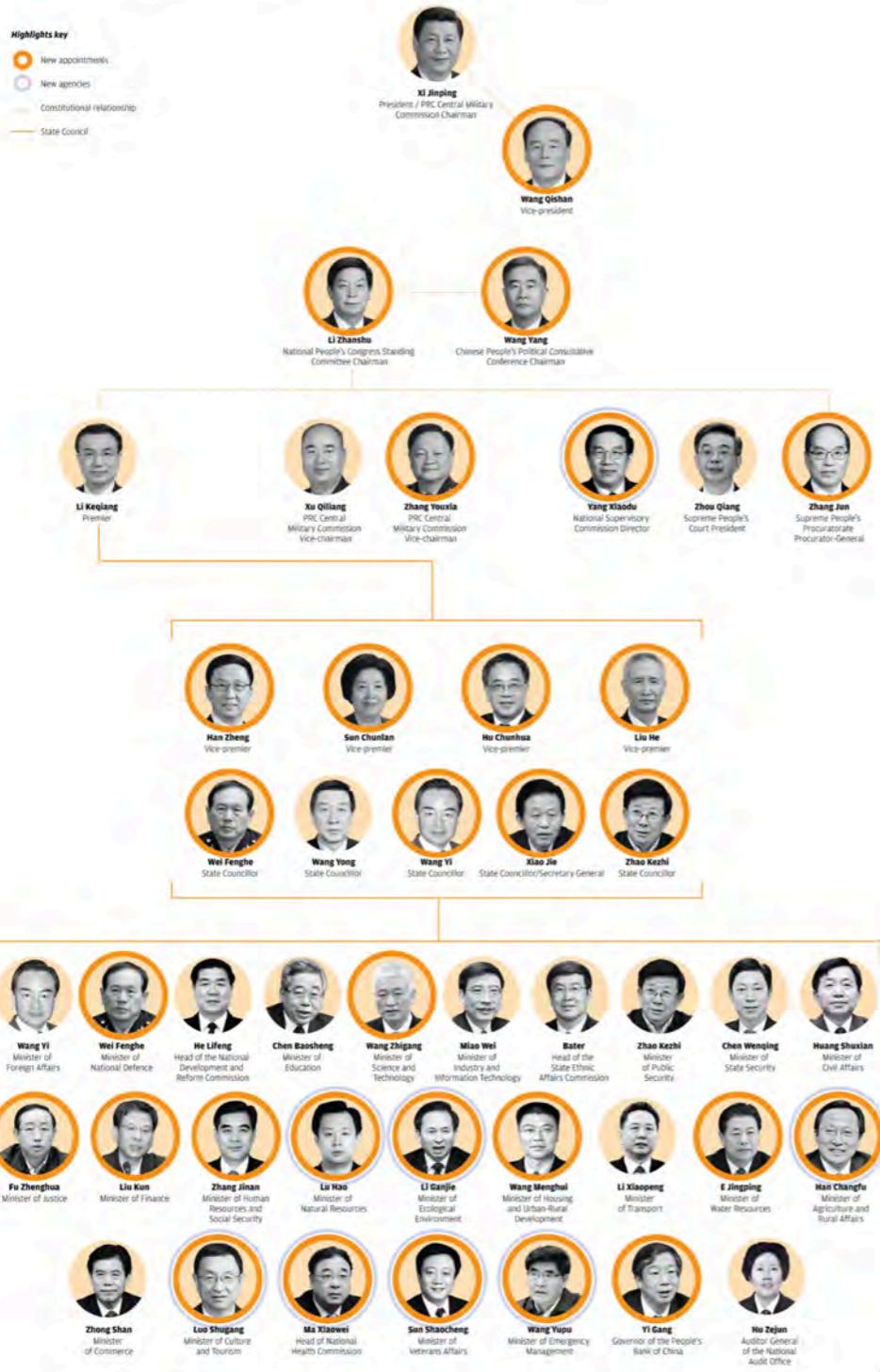
# Org charts / network diagrams

A14 Wednesday, March 21, 2018

South China Morning Post

## Leadership line-up

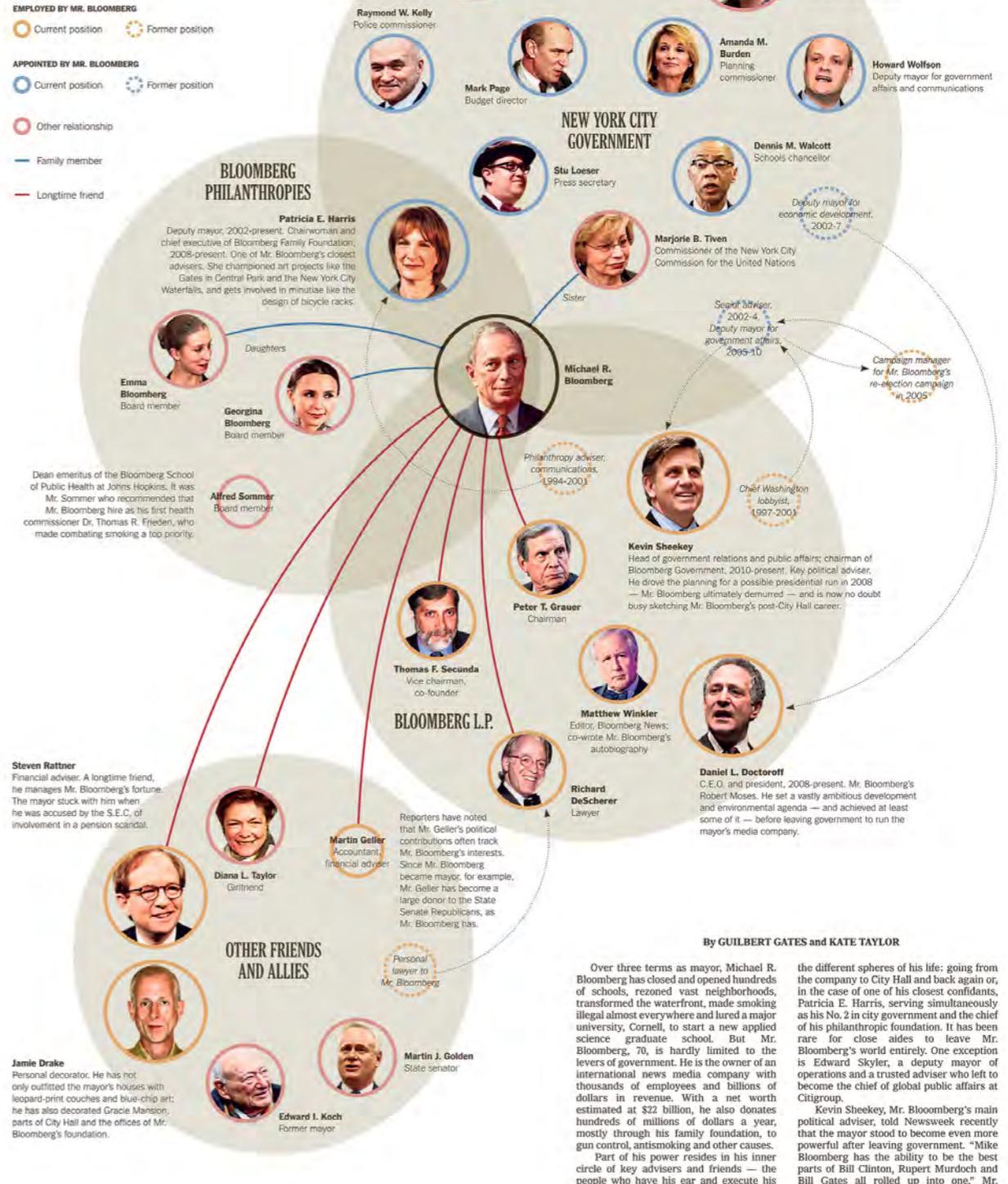
China shook up its government in a major overhaul of its structure this month. The changes, which include the creation of new departments and the streamlining of others, are meant to cut red tape and end turf wars. Several of the nation's power brokers were also promoted and given new appointments. Here is the latest line-up of the most powerful state officials.



THE NEW YORK TIMES, SUNDAY, MAY 6, 2012

## Mayor Bloomberg's Circles of Power

Here are Michael R. Bloomberg's main realms of power and his key aides and allies.

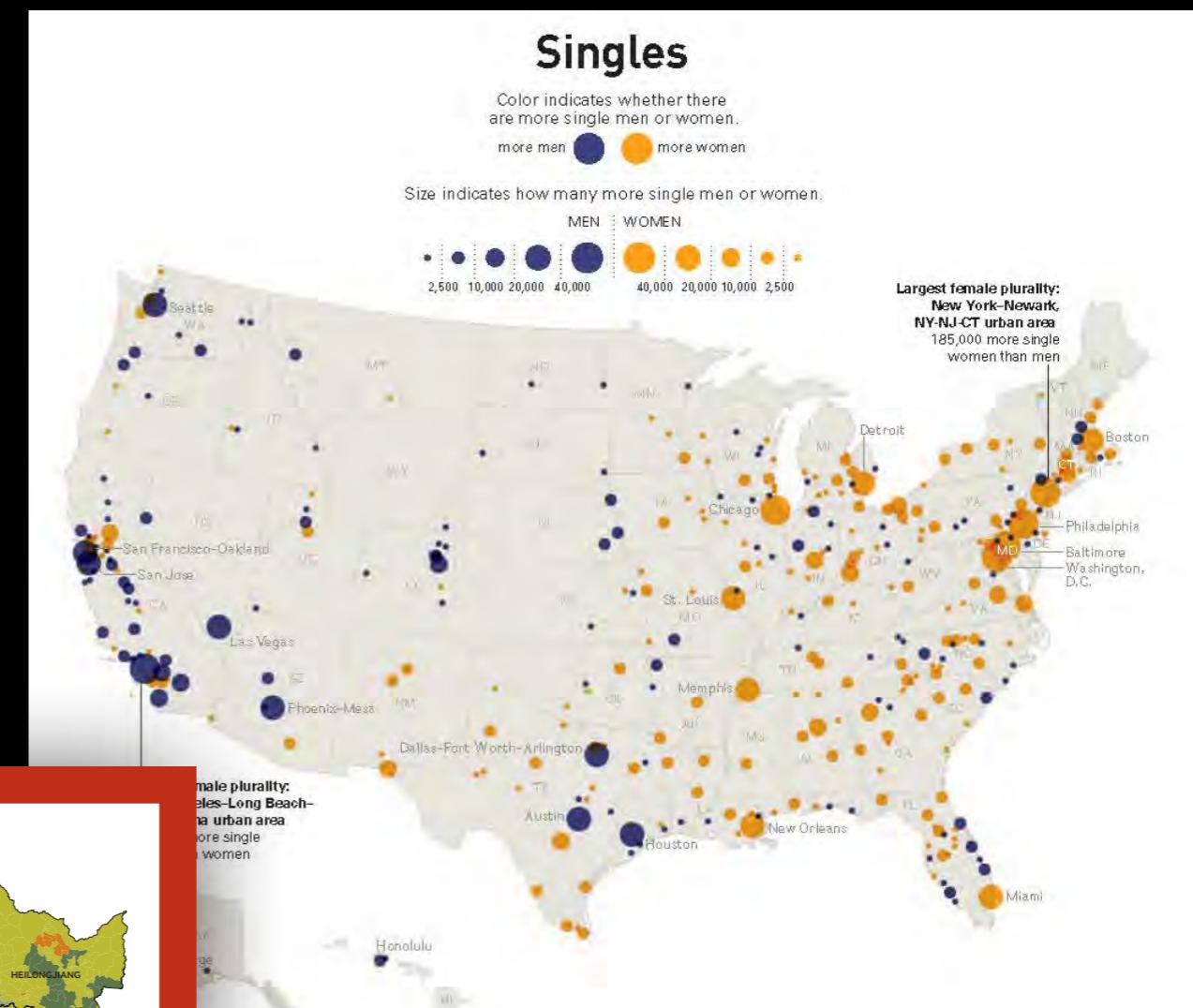
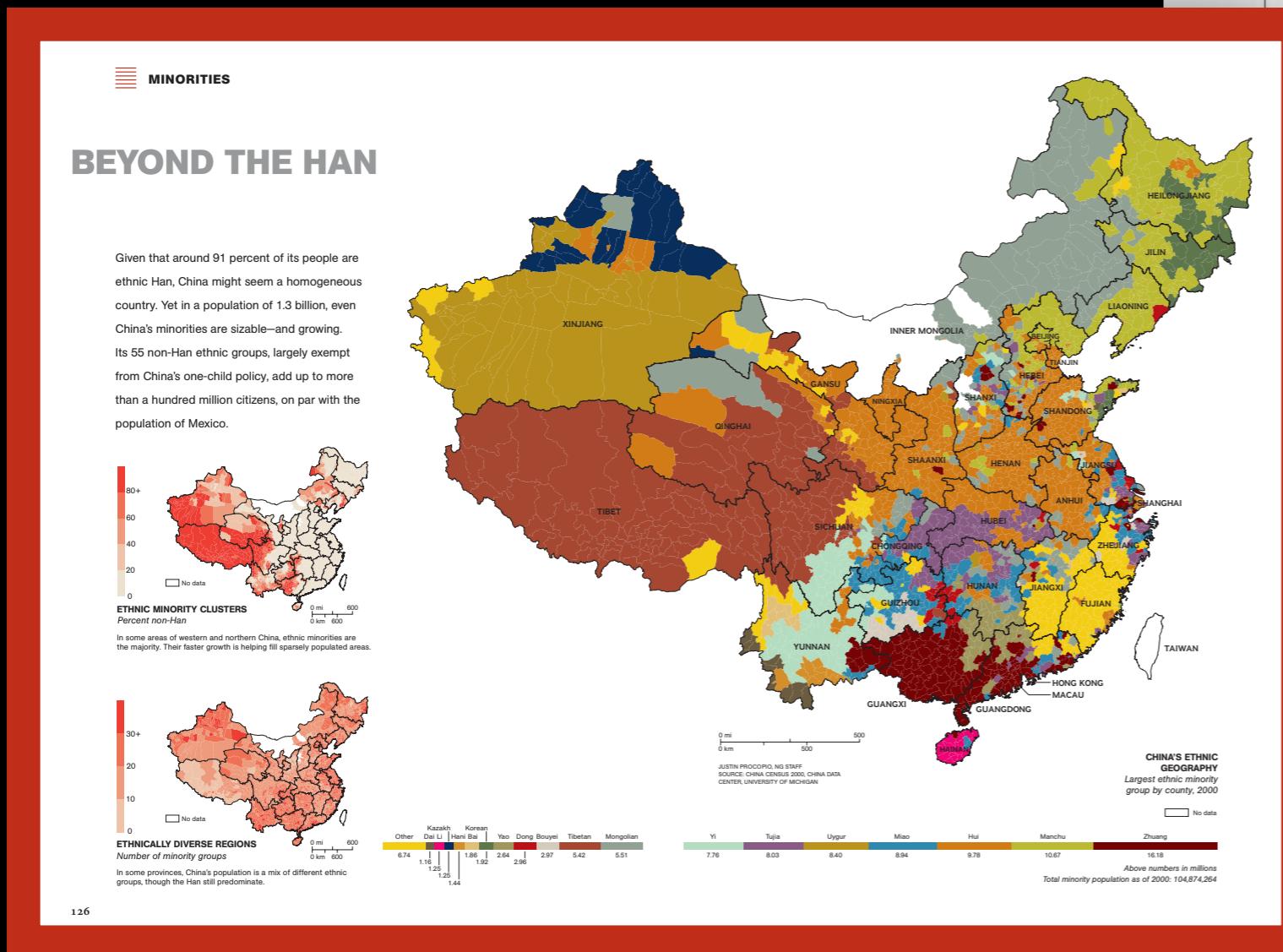


By GUILBERT GATES and KATE TAYLOR

The different spheres of his life: going from the company to City Hall and back again, or, in the case of one of his closest confidants, Patricia E. Harris, serving simultaneously as his No. 2 in city government and the chief of his philanthropic foundation. It has been rare for close aides to leave Mr. Bloomberg's world entirely. One exception is Edward Skyler, a deputy mayor who left to become the chief of global public affairs at Citigroup.

Kevin Sheekey, Mr. Bloomberg's main political adviser, told Newsweek recently that they had stayed to become even more powerful after leaving government. "Mike Bloomberg has the ability to be the best parts of Bill Clinton, Rupert Murdoch and Bill Gates all rolled up into one," Mr. Sheekey said.

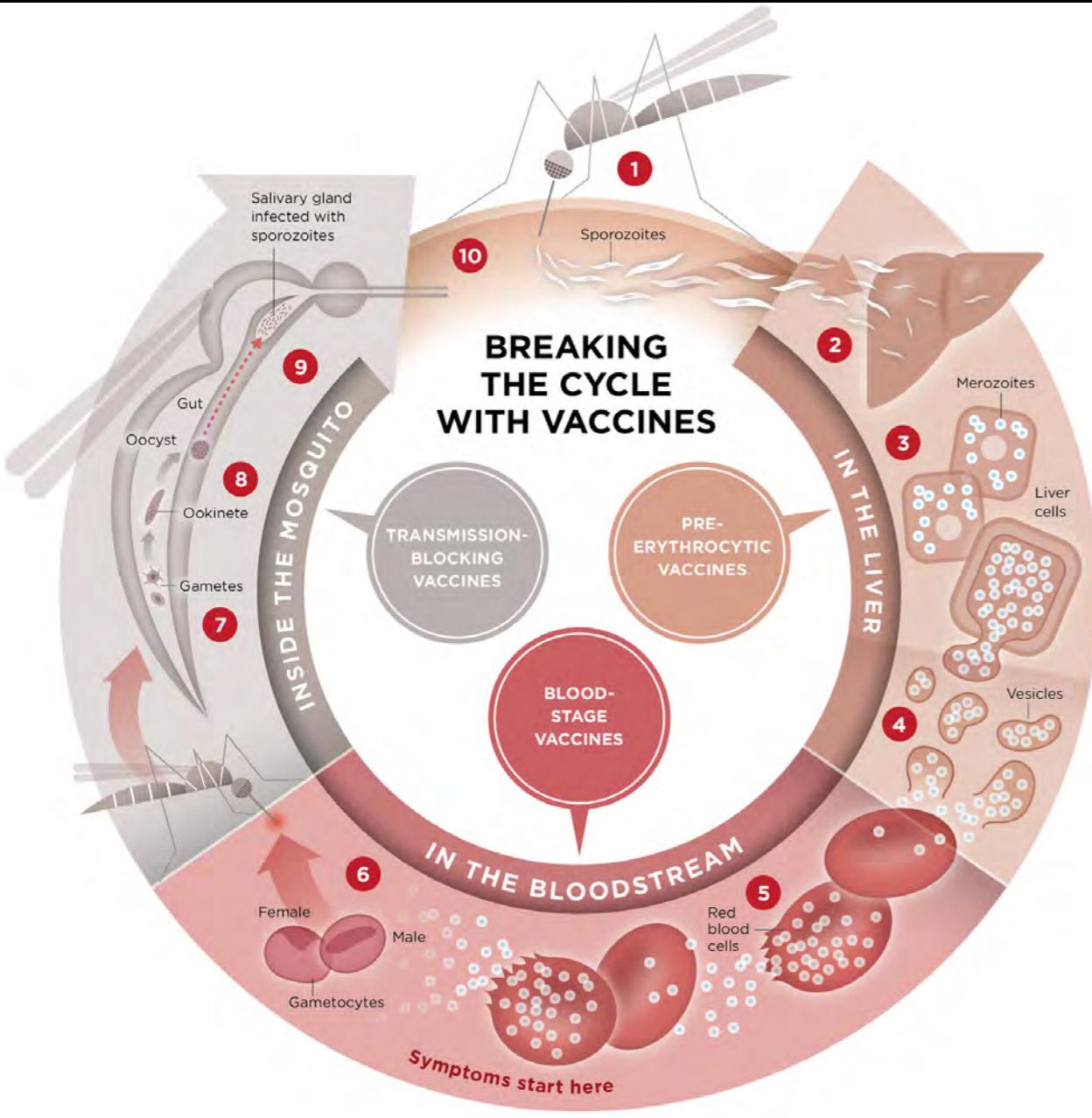
# Data maps



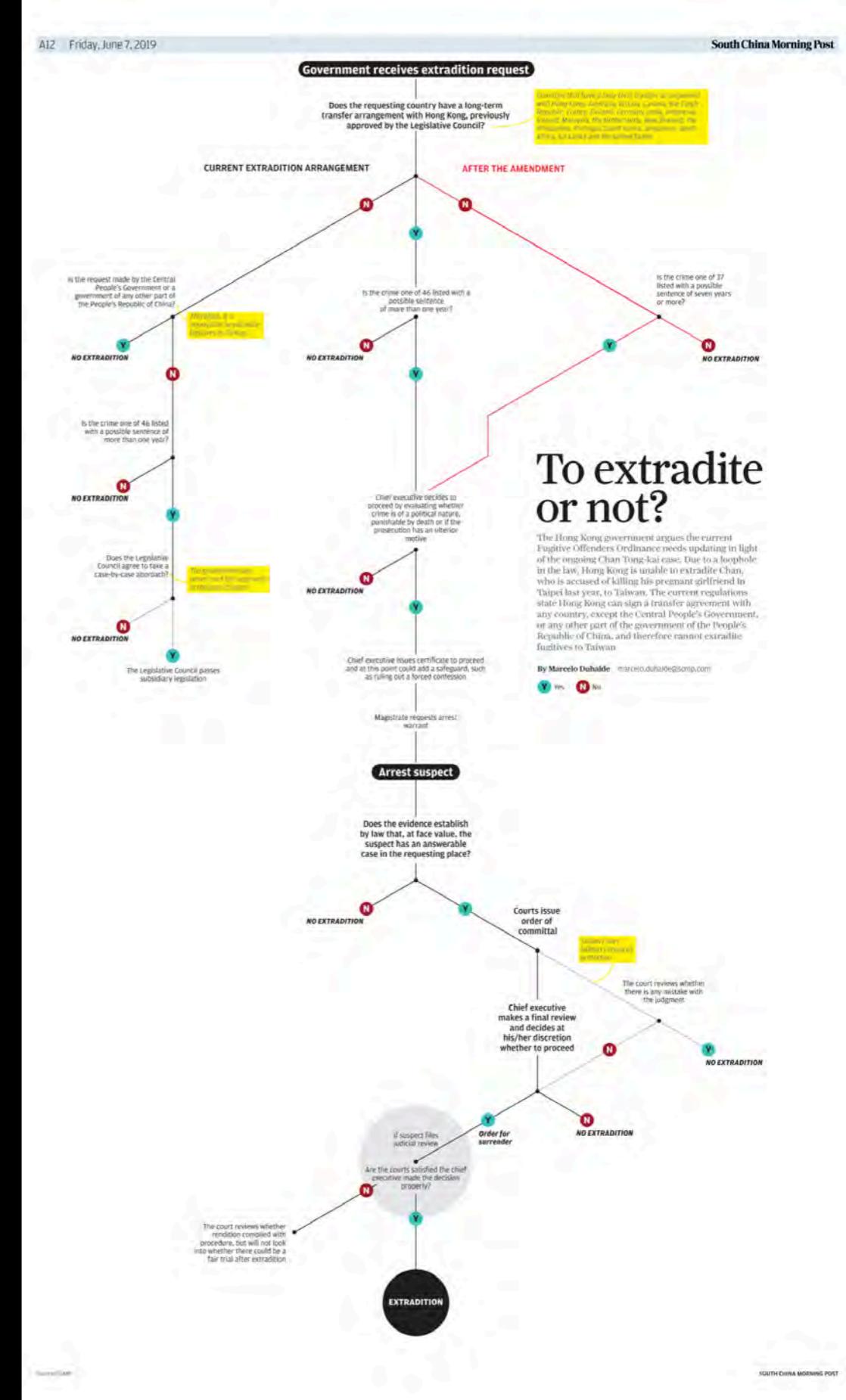
and looking? Lonely singles' chances of finding mates are influenced by which side of the Mississippi River they live on, according to the U.S. Census Bureau. Western and southern areas tend to boast an excess of single males, while many eastern cities have a preponderance of females. Demographers say a few key factors shape this trend: notably, 58 percent of college students are women, giving most of the East's numerous college towns a female majority. After graduating, legions of these women enter the white-collar workforce, which is 51 percent female and centered in big cities like New York, Chicago, and Washington, D.C. Areas with more single men often have large numbers of illegal immigrants, some 58 percent of whom are male and usually work either in districts that rely on agriculture or in cities with booming construction sectors. —Peter Gwin

# Process infographics

## Process diagram - Cycle of malaria



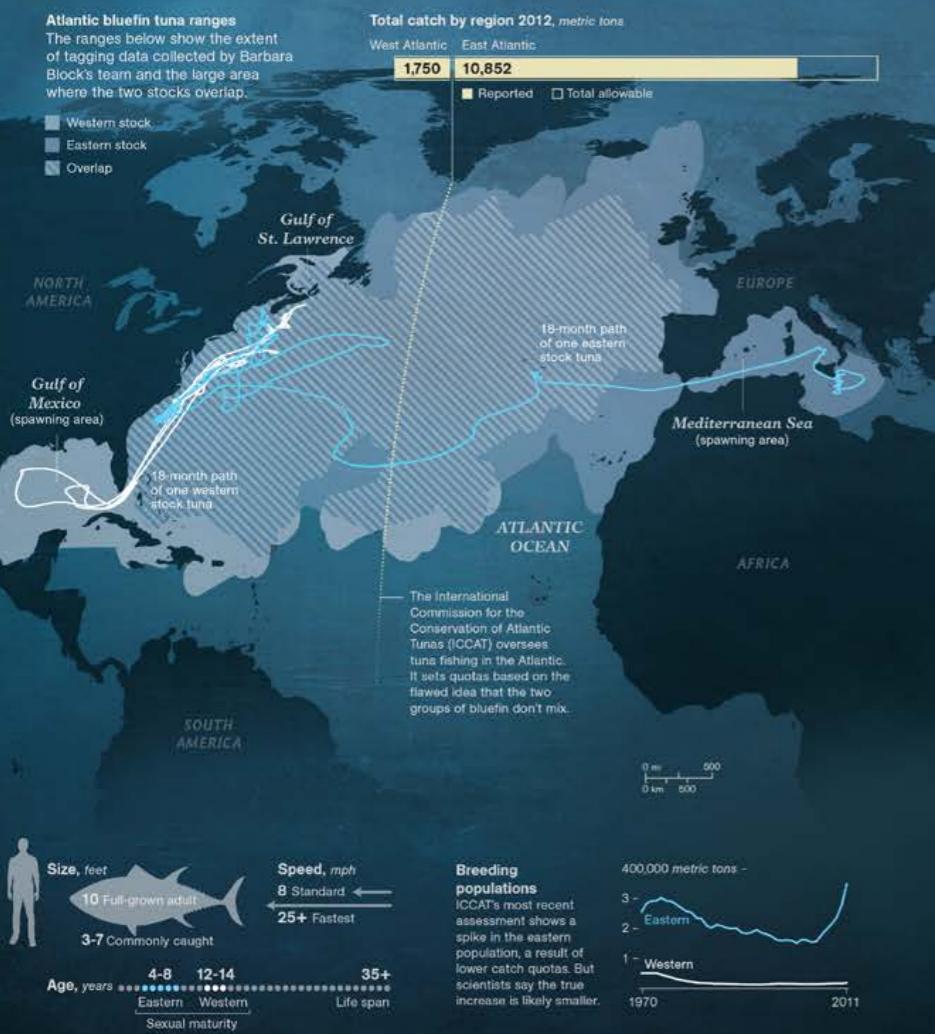
## Process schematic - HK Extradition



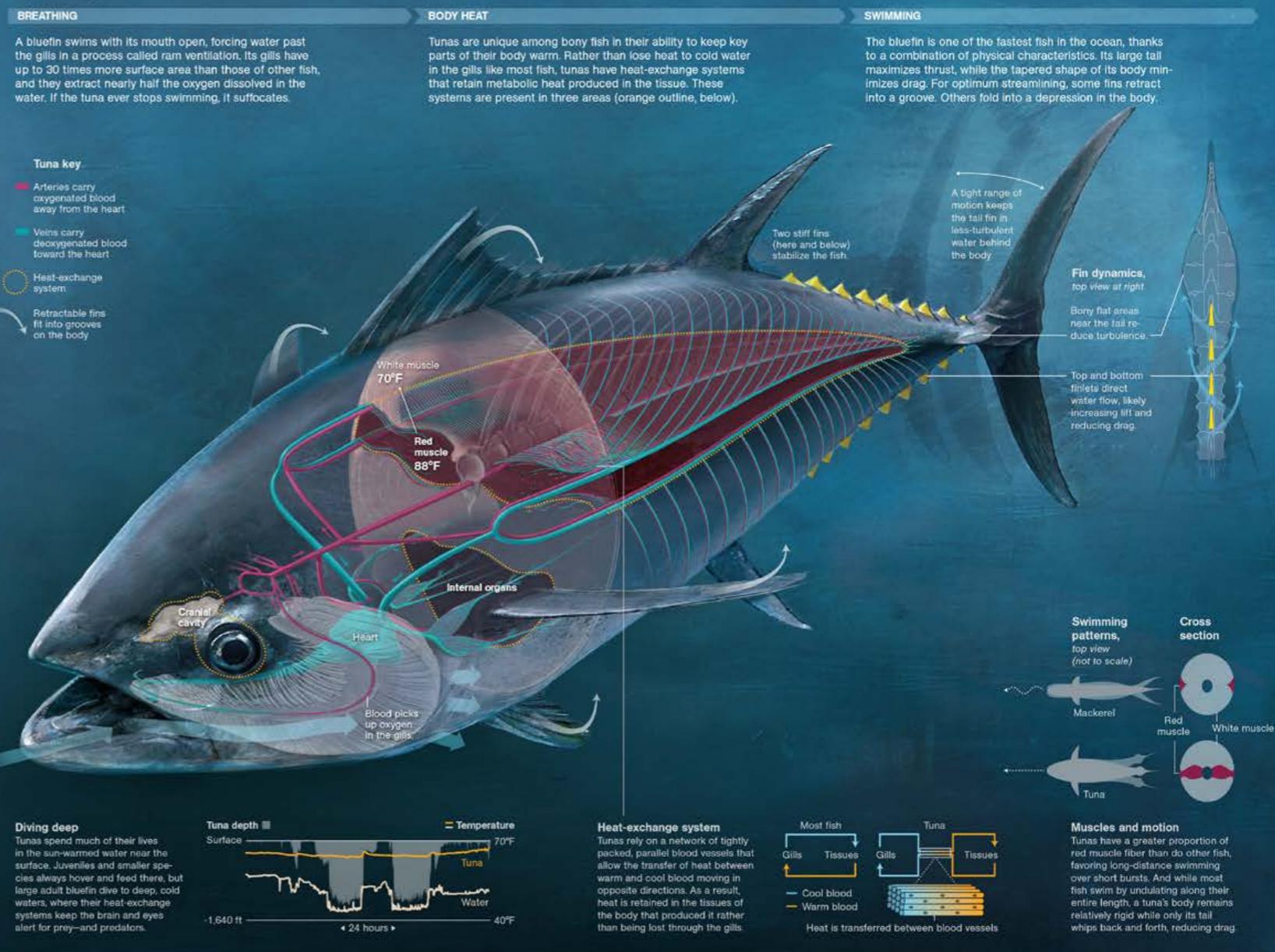
# Explanatory diagrams

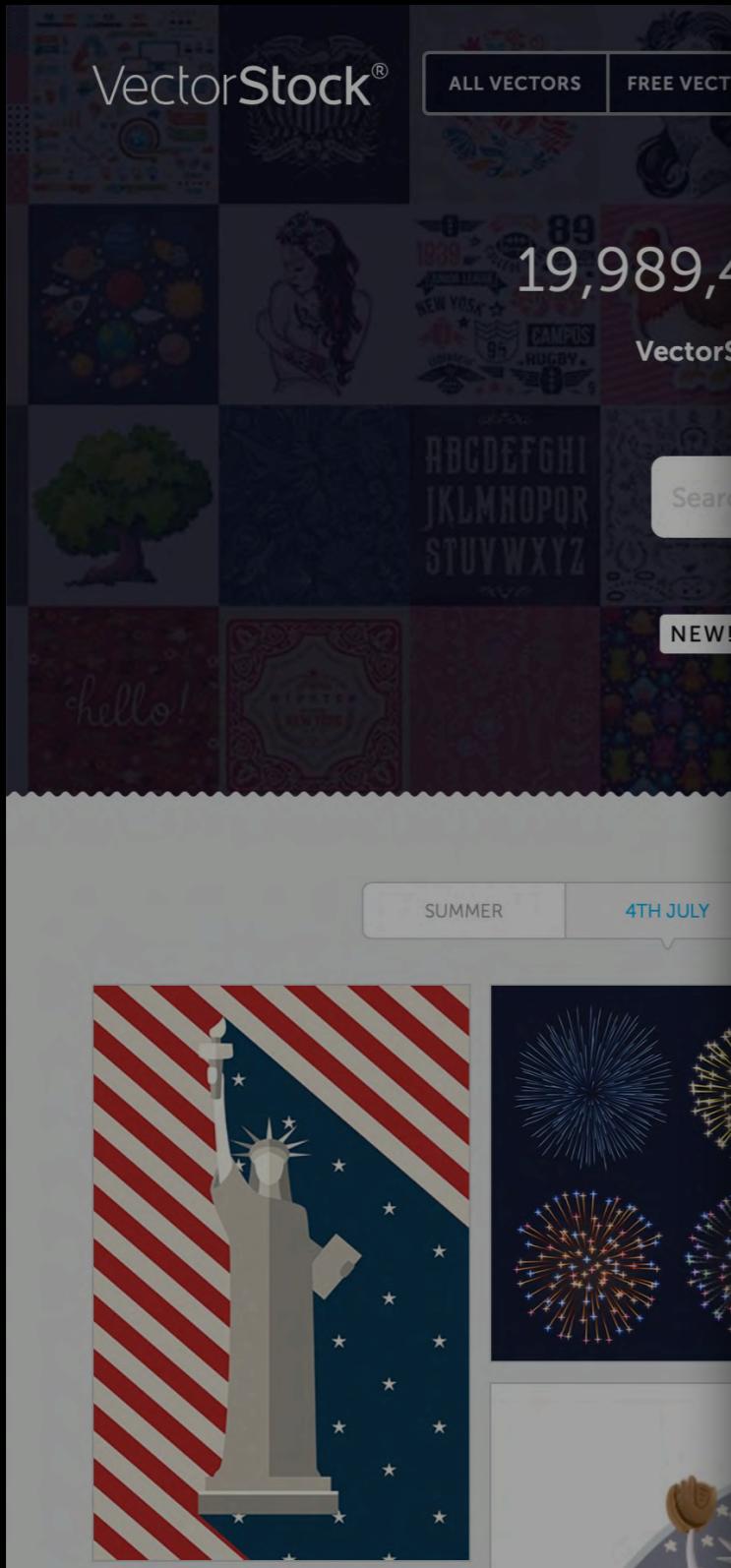
## Epic Bluefin Migrations

Bluefin are highly migratory fish, crossing seas around the world in yearly cycles of spawning and feeding. At least two groups share the Atlantic. One spawns in the Gulf of Mexico, the other in the Mediterranean. The groups mingle in the center of the ocean. Some fish even spend years on the opposite side of the ocean from where they spawn.



## The Super Fish

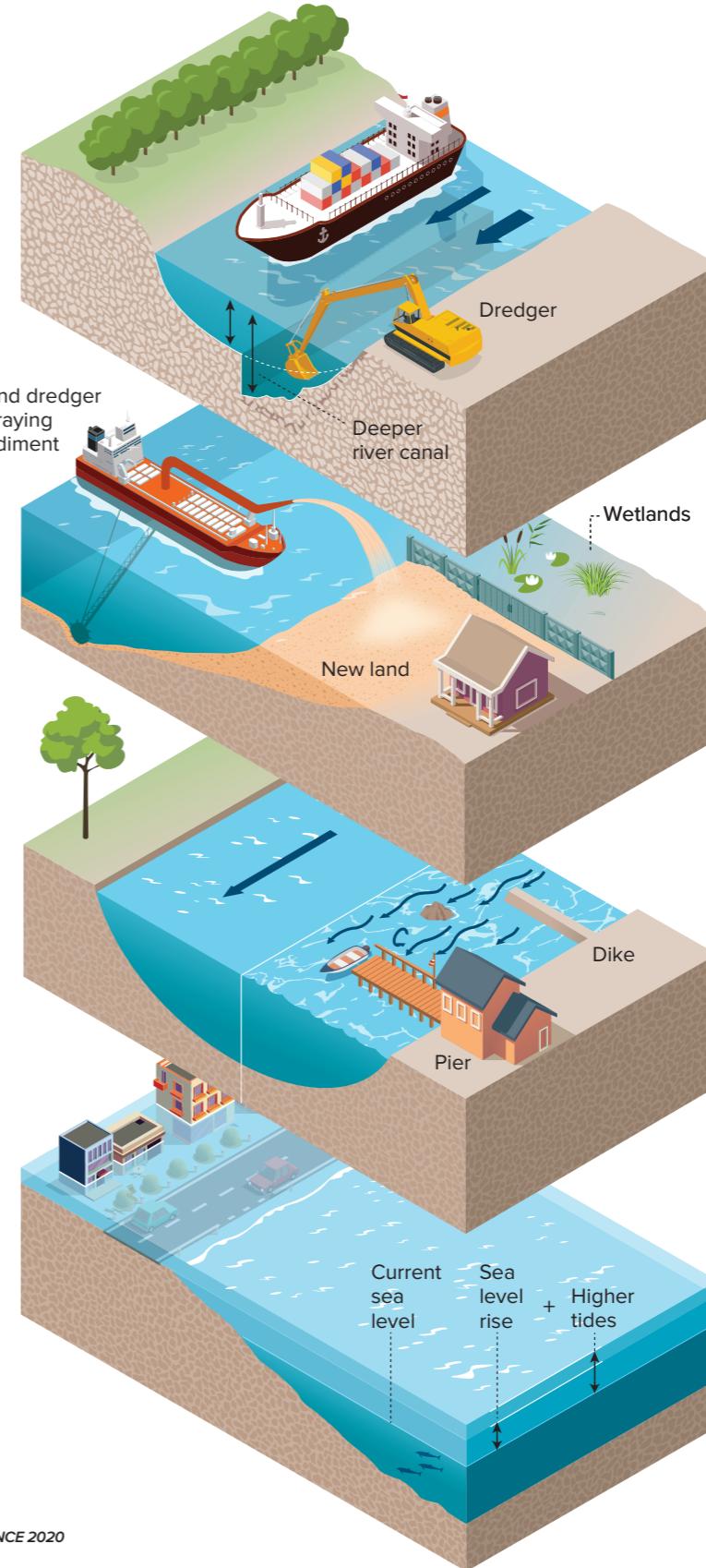




## Four Ways People Change Tides

### ① Dredging

Deepening rivers and ports, so that ships can more easily pass, often increases the range of tides.



### ② Land reclamation

Like dredging, reclaiming land changes the topography of bays and estuaries, potentially changing tidal ranges.

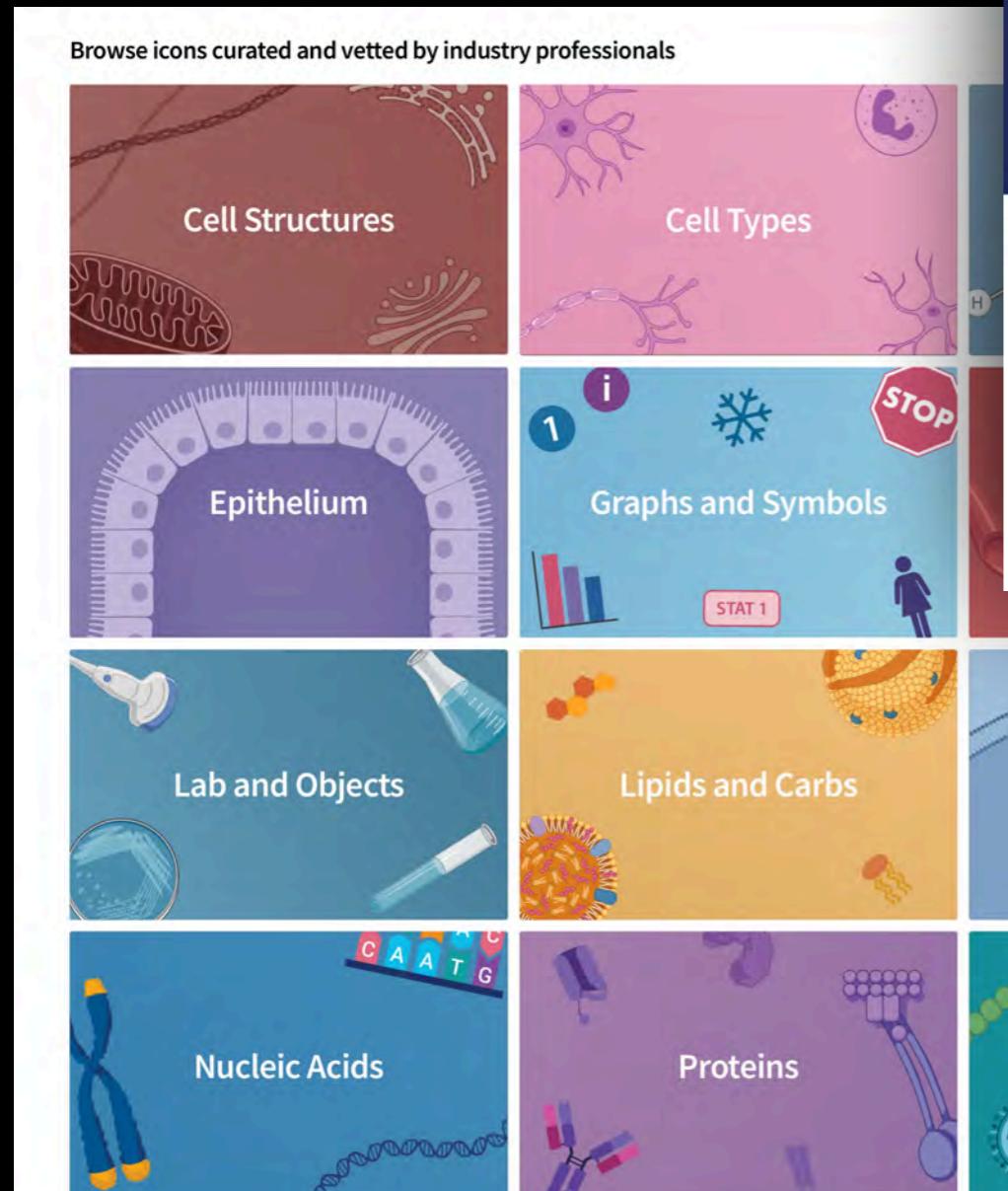
### ③ Turbulence changes

Installing structures that impede water flow, such as dikes or piers, can cause flowing water to dissipate its energy more readily, potentially decreasing tidal ranges.

### ④ Changes in relative sea level rise

In places where both tides and relative sea level are increasing, the effects add atop one another to increase the risk of coastal flooding.

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The software interface shows a "Receptors and Ligands" library on the left and a detailed diagram of the "MHC Class II" pathway on the right. The diagram includes labels such as CD13, CD14, TCR, and Tim-3.

# Conceptual illustration

THE BIG IDEA | DESALINATION



**97.5%**

of the water on Earth is salty. Around one percent of that is brackish groundwater.

**2.5%**

of the Earth's water is fresh. About two-thirds of that is frozen; the rest is liquid surface water and groundwater.



Wholesale water cost in southern California (per 1,000 gallons)



Better technology has driven desalination costs down—closer to the price of fresh water—though lately they've risen again with energy and materials prices.

**16 billion**

gallons are produced daily by the world's 14,450 desalination plants. Persian Gulf countries rely mostly on seawater.

There's no shortage of water on the blue planet—just a shortage of fresh water. New technologies may offer better ways to...

## Get the Salt Out

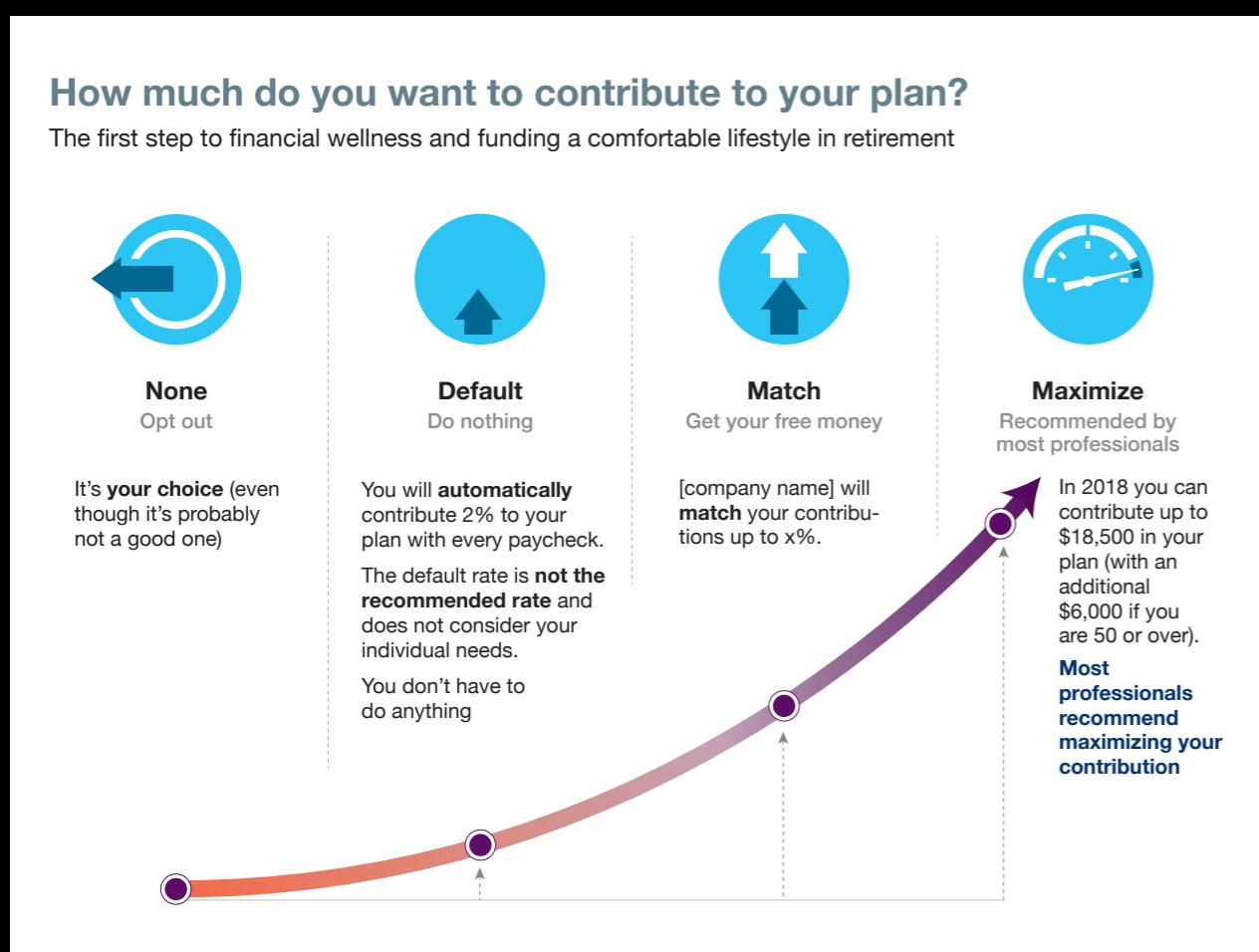
THREE HUNDRED MILLION PEOPLE now get their water from the sea or from brackish groundwater that is too salty to drink. That's double the number a decade ago. Desalination took off in the 1970s in the Middle East and has since spread to 150 countries. Within the next six years new desalination plants may add as much as 13 billion gallons a day to the global water supply, the equivalent of another Colorado River. The reason for the boom is simple: As populations grow and agriculture and industry expand, fresh water—especially clean fresh water—is getting scarcer. "The thing about water is, you gotta have it," says Tom Pankratz, editor of the *Water Desalination Report*, a trade publication. "Desalination is not a cheap way to get water, but sometimes it's the only way there is."

And it's much cheaper than it was two decades ago. The first desalination method—and still the most common, especially in oil-rich countries along the Persian Gulf—was brute-force distillation: Heat seawater until it turns to steam, leaving its salt behind, then condense it. The current state of the art, used, for example, at plants that opened recently in Tampa Bay, Florida, (*Continued on next page*)

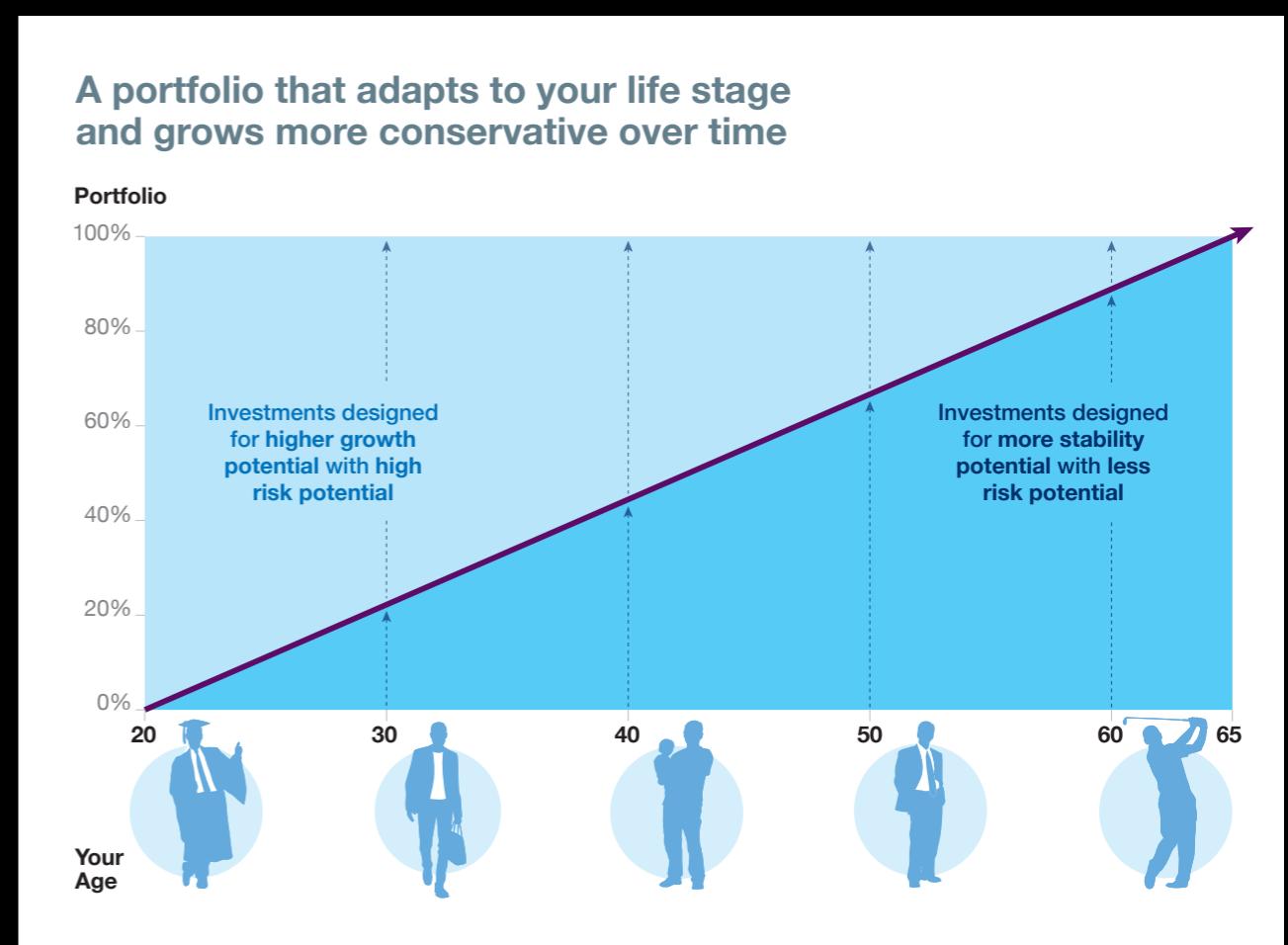
ART BY BRYAN CHRISTIE  
SOURCES: TOM PANKRATZ,  
GLOBAL WATER INTELLIGENCE;  
INTERNATIONAL DESALINATION  
ASSOCIATION; MARK A. SHAN-  
NON, UNIVERSITY OF ILLINOIS;  
ALEKSANDR NOY, UNIVERSITY  
OF CALIFORNIA, MERED

# Icons facilitate legibility and improve design

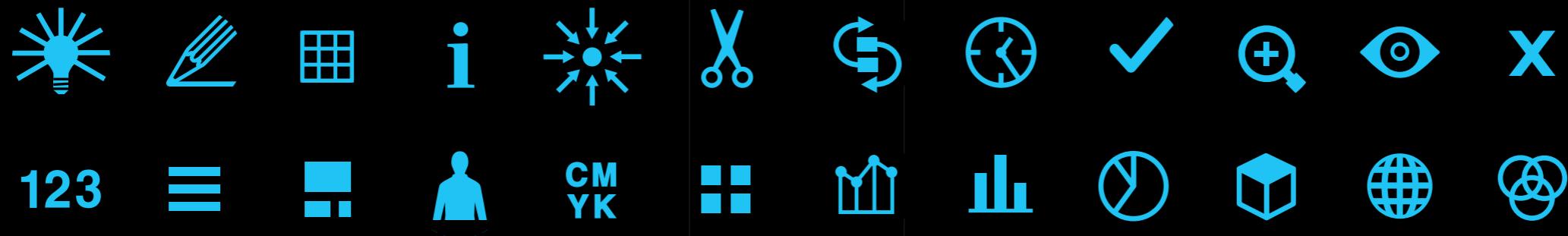
Conceptual



Literal



Good icons are hard to do

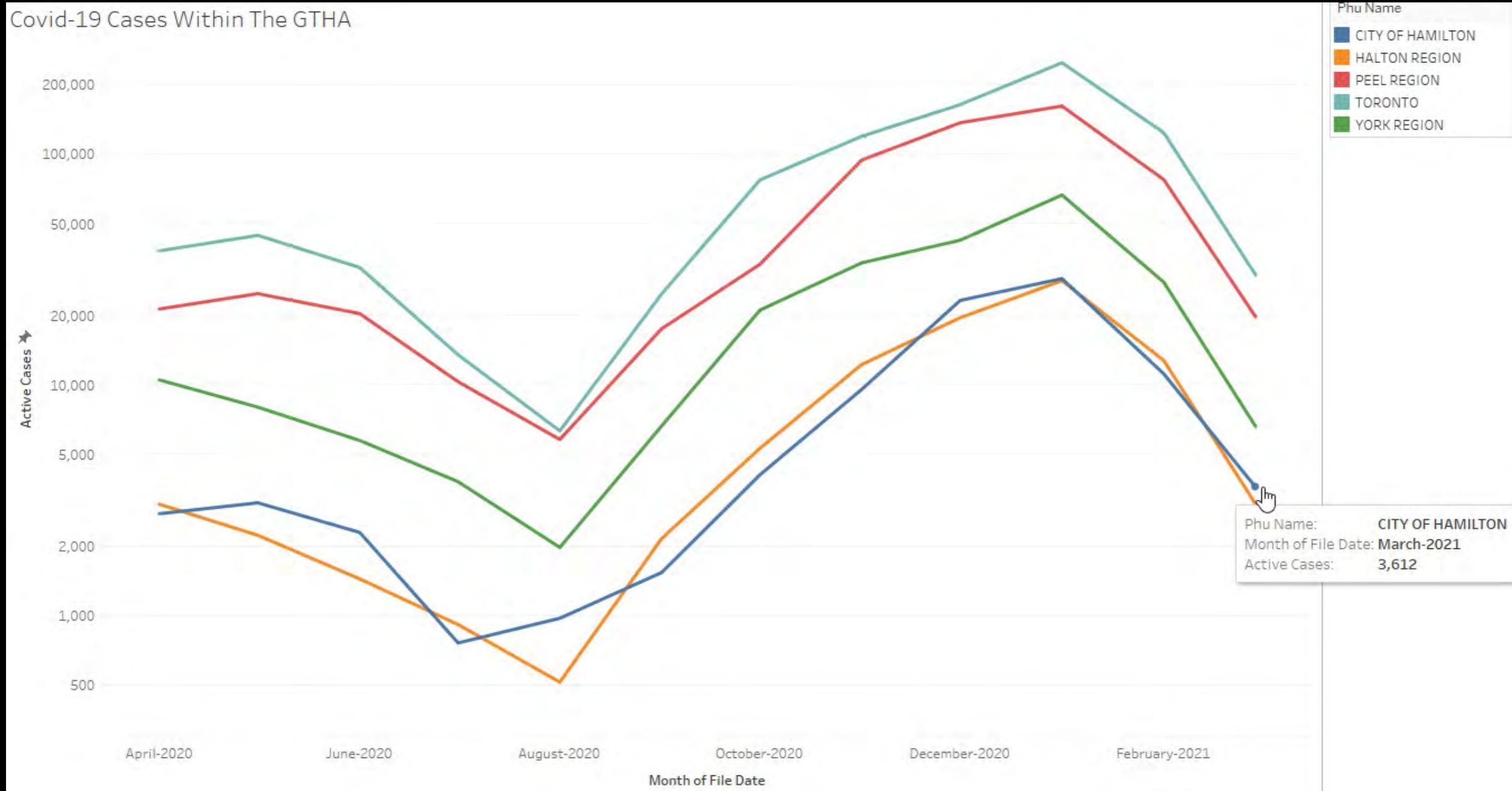


Otto Neurath  
and Gerd Arntz  
ISOTYPE method of  
pictorial statistics.  
1920s-30s

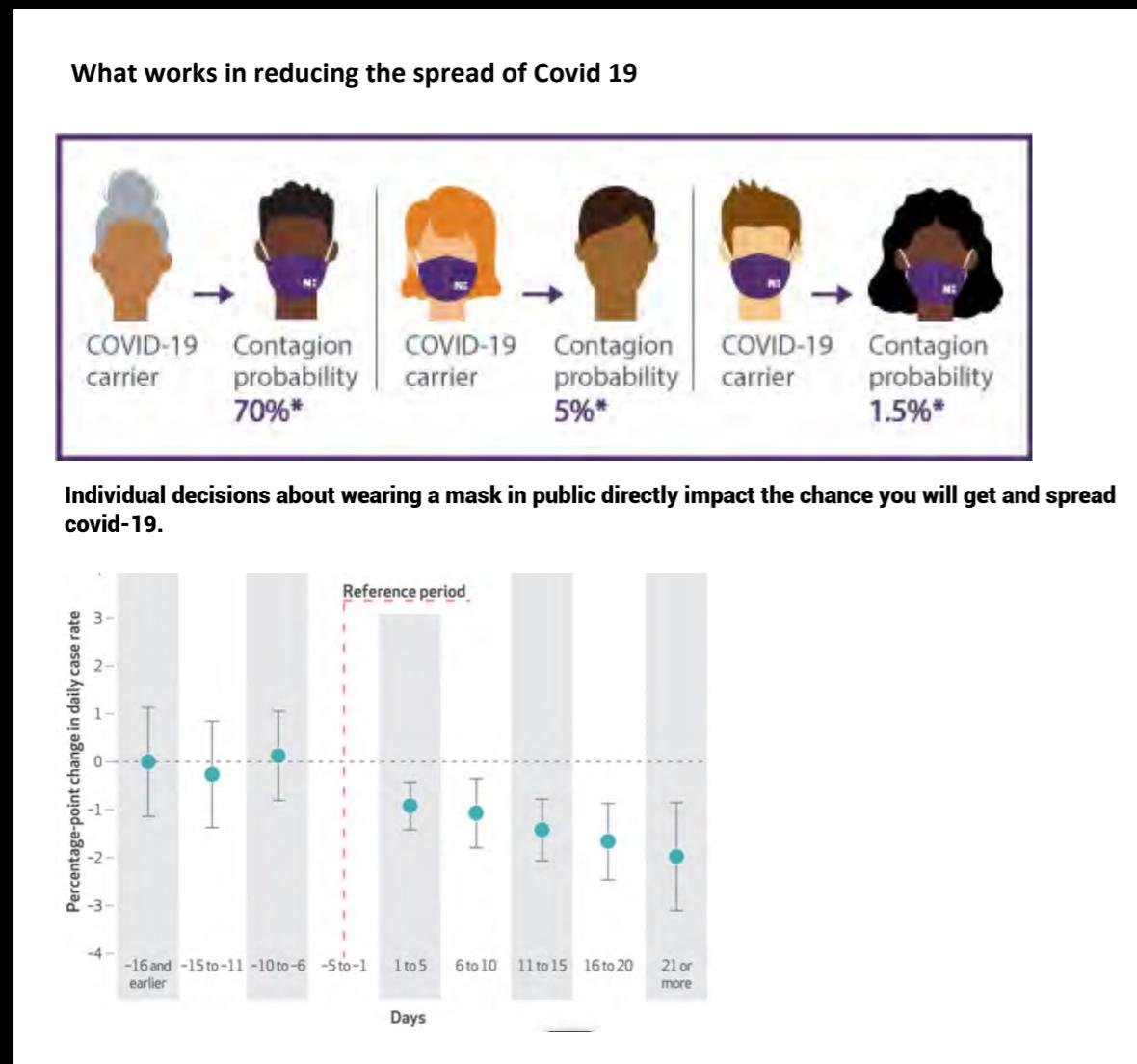


**DAY 2**

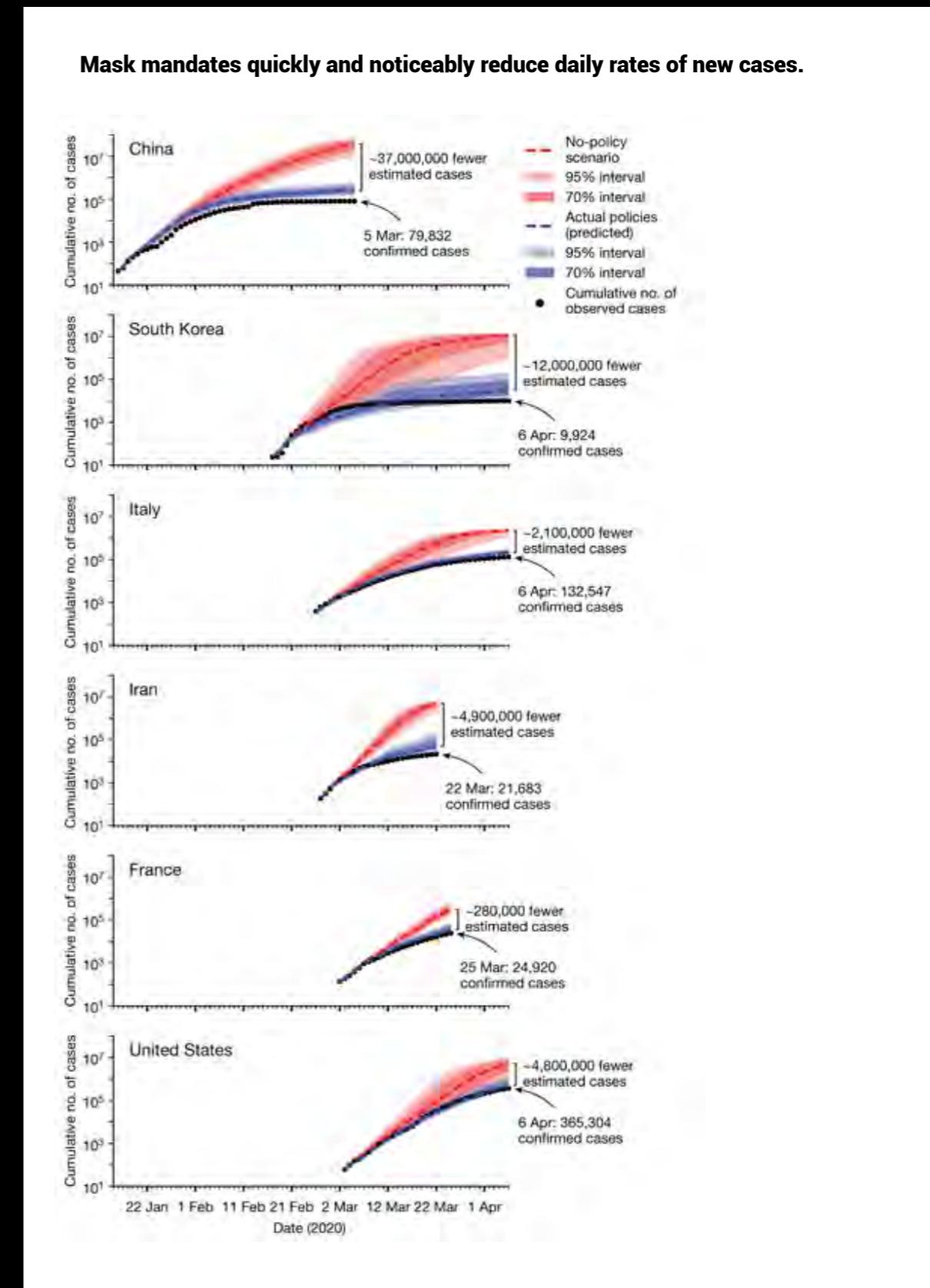
# Exercise critique



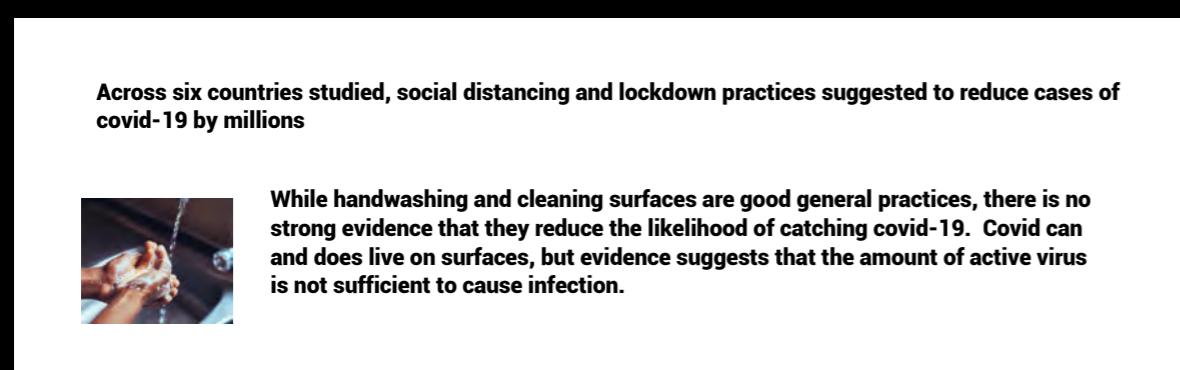
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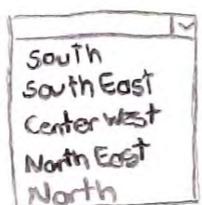
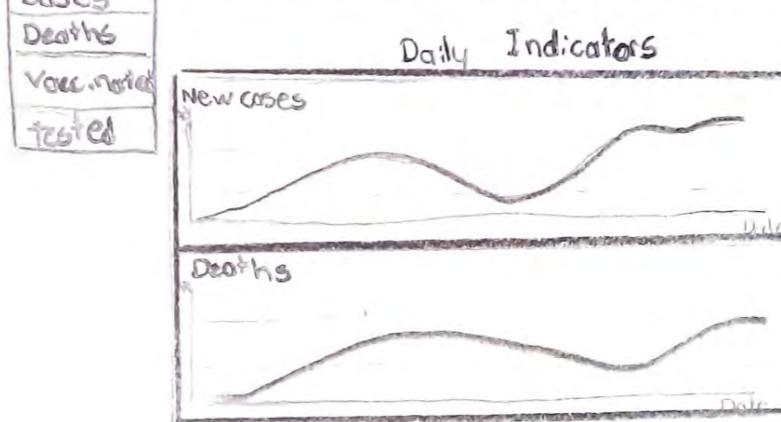
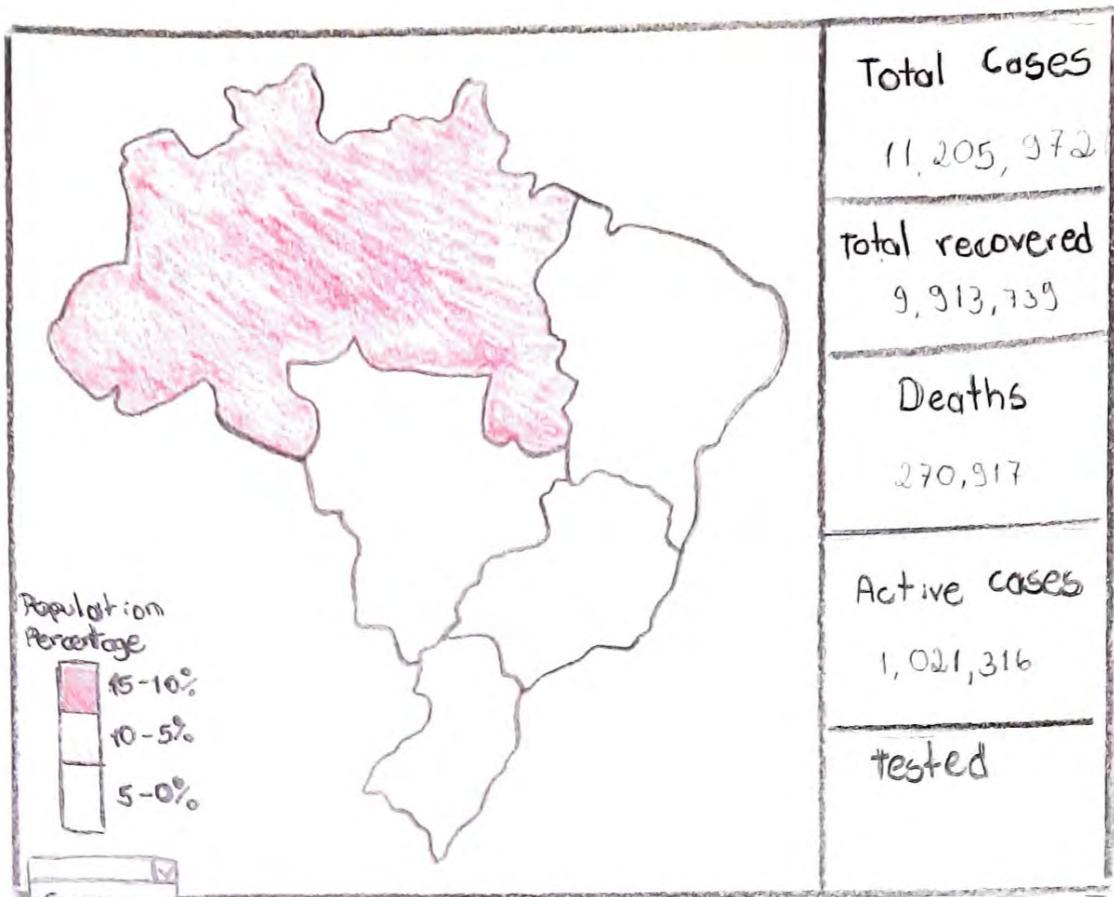
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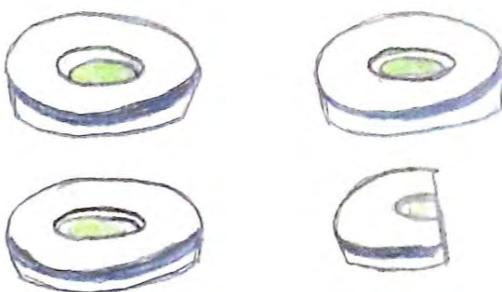
3

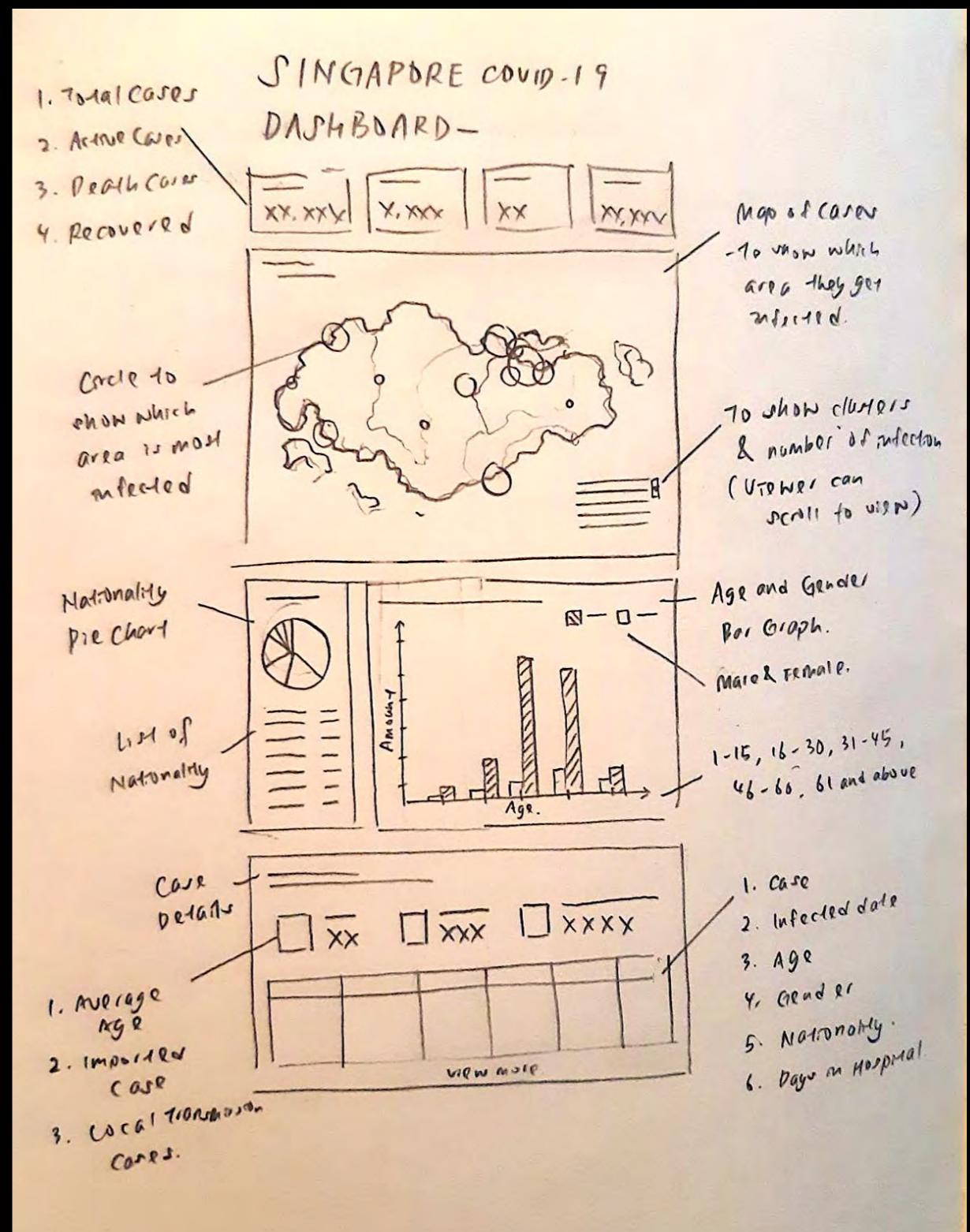
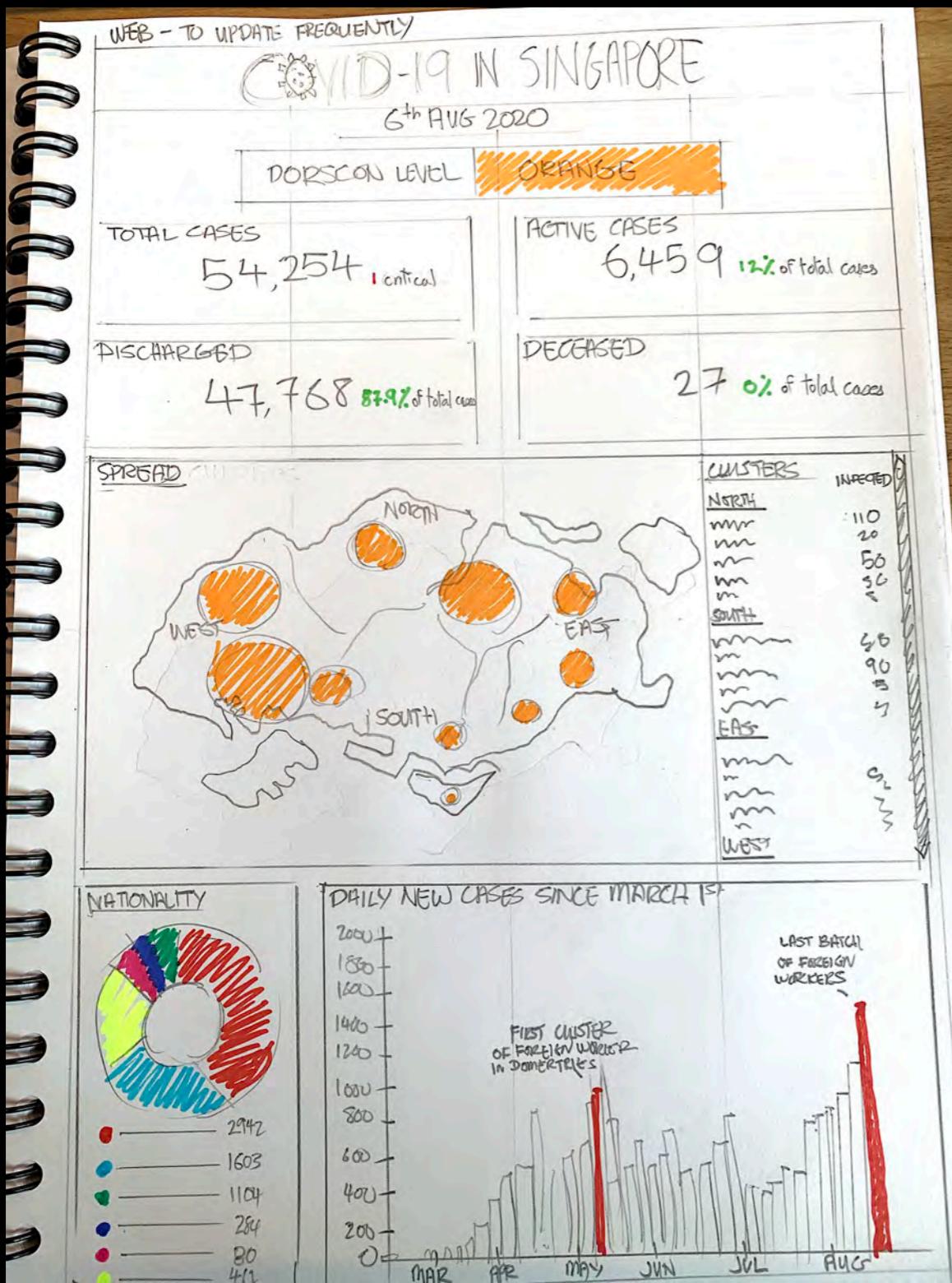


# COVID-19 IN BRAZIL



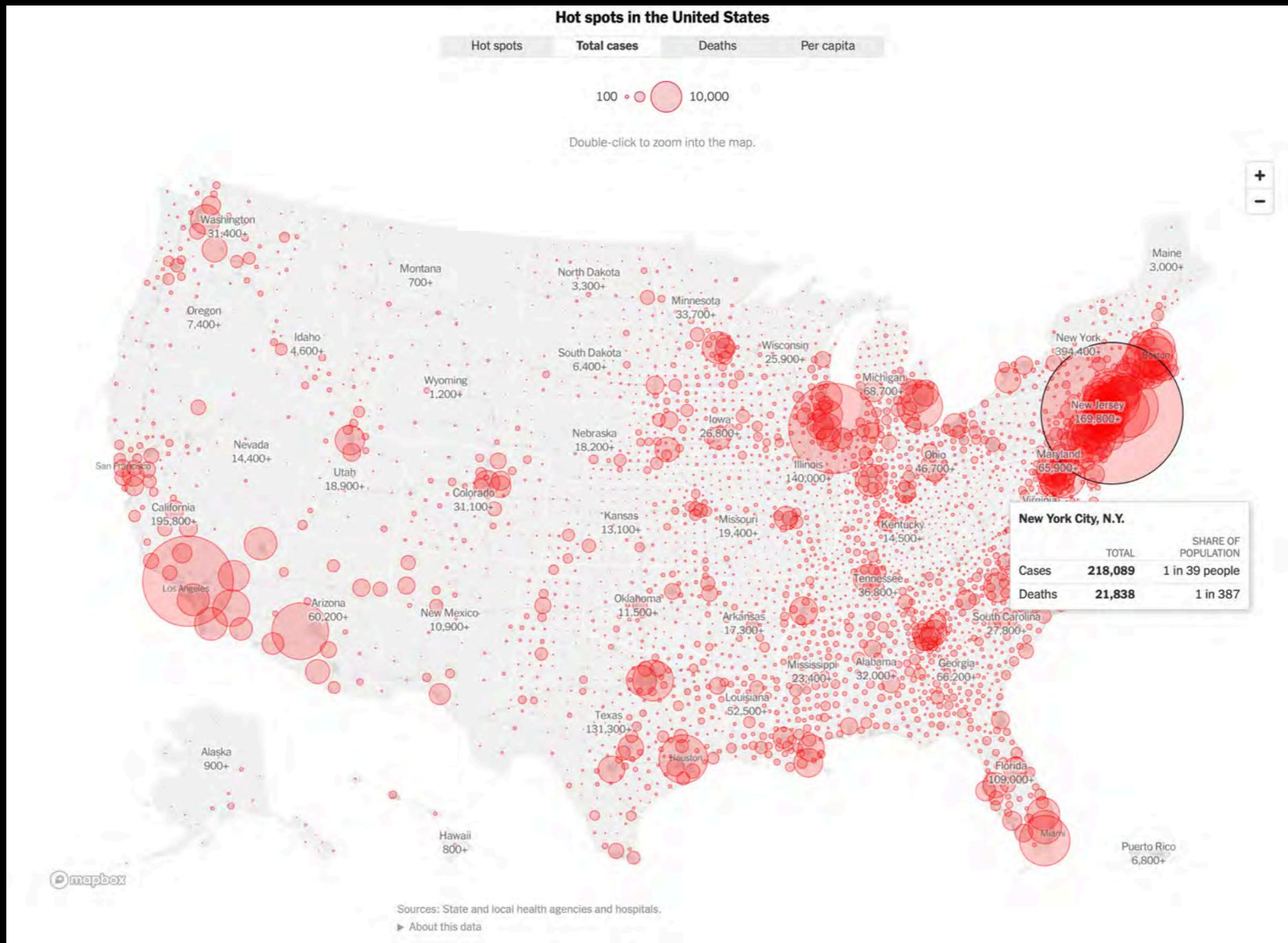
Total Deaths  
(in soccer stadiums)





The total number is not meaningful when we have variables like:

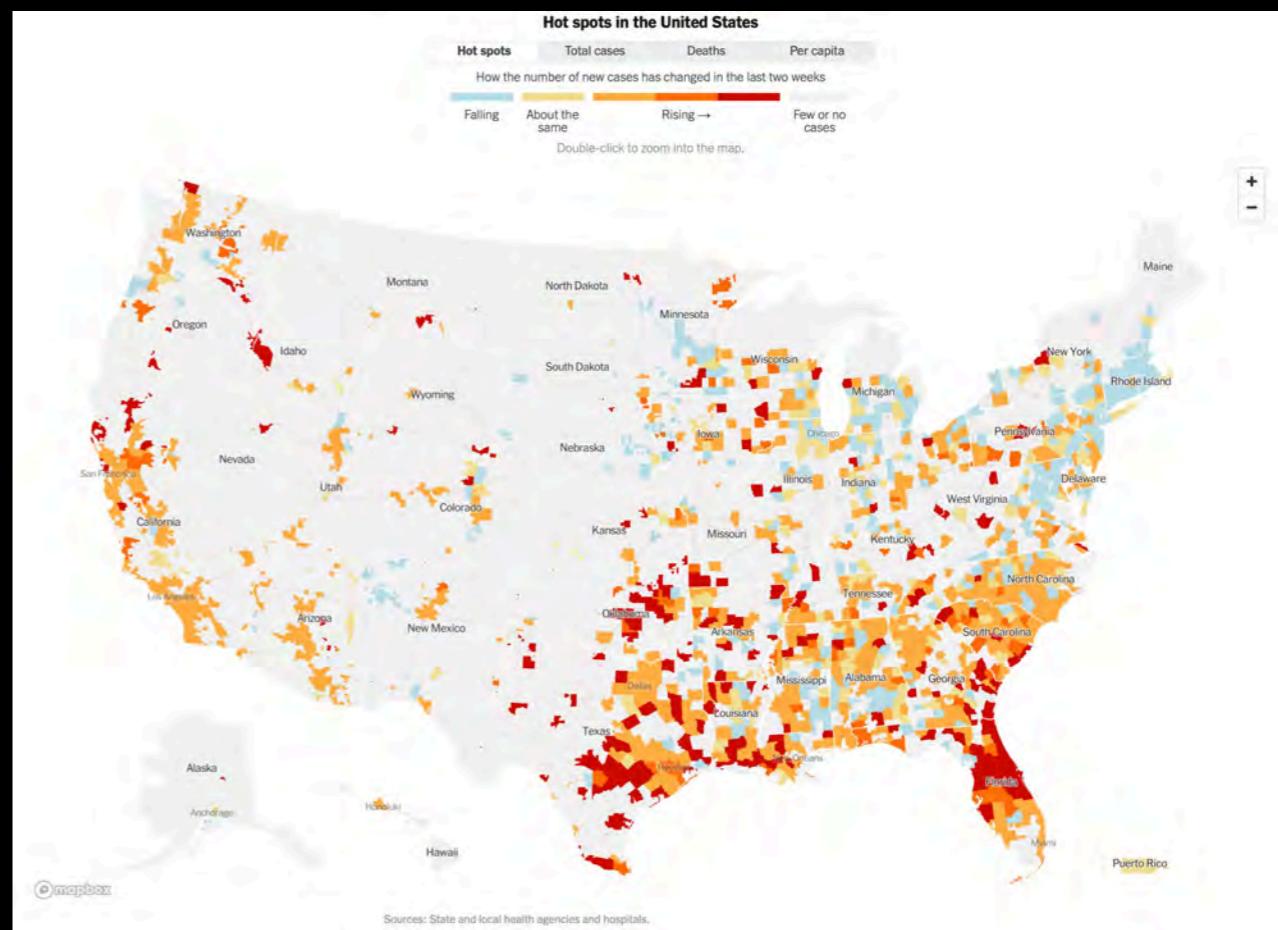
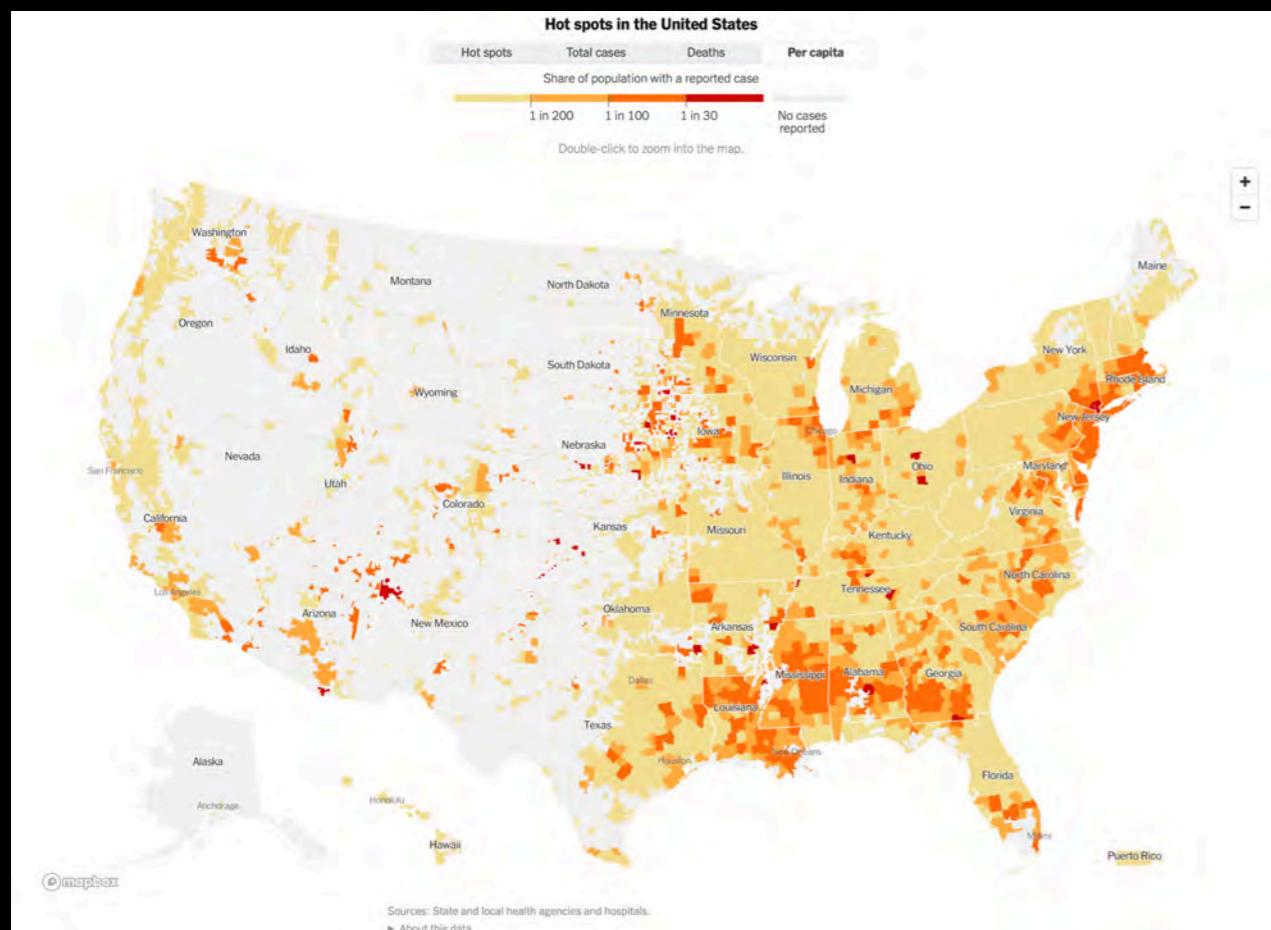
- Time
- Populations



## Normalize data

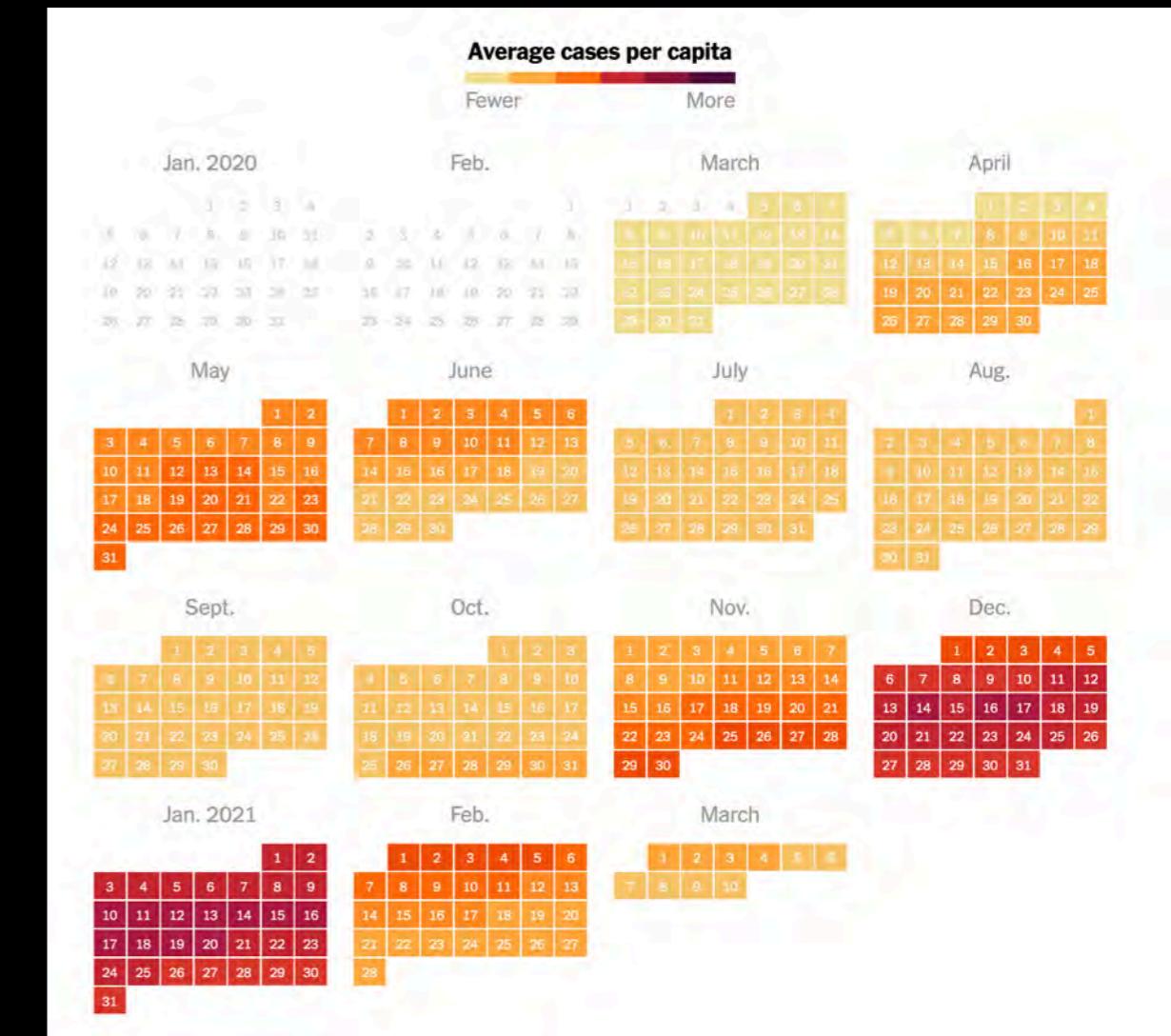
To track change over time or populations eliminate the units of measurement and use a notionally common scale

- **Percent change** over a time period makes data timely and relevant
- **Rate** (unit / per capita or per 100,000 people, for example) makes different orders of magnitude comparable

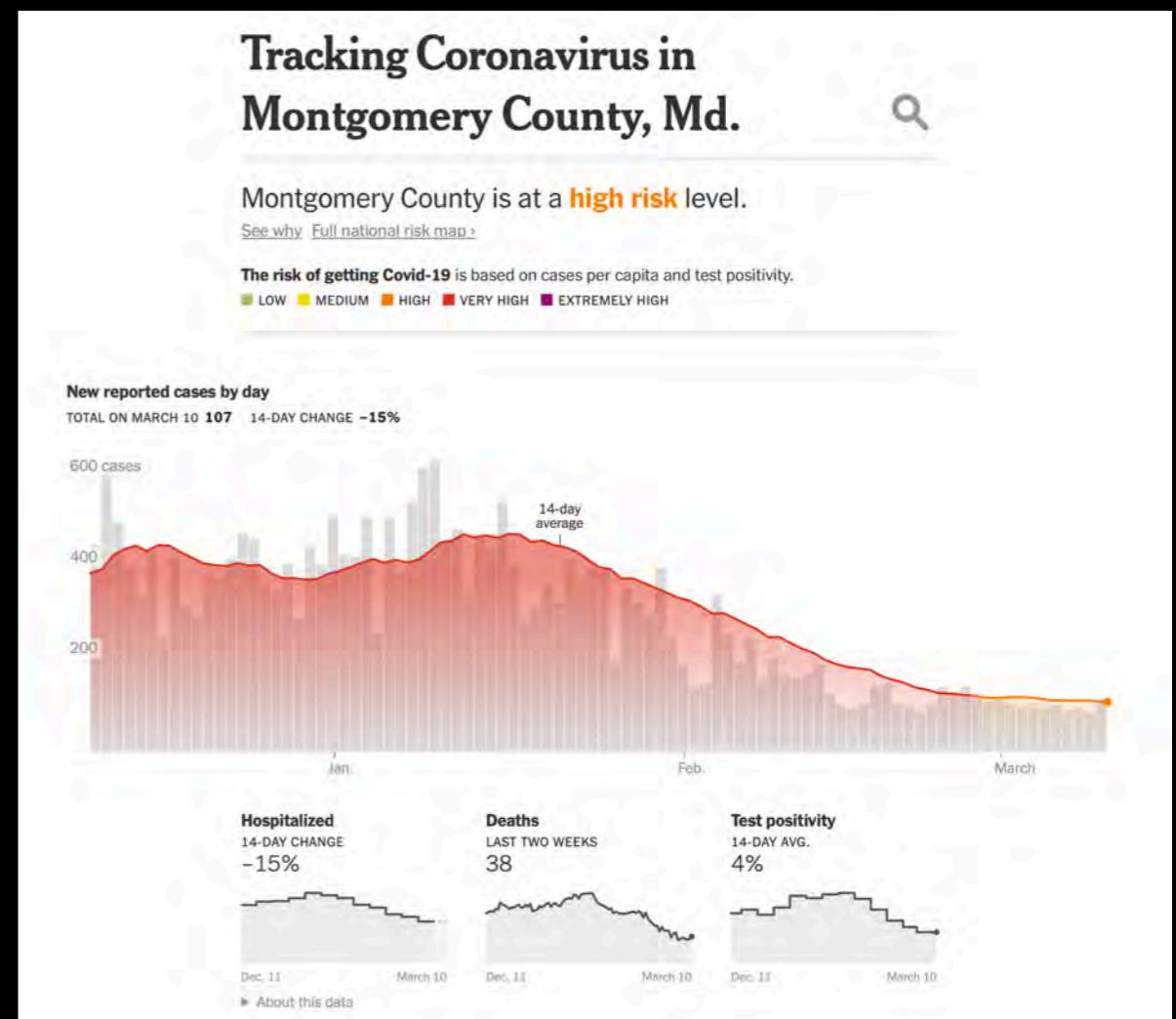
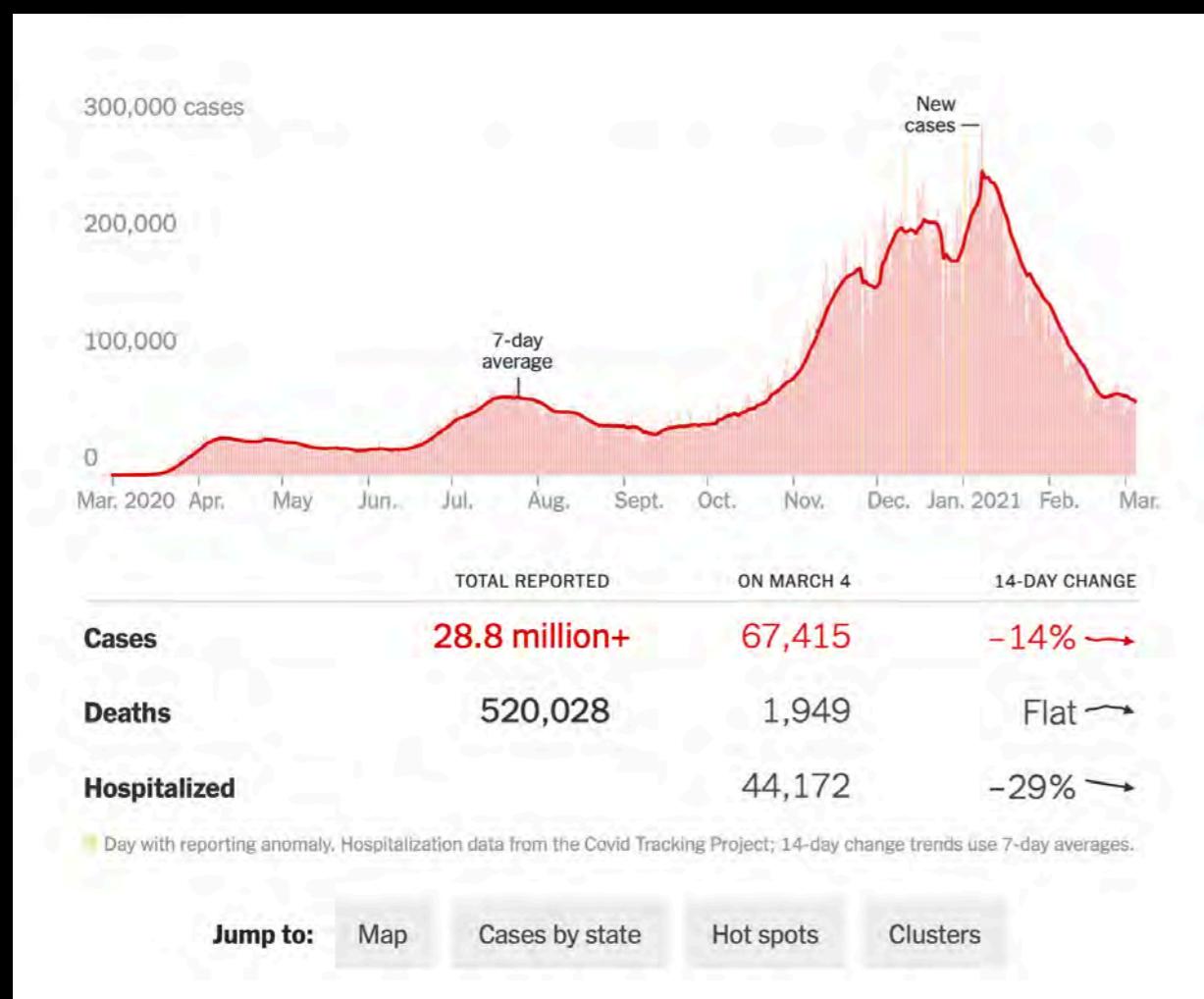


# Small multiples and heat map

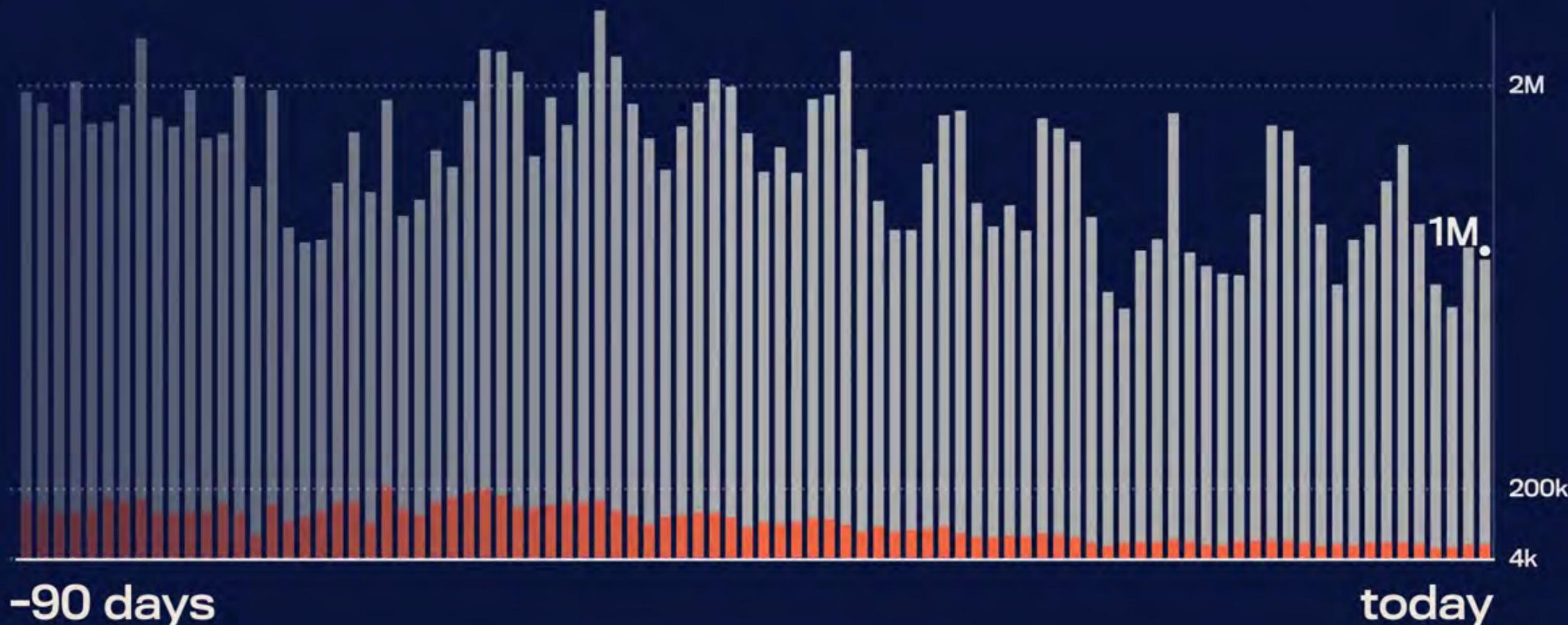
# An intuitive heat map



Show the **near** and the **far**



**USA: deaths / new cases / tested / positivity ratio**



**DAY 2**

# Q&A, bibliography and resources

# Dataviz - no coding

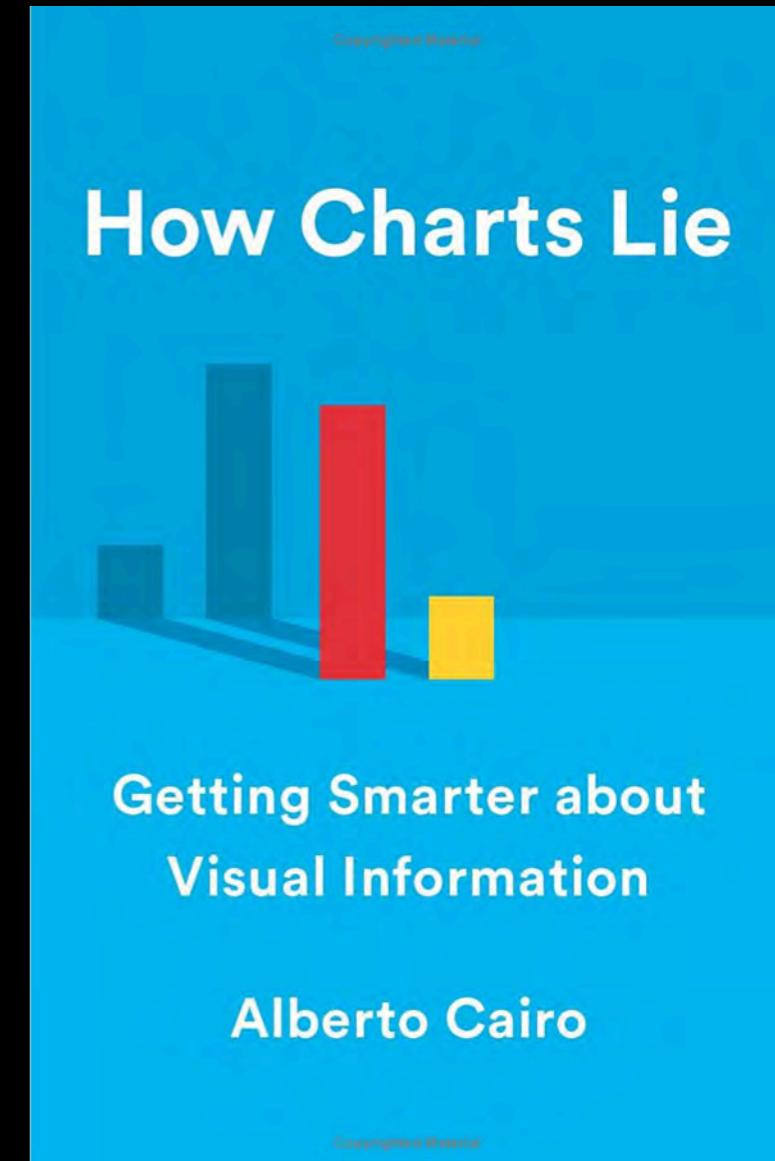
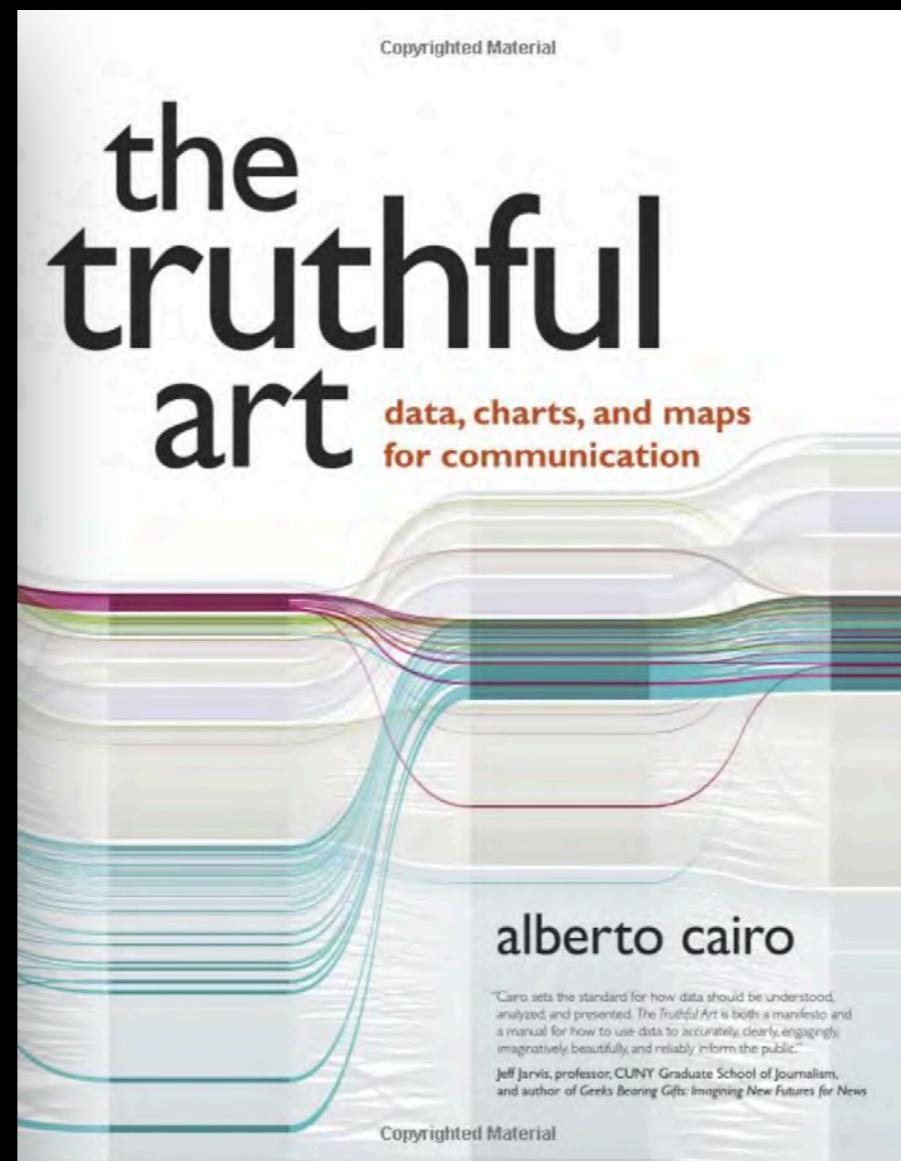
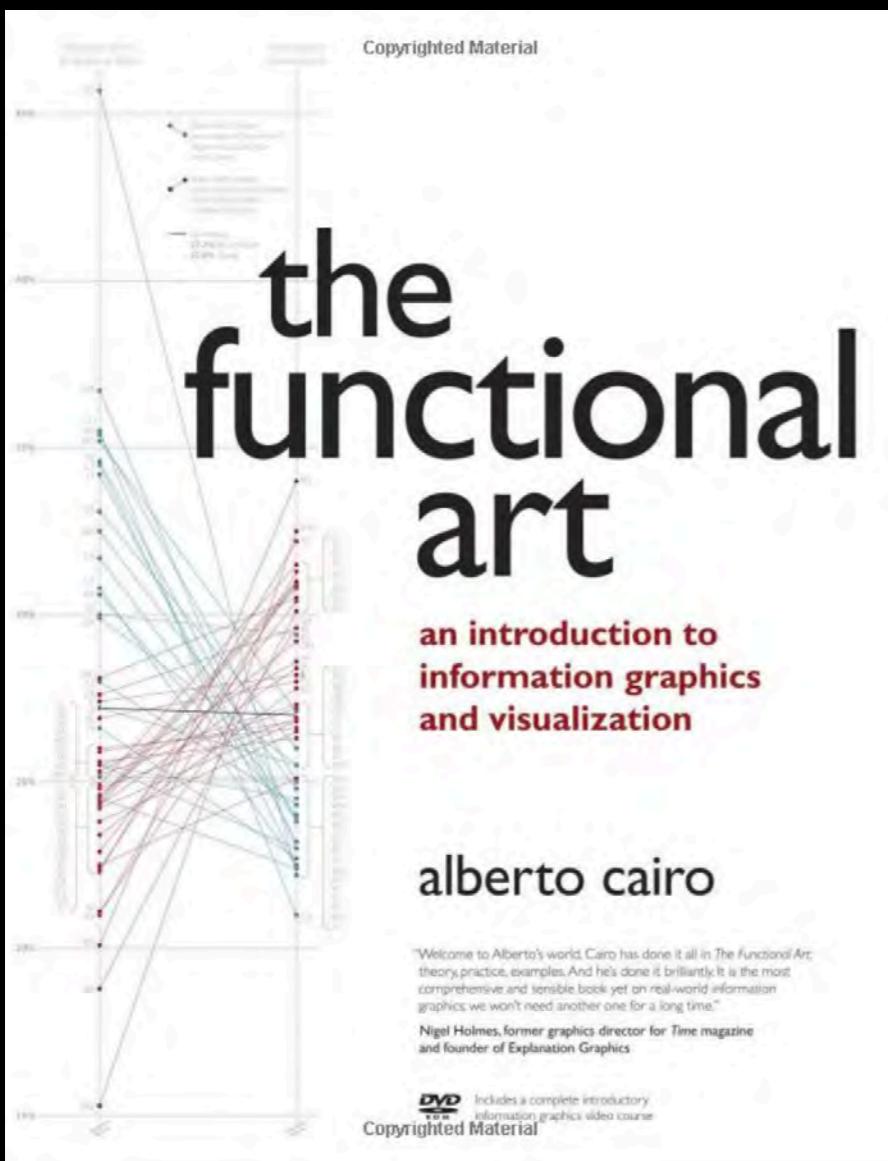
- **Datawrapper**  
datawrapper.de
- **Flourish**  
flourish.studio
- **Tableau Public**  
public.tableau.com

The screenshot shows the Tableau Public homepage. At the top, there's a navigation bar with links for GALLERY, AUTHORS, BLOG, RESOURCES, ACTIVITY, SIGN UP, and SIGN IN. Below the navigation is a search icon. The main banner features the text "Your data has a story. Share it with the world." and "Visualize and publish data on topics you care about. Explore and be inspired by creations from like-minded data enthusiasts." Below the banner is a form to "Enter your email address" and a button to "DOWNLOAD THE APP". It also includes links for "Available for Windows and Mac" and "Privacy Policy". The bottom section is divided into three main categories: "Data Storytelling", "Spark Conversation", and "Be Inspired", each with corresponding icons and descriptions.

The screenshot shows the Datawrapper homepage. The top navigation bar includes links for Datawrapper, Why Datawrapper?, Pricing, Examples, and Resources. The main headline reads "Enrich your stories with charts, maps and tables." Below the headline is a large "START CREATING" button. The page features several examples of charts and maps, including a scatter plot showing life expectancy trends, a map of San Francisco, and a bar chart of EU19 European Turnout voting in 2019. At the bottom, there are sections for "Charts", "Maps", and "Tables", each with descriptive text and a "Get started for free" button.

The screenshot shows the Flourish homepage. The top navigation bar includes links for Features, Examples, Pricing, Sign up, JOBS, BLOG, COMPANY, DEVELOPERS, and SIGN IN. The main headline is "Get trusted data, work faster". The central feature is a large globe with data visualizations overlaid. Below the globe, the text "Beautiful, easy, powerful data visualization & storytelling" is displayed. A "Get started for free" button is located in the lower right corner of the globe area.

# Alberto Cairo



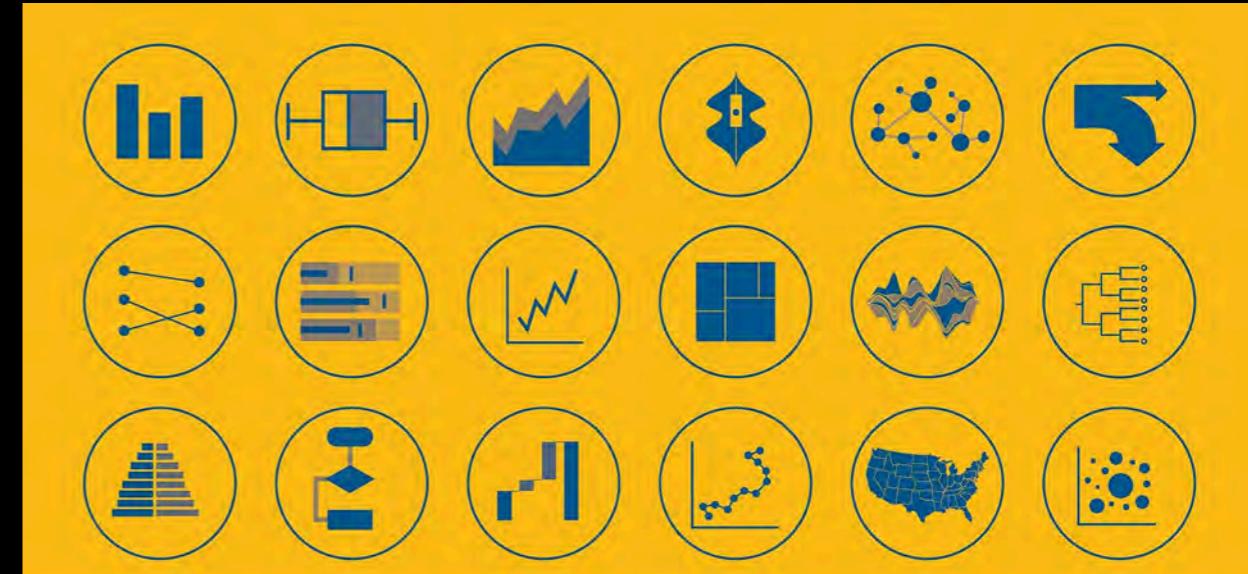
Dona Wong

THE WALL STREET JOURNAL.  
**GUIDE TO  
INFORMATION  
GRAPHICS**  
**THE DOS & DON'TS  
OF PRESENTING  
DATA, FACTS,  
AND FIGURES**  
**DONA M. WONG**

"INVALUABLE." —HOW DESIGN

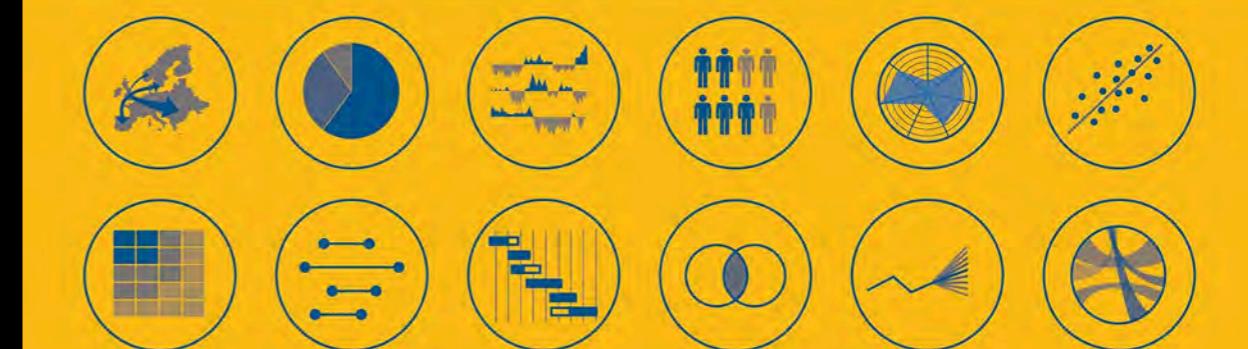


Jonathan Schwabish



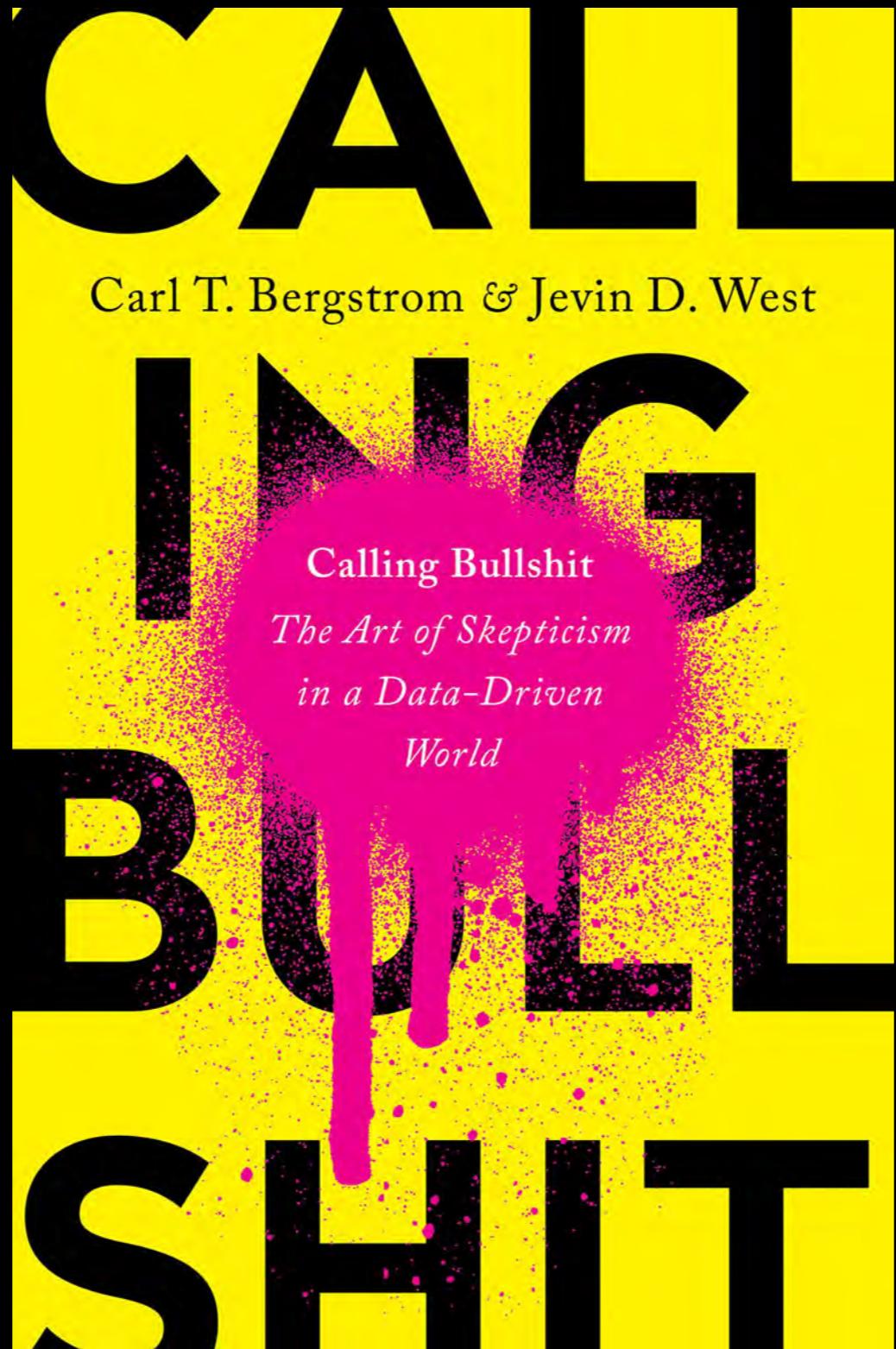
**BETTER DATA  
VISUALIZATIONS**

A Guide for Scholars, Researchers, and Wonks



Jonathan Schwabish

Carl Bergstrom and Jevin West  
(University of Washington)



# Good blogs/websites to follow

## ARTICLES

- [thefunctionalart.com](http://thefunctionalart.com)
- [policyviz.com](http://policyviz.com)
- [datajournalism.com](http://datajournalism.com)
- [visualisingdata.com](http://visualisingdata.com)
- [flowingdata.com](http://flowingdata.com)
- [5wgraphicsblog.com](http://5wgraphicsblog.com)
- [ourworldindata.org](http://ourworldindata.org)
- [eagereyes.org](http://eagereyes.org)
- [guardian.co.uk/news/datablog](http://guardian.co.uk/news/datablog)

## RESOURCES

- [lenagroeger.s3.amazonaws.com/talks/common/resources.html](http://lenagroeger.s3.amazonaws.com/talks/common/resources.html)
- [datavizcatalogue.com](http://datavizcatalogue.com)
- [datavizproject.com](http://datavizproject.com)

## PODCASTS

- [datavitztoday.com/shownotes](http://datavitztoday.com/shownotes)
- [datajournalism.com/listen](http://datajournalism.com/listen)
- [datastori.es](http://datastori.es)

## INSPIRATION (examples)

- [visualoop.com](http://visualoop.com)
- **South China Morning Post graphics**
- [scmp.com/infographic/](http://scmp.com/infographic/)
- [multimedia.scmp.com/culture/article/SCMP-printed-graphics-memory/](http://multimedia.scmp.com/culture/article/SCMP-printed-graphics-memory/)
- **The New York Times graphics**
- <https://www.nytimes.com/interactive/2020/12/30/us/2020-year-in-graphics.html>

# Twitter accounts to follow

## COMPANIES

- 5W Infographics @5Winfographics
- S. China Morning Post Graphics @SCMPgraphics
- Guardian Visuals @GuardianVisuals
- Guardian Data @GuardianData
- NPR Visuals team @nprviz
- Washington Post Graphics @PostGraphics
- New York Times Graphics @nytgraphics
- Wall Street Journal Graphics @WSJGraphics
- Bloomberg Graphics @BBGVisualData
- Reuters Graphics @ReutersGraphics
- BBC News Graphics @BBCNewsGraphics
- National Geographic Maps @NatGeoMaps
- Datawrapper @Datawrapper
- Data Journalism @Datajournalism

## PEOPLE

- Juan Velasco @juanvelasco
- Alberto Cairo @albertocairo
- Archie Tse @archietse
- Chiqui Esteban @chiquiesteban
- Adolfo Arranz @adolfux
- Archie Tse @archietse
- Andy Kirk @visualisingdata
- Jaime Serra @ja\_serra
- Maarten Lambrechts @maartenzam
- Giorgia Lupi @giorgialupi
- Lena Groeger @lenagroeger

# Books

## GENERAL

Cairo, Alberto. *The Functional Art: An Introduction to Information Graphics and Visualization.* New Riders, 2012.

Cairo, Alberto. *The Truthful Art: Sata, charts and maps for communication.* New Riders, 2016.

Cairo, Alberto. *How charts lie. Getting smarter about Visual Information.* W. W. Norton, 2019.

Schwabish, Jonathan. *Better Data Visualizations.* Columbia UniversitPress, 2021.

Nussbaumer, Cole. *Storytelling with data: a data visualization guide for business professionals.* Wiley, 2015.

Meirelles, Isabel. *Design for Information: An Introduction to the Histories, Theories, and Best Practices Behind Effective Information Visualizations.* Rockport, 2013.

Roam, Dan. *The Back of the Napkin: Solving Problems and Selling ideas with Pictures.* Penguin Group, 2008.

Rendgen, Sandra, *History of Information graphics.* Taschen, 2019

Heller, Steven. *Infographics Designers sketchbooks.* Adams Media, 2014

Neurath, Otto. *From Hieroglyphics to Isotype: A Visual Autobiography.* Hyphen Press, 2010.

Rendgen, Sandra. *Information Graphics.* Taschen, 2012.

Harris, Robert L. *Information Graphics: A Comprehensive Illustrated Reference.* Oxford University Press Inc., 2000.

- Sullivan, Peter. *Newspaper Graphics*. Ifra, 1987.
- Heller, Steven. *Nigel Holmes on Information Design*. Jorge Pinto Books, 2006.
- Gorge-Palilonis. *A Practical Guide to Graphics Reporting: Information Graphics for Print, Web & Broadcast*. Focal Press, 2006.
- Lipton, Ronnie. *The Practical Guide to Information Design*. Wiley, 2007.
- Mijksenaar, Paul. *Visual Function: An Introduction to Information Design*. Princeton Architectural Press, 1997.
- Malamed, Connie. *Visual Language for Designers*. Rockport Publishers, 2011.
- Wong, Dona M. *The Wall Street Journal Guide to Information Graphics. The Do's and Dont's of presenting data, facts and figures*. WW Norton & Co., 2013.

## DATA GRAPHICS

- Murray, Scott. *Interactive data visualization for the web*. O'Reilly, 2013.
- Jones, Ben. *Communicating data with Tableau*. O'Reilly, 2014.
- Few, Stephen. *Information Dashboard Design: Displaying Data for at-a-glance monitoring*. Analytics Press, 2013
- Few, Stephen. *Show Me the Numbers*. Analytics Press, 2004.
- Tufte, Edward. *The Visual Display of Quantitative Information*. Graphics PR, 2001.
- Wexler, Steve. *The Big Books of Dashboards*. Wiley, 2017.
- Kirk, Andy. *Data Visualization: A Successful Design Process*. Packt, 2012.
- Ilinsky, Noah and Julie Steele. *Designing Data Visualizations: Intentional Communication from Data to Display*. O'Reilly Media, 2011.
- Ferster, Bill. *Interactive Visualization: Insight through Inquiry*. The MIT Press, 2012.

Yau, Nathan. *Visualize This: The Flowing Data Guide to Design, Visualization and Statistics*. John Wiley & Sons Ltd., 2011.

## MAPS

Imhof, Eduard. *Cartographic Relief Presentation*. Environmental Systems Research Institute Inc., 2007.

Koch, Tom. *Cartographies of Disease: Maps, Mapping, and Medicine*. Environmental Systems Research Institute Inc., 2005.

Brewer, Cynthia A. *Designing Better Maps: A Guide for GIS Users*. Environmental Systems Research Institute Inc., 2005.

Johnson, Steven. *The Ghost Map*. Riverhead Trade, 2007.

Maceachren, Alan M. *How Maps Work*. The Filford Press, 2004.

Monmonier, Mark. *How to Lie with Maps*. University of Chicago Press, 1996.

Herzog, David. *Mapping the News*. Esri Press, 2003.

Garfield, Simon. *On the Map: A Mind-Expanding Exploration of the Way the World Looks*. Bloomsbury, 2012.

Slocum, Terry A. *Thematic Cartography and Geographic Visualization*. Prentice Hall, 2004.

## VISUAL PERCEPTION AND GRAPHICS

Kosslyn, Stephen. *Graph Design for the Eye and Mind*. Oxford University Press, Inc., 2006.

Ware, Colin. *Information Visualization: Perception for Design*. Morgan Kaufmann, 2012.

## OTHER BOOKS

Velasco, Juan. Look Inside. Gestalten, 2016

Playfair, William. The Commerical and Political Atlas and Statistical Breviary. Cambridge University Press, 2005.

Klanten, Robert and Sven Ehmann and Nicolas Bourquin. Data Flow 2: Visualizing Information in Graphic Design. Dgv, 2010.

Annink, Ed and Max Bruinsma. Gerd Arntz – Graphic Designer. 010 Publishers, 2010.

Lankow, Jason and Josh Ritchie and Ross Crooks. Infographics: The Power of Visual Storytelling. Wiley, 2012.

Wurman, Richard Saul. Information Anxiety 2. New Riders Publishing, 2000.

Baer, Kim. Information Design Workbook. Rockport Publishers, 2010.

Rendgen, Sandra. Information Graphics. Taschen, 2012.

McCandless, David. Information is Beautiful. Harper Collins Publ. Uk, 2010.

National Geographic. Inside Out: The best of National Geographic Diagrams and Cutaways. National Geographic, 1998.

Universidad de Navarra/SND-E. Malofiej book series. Universidad de Navarra/SND-E, 1993-2013.

Lima, Manuel. Visual Complexity. Princeton Architectural Press, 2011.

Fisher, Calvin. Handbook of Graphic Presentation. Wiley, 1979.

Few, Stephen. Show Me the Numbers. Analytics Press, 2004.

Tufte, Edward. The Visual Display of Quantitative Information. Graphics PR, 2001.

Rosenberg, Daniel. Cartographies of Time: A History of the Timeline. Princeton Architectural press, 2012

# 5wgraphics.com

The homepage features a large orange header with the 5W logo and the text "INFOGRAPHICS | INFORMATION DESIGN". Below the header is a navigation bar with links to HOME, SERVICES, GALLERY, BLOG, and ABOUT US. A prominent blue banner in the center promotes a "NEW ONLINE WORKSHOP" titled "INFOGRAPHICS AND DATA VISUALIZATION" by Juan and Samuel Velasco, dated April 8-9, and 15-16, 2021. The banner includes a network of numbers (28, 57, 44, 10, 1, 37, 34, 5) and a "CLICK HERE TO LEARN MORE" button. The main content area contains sections for "ABOUT SW INFOGRAPHICS" (with a Venn diagram showing the intersection of ART, DATA, and VISION), "SIGN UP" for a newsletter, and "CONTACT US" information for New York, Washington, and Madrid. At the bottom, there's a "SW BLOG" section with an article about "Nightingale in print" and logos for National Geographic, Oxford University Press, Nature, The New York Times, Qualcomm, The Economist, and Nikon.

# 5wgraphicsblog.com

The blog page has a dark background featuring a complex, colorful line-art illustration of celestial bodies and orbits. The 5W logo is in the top left corner, and the word "BLOG" is prominently displayed in a large orange circle. The navigation menu includes Home, About, Graphics, Web, Consulting, Design, and a search bar. A post from May 8, 2020, by 5wgraphicsblog is shown with the title "Simple explanatory animations". Below the title is an image of an animation storyboard with various panels illustrating a concept. The text explains that the workshop covers simple explanatory animations, which are effective for any device size and easy to share on social media. It also mentions the process of creating storyboards, voiceovers, music, and effects, and hitting the right pace, tone, and visual style.

*That's all folks!*

THANK YOU!

5W

@juanvelasco

@5WInfographics

**DAY 2**

# Best tools for data visualization

# Dataviz - no coding

- **Datawrapper**  
datawrapper.de
- **Flourish**  
flourish.studio
- **Tableau Public**  
public.tableau.com

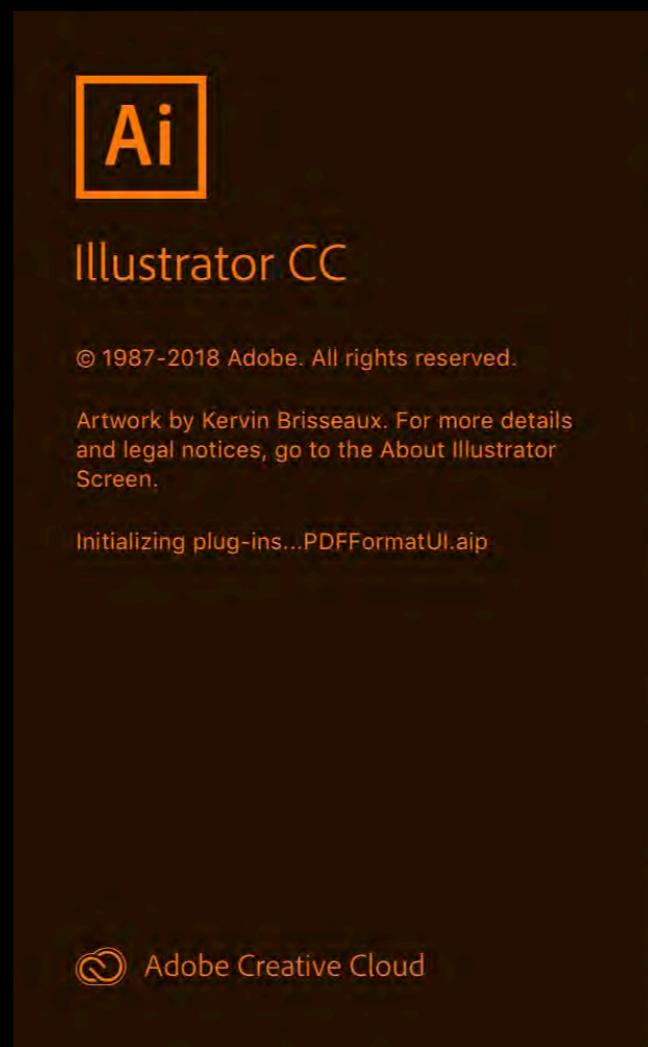
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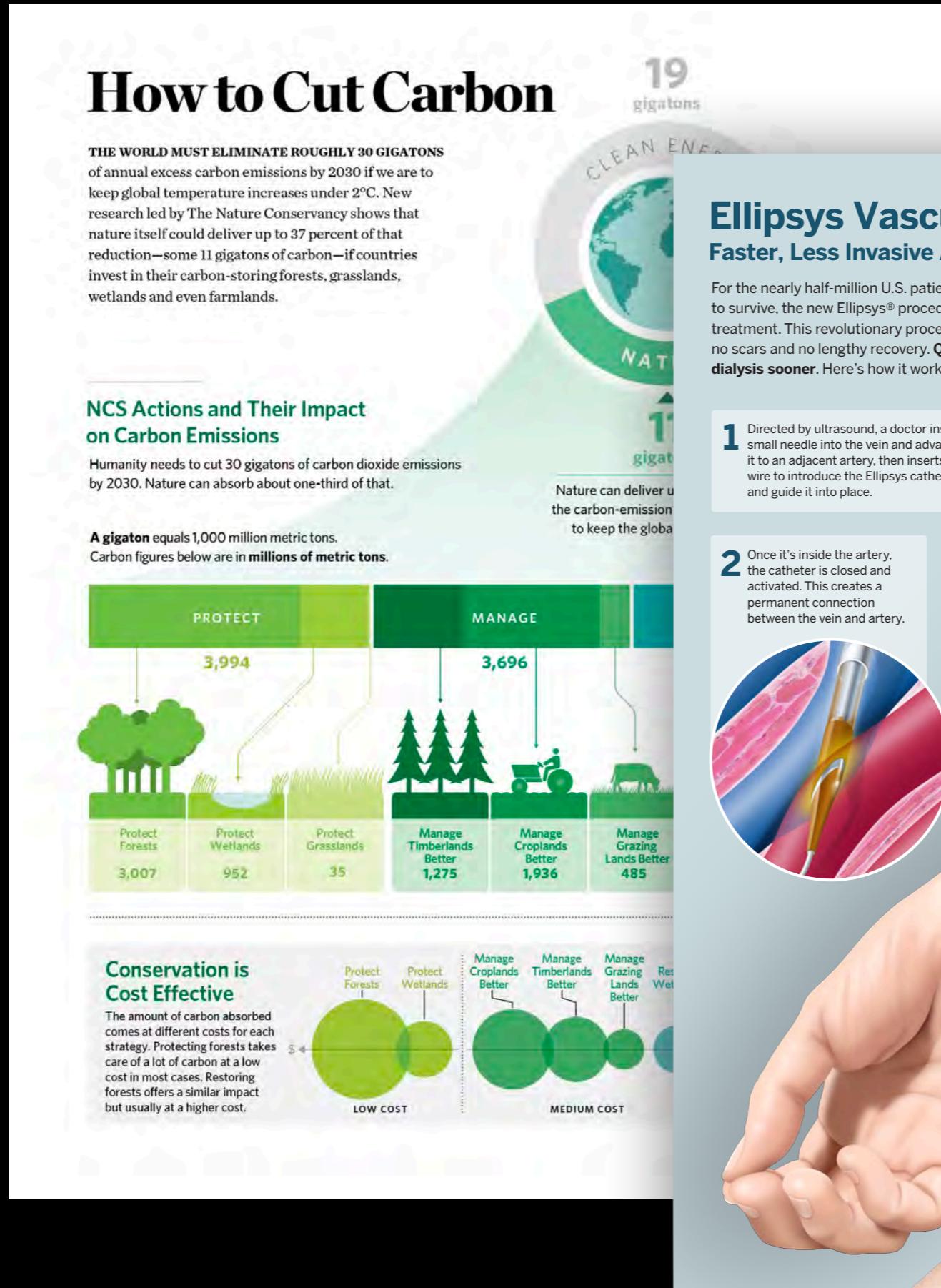
The screenshot shows the Flourish homepage. The top navigation bar includes links for Features, Examples, Pricing, Sign up, JOBS, BLOG, COMPANY, DEVELOPERS, and SIGN IN. The main headline is "Get trusted data, without writing code". Below the headline is a large "Get started for free" button. The background features a world map with glowing blue lines representing data connections. The central text reads "Beautiful, easy, powerful data visualization & storytelling". At the bottom, there's a footer note about cookies and a "Accept" button.

# ADOBE ILLUSTRATOR

Nearly all print graphics (diagrams, charts and maps) and many online



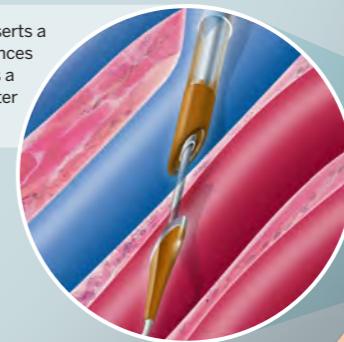
- Great for illustrated charts



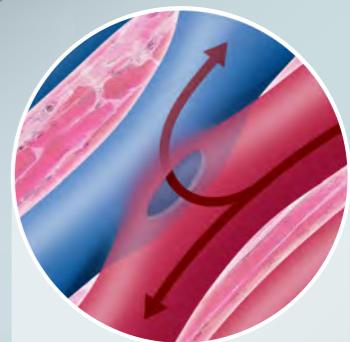
## Ellipsys Vascular Access: Faster, Less Invasive Access for Hemodialysis

For the nearly half-million U.S. patients who suffer kidney failure and require hemodialysis to survive, the new Ellipsys® procedure offers an easier way to access their bloodstream for treatment. This revolutionary procedure **replaces surgery with a needle stick** - no incisions, no scars and no lengthy recovery. **Quicker recovery means patients can begin their life-saving dialysis sooner.** Here's how it works.

**1** Directed by ultrasound, a doctor inserts a small needle into the vein and advances it to an adjacent artery, then inserts a wire to introduce the Ellipsys catheter and guide it into place.



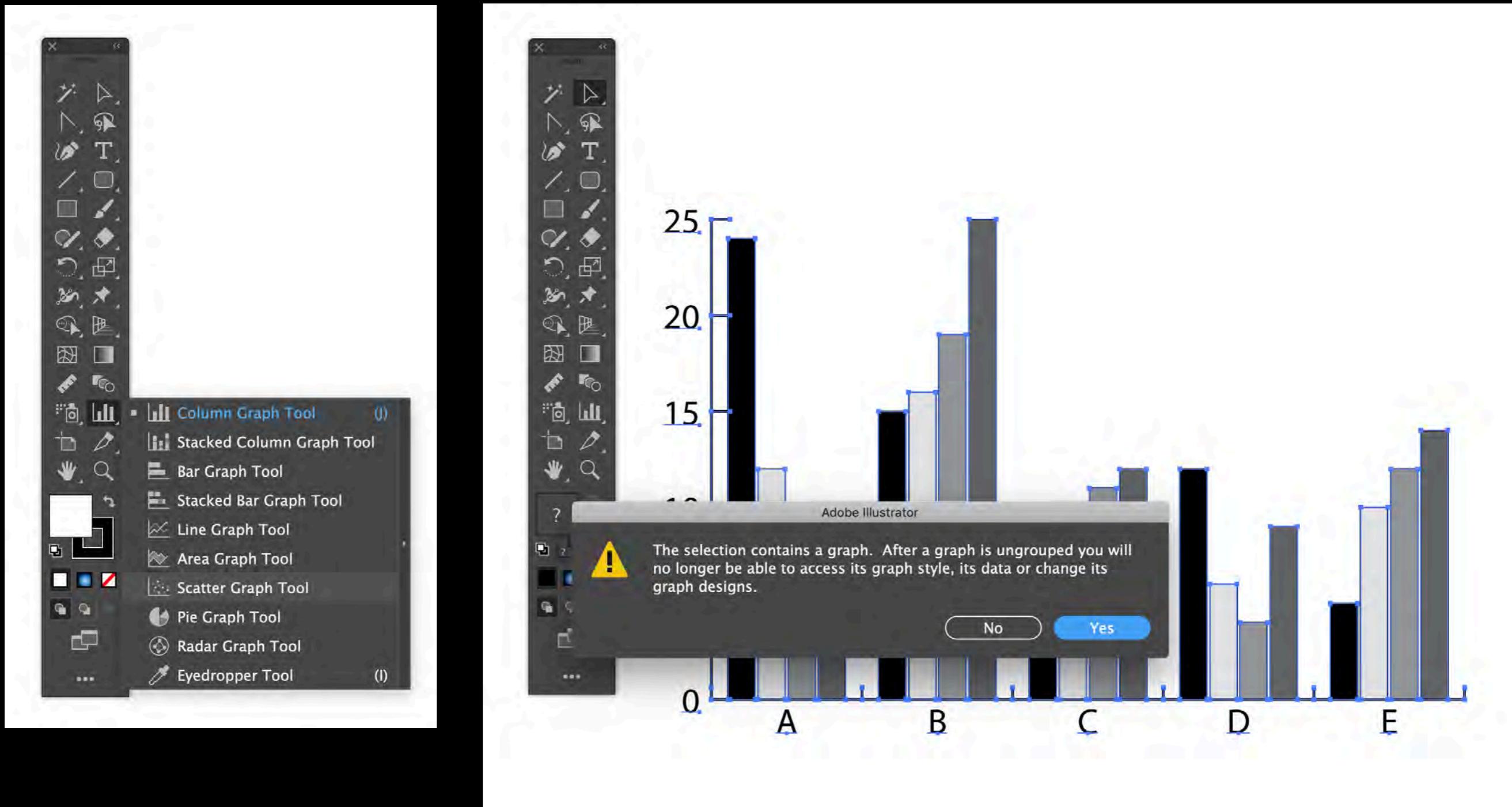
**2** Once it's inside the artery, the catheter is closed and activated. This creates a permanent connection between the vein and artery.



**3** The catheter is removed and blood begins to flow through the newly created "super vein" (also known as a fistula). No sutures or implant required.

**4** The patient leaves with just a band aid and can return to normal activities the next day.

- Basic charting tool
- Link to data is broken if you ungroup for any serious design work (but try the direct selection tools)



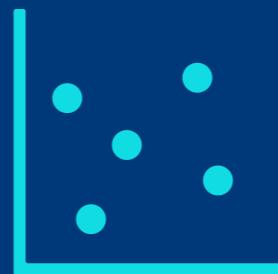
## PROS

- Full control of the design in illustrations, maps and charts
- Promising GIS integration with ArcGIS Maps for Adobe Creative Cloud

## CONS

- Limited charting tools
- Links to data in charts need to be broken for any real design
- No interactivity

# Data manipulation

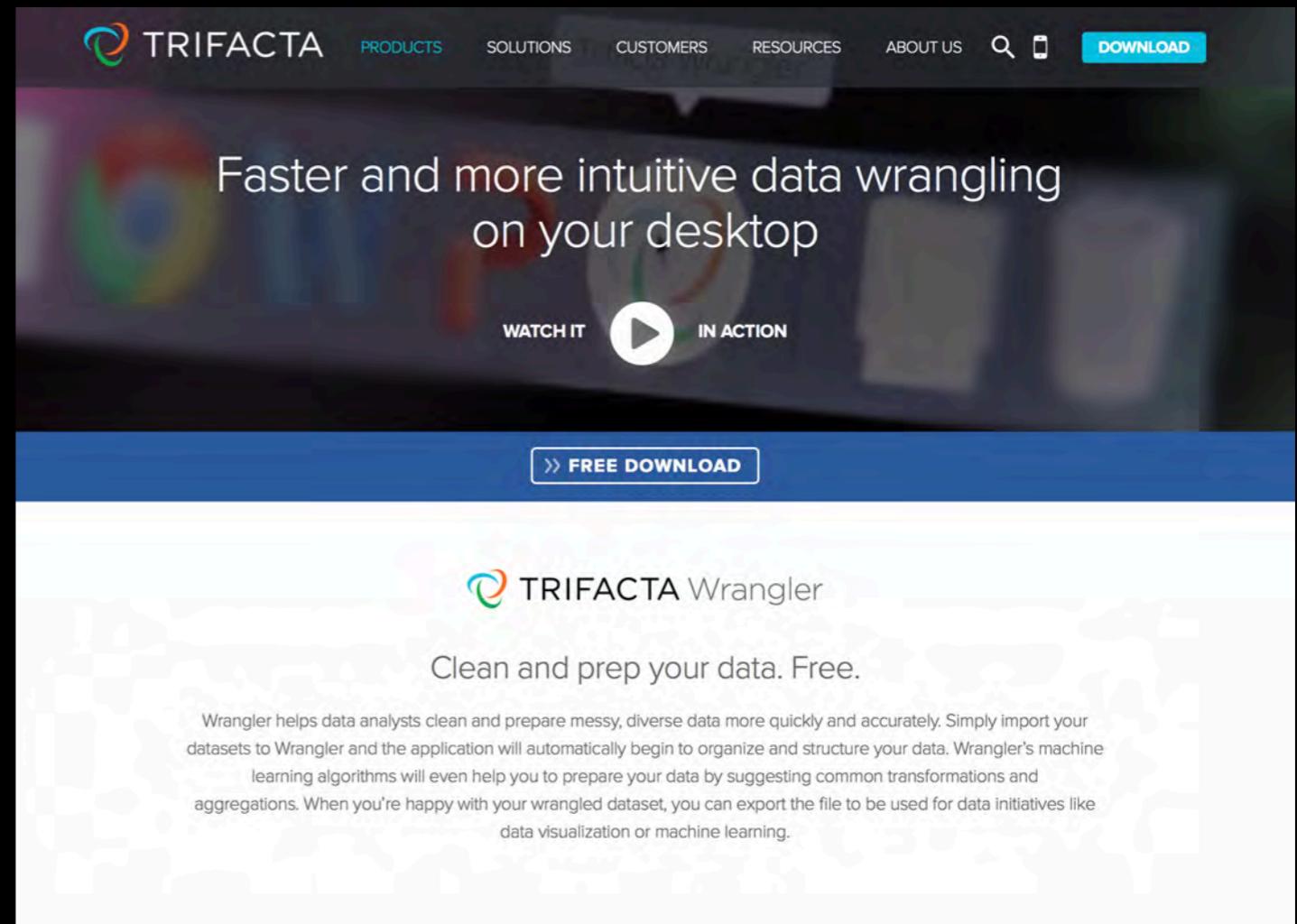


# MICROSOFT EXCEL

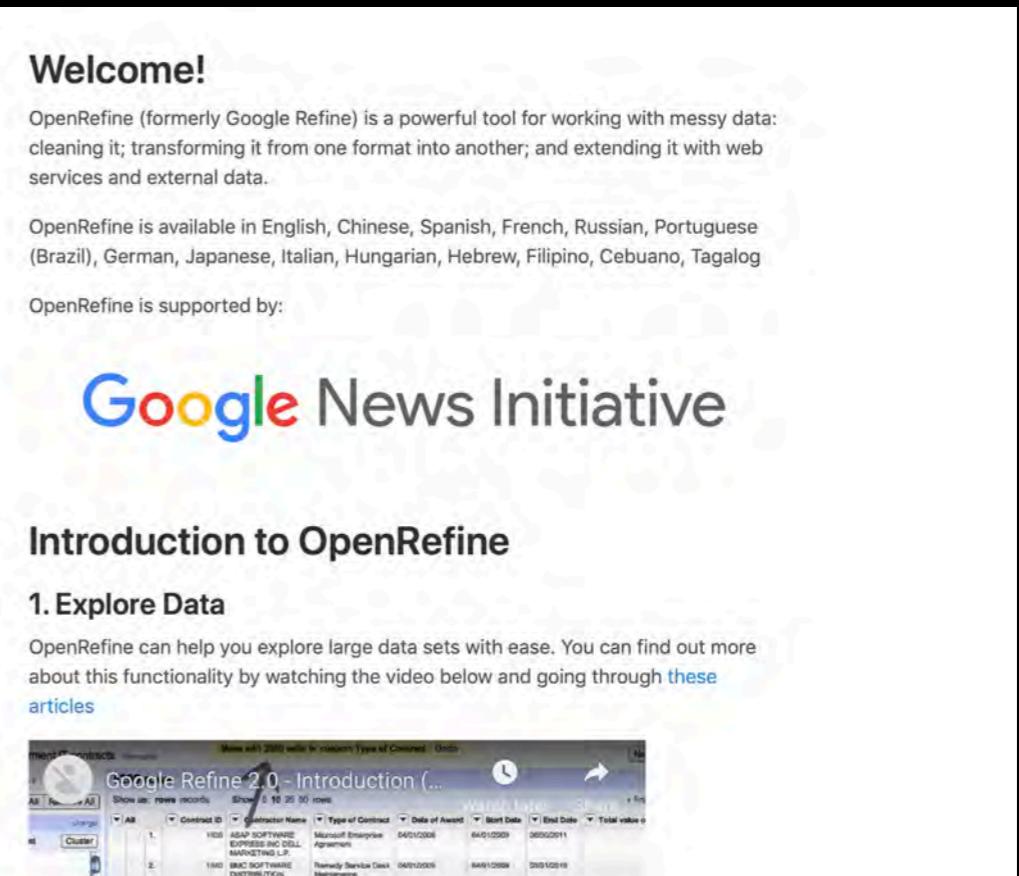
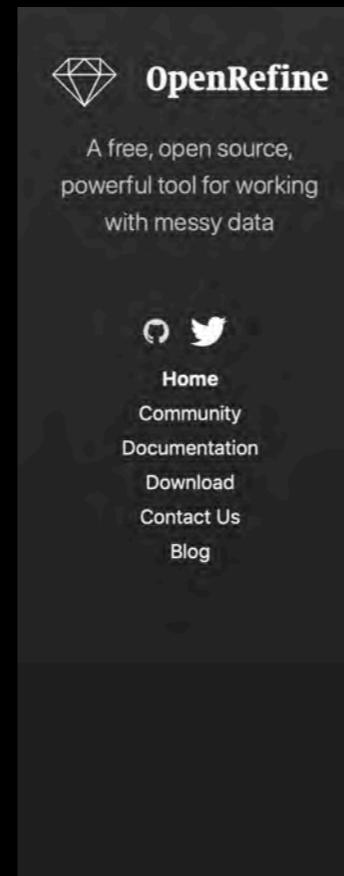


# Data manipulation

- Trifacta Wrangler
- OpenRefine (Google)
- Tabula  
(extract data from PDFs)
- Scraping tools  
(extract data from websites): [import.io](#) and others



The screenshot shows the Trifacta Wrangler homepage. At the top, there's a navigation bar with links for PRODUCTS, SOLUTIONS, CUSTOMERS, RESOURCES, ABOUT US, a search icon, and a DOWNLOAD button. Below the navigation is a large banner with the text "Faster and more intuitive data wrangling on your desktop". Underneath the banner are two buttons: "WATCH IT" with a play icon and "IN ACTION". At the bottom of the banner is a "» FREE DOWNLOAD" button. The main content area features the Trifacta logo and the text "Clean and prep your data. Free." followed by a descriptive paragraph about the tool's capabilities.



The screenshot shows the Google News Initiative support for OpenRefine. It features the "Google News Initiative" logo at the top. Below it is a section titled "Introduction to OpenRefine" with a sub-section titled "1. Explore Data". A text block explains that OpenRefine can help explore large data sets. At the bottom of the page is a screenshot of the OpenRefine interface showing a data grid with columns like "Contract ID", "Contractor Name", "Type of Contract", etc., and some sample data rows.

**TOOLS WITH NO CODING**

# Charts and maps online



# TABLEAU PUBLIC

tableau public

GALLERY

AUTHORS

BLOG

RESOURCES

ACTIVITY

SIGN IN



DATA IN. BRILLIANCE OUT.

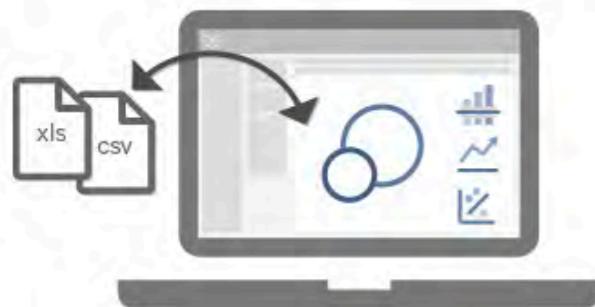


Visualize and Share Your Data in Minutes—For Free

Enter your email address

Download the App

Available for Windows and Mac | [Privacy Policy](#)



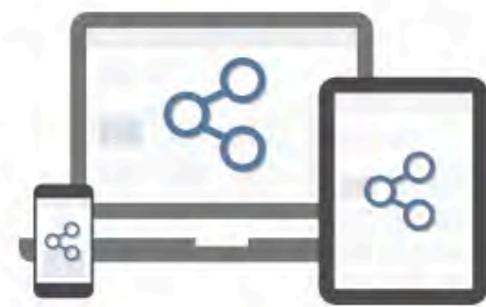
## Explore with the App

Open data and explore it with Tableau Desktop Public Edition. Drag & Drop. Create stunning visualizations with ease. [Download the app.](#)



## Save to Your Profile

Save and store your visualizations on your Tableau Public profile. We give you 10GB of space. Personalize your profile and connect with other authors. [Create your profile.](#)



## Share with the World

Share your visualizations with the world via social media. Or embed them on a site or blog. Your published vizs are always live and interactive. [View the gallery.](#)



UNITED  
NATIONS

## MEETINGS COVERAGE AND PRESS RELEASES

HOME

SECRETARY-GENERAL ▾

GENERAL ASSEMBLY ▾

SECURITY COUNCIL ▾

ECONOMIC AND S

PRESS RELEASE

PI/2226

20 MARCH 2018

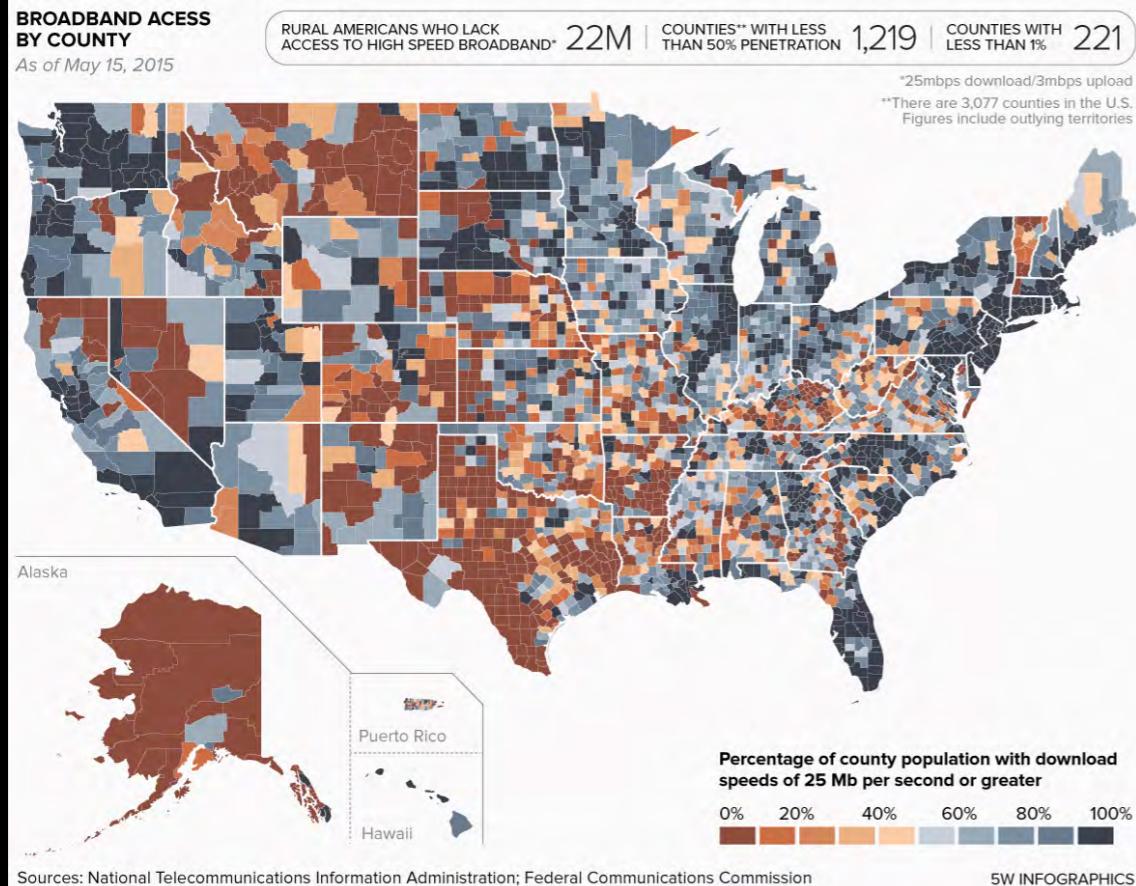
# United Nations Establishes Tableau as Visual Analytics Standard, Streamlines Global Adoption of Platform

NEW YORK, 20 March (Office of Information and Communications Technology) — The United Nations and Tableau Software are proud to announce an unprecedented agreement that provides access to Tableau's world class visual analytics to professionals working in 193 Member States across the United Nations system.

United Nations Secretary-General António Guterres, speaking at the launch of the Centre for Humanitarian

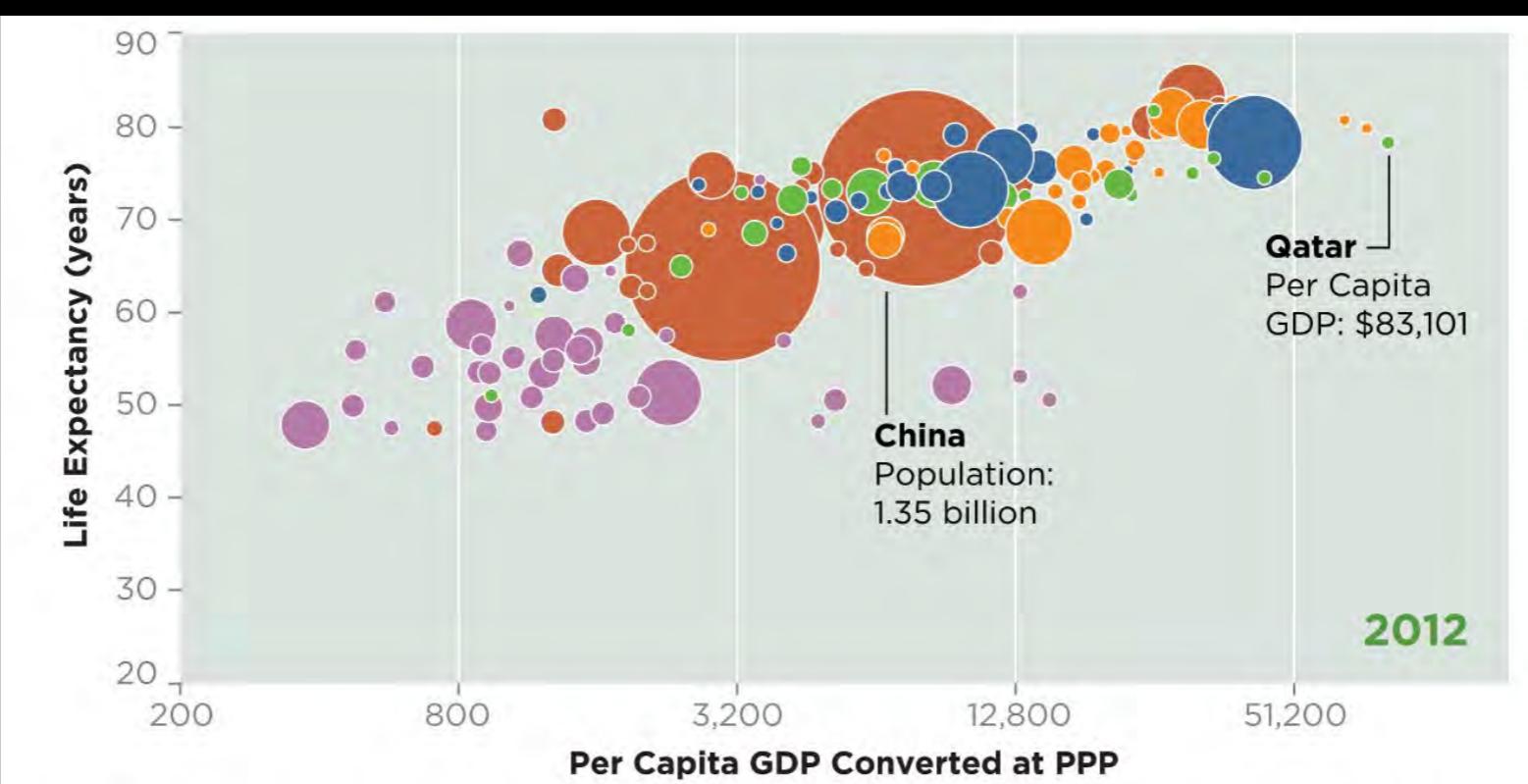
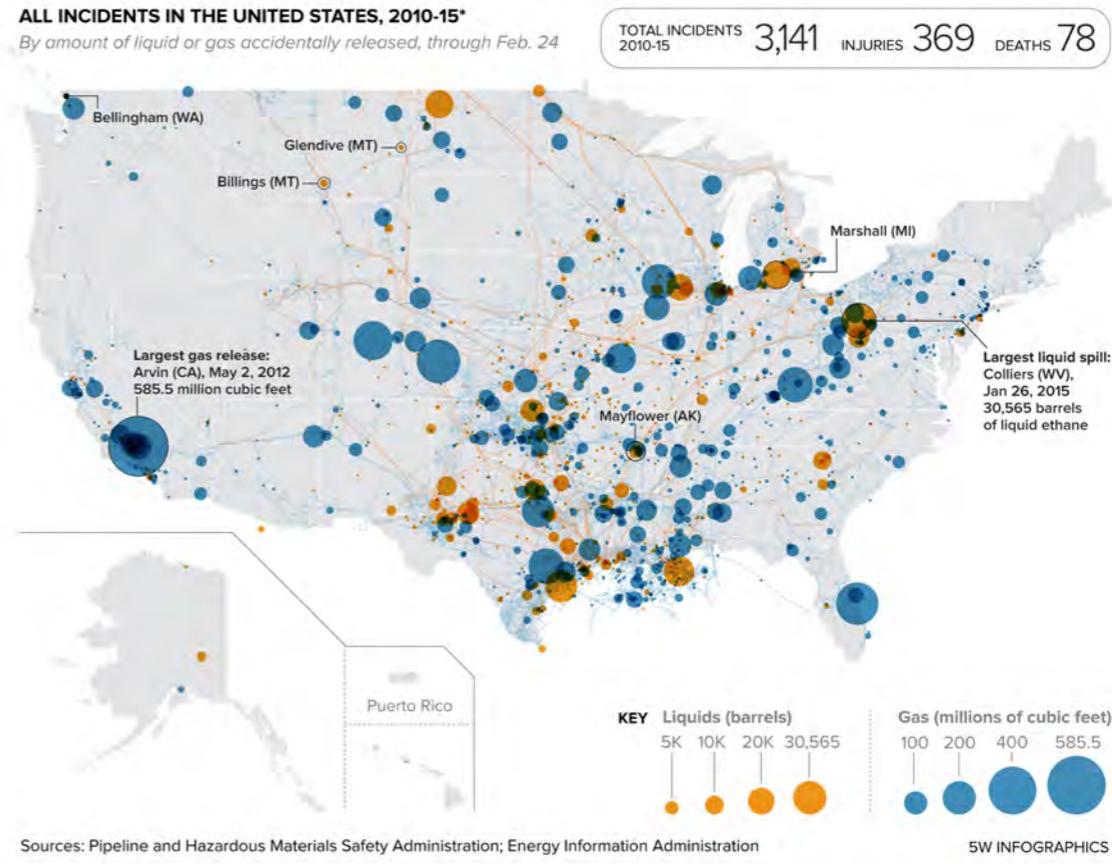
## Stuck in the slow lane

Who has high-speed Internet? It very well depends on who you ask — and how you define it. Under the new standard set by the Federal Communications Commission this year, modern high-speed broadband connections should offer at least 25 megabits per second in download speeds, and 3 mbps in upload speeds. By that ambitious metric, though, rural areas lag far behind the nation's population centers. More than 53 percent of rural residents don't have access to this level of Internet service, according to the FCC, while only 1 percent in urban areas lack such speedy connections.



## Explosions, leaks and spills

There's more than one leak, spill or explosion involving an oil or gas pipeline every day in the United States. The incidents are concentrated in the oil-patch states of Texas, Oklahoma and Louisiana and a cluster in the North Dakota home of the Bakken. But pipelines traverse every state. Hazardous liquid spills are sized by the barrel (each barrel is 42 gallons) and gas leaks are measured by thousands of cubic feet.



O'REILLY®

Copyrighted Material

Covers  
Tableau version 8.1



# Communicating Data with **Tableau**

DESIGNING, DEVELOPING, AND DELIVERING  
DATA VISUALIZATIONS

Ben Jones

Copyrighted Material

O'REILLY®



# Practical **Tableau**

100 TIPS, TUTORIALS, AND STRATEGIES  
FROM A TABLEAU ZEN MASTER

Ryan Sleeper

# TABLEAU PUBLIC

## PROS

- No programming needed
- Deep analytical tools for large datasets
- You can upload multiple file types including shapefiles and map data
- Can save graphics as PDFs work well in Illustrator
- Great for dashboards
- Quick way to explore data, seeing many options

## CONS

- Free version makes all data publicly available
- Limited projections
- Limited design customization
- Limited responsive capabilities  
(must introduce manual data. Datawrapper and Flourish do it automatically)

# DATAWRAPPER

Datawrapper

Customers Features Pricing Login

## Enrich your stories with charts, in seconds.

De prijsstijging in de eerste jaartelt is in elk geval opmerkelijk. De vastgoedprijzen gaan sinds 2010 in iedereen lopen, maar wel grotendeels. Oergoed prijsstijging bij woningen hebben we in de laatste jaar nog niet gezien, bevestigt eren bij de FOD Economie. En niet alleen kosten van huurdaam, ook villa's (+5,2 procent) en in mindere mate appartementen (+3,5 procent). In deze categorieën hebben we de jongste jaren wel sterke prijsstijgingen gezien, maar voor villa's is het toch wel een grote stijging, gelukkig van 2010, zegt de FOD Economie. Een verklaring heeft men niet.

[CREATE A CHART](#) [CREATE A MAP](#)

or Create an Account / Login

Department reported gains in housing market. Including the revisions for the Feb. 174,000 jobs were added per month.

Monthly Changes in U.S. Employment

DOEK

KOERI

2014 2015 2016 2017 2018 2019

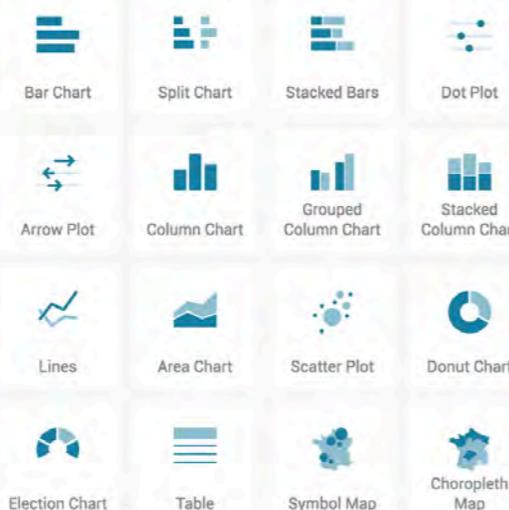
9/100 452k

-800 -600 -400 -200 0 200 400 600

V/Vd 11/16 3/17 7/18 5/19 3/20

**Datawrapper makes it easy to create beautiful charts.**

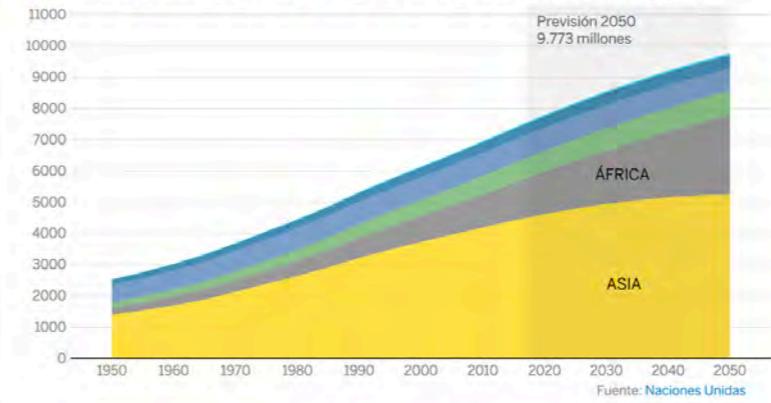
See for yourself how different newsrooms use our charts:



### Evolución de la población mundial

En millones de habitantes

■ Asia ■ África ■ América Latina y Caribe ■ Europa ■ América del Norte (excepto México) ■ Oceanía



By David Alameda for elpais.com

**1** Upload Data

Check &amp; Describe

Visualize

Publish &amp; Embed

## How do you want to upload your data?

Copy & paste  
data tableXLS/CSV  
uploadImport Google  
SpreadsheetLink external  
dataset

Paste your copied data here...

## Copy &amp; paste your data

Select your data (including header row/column) in Excel or LibreOffice and paste it in the text field on the right. You can also upload a CSV or Excel file from your computer.

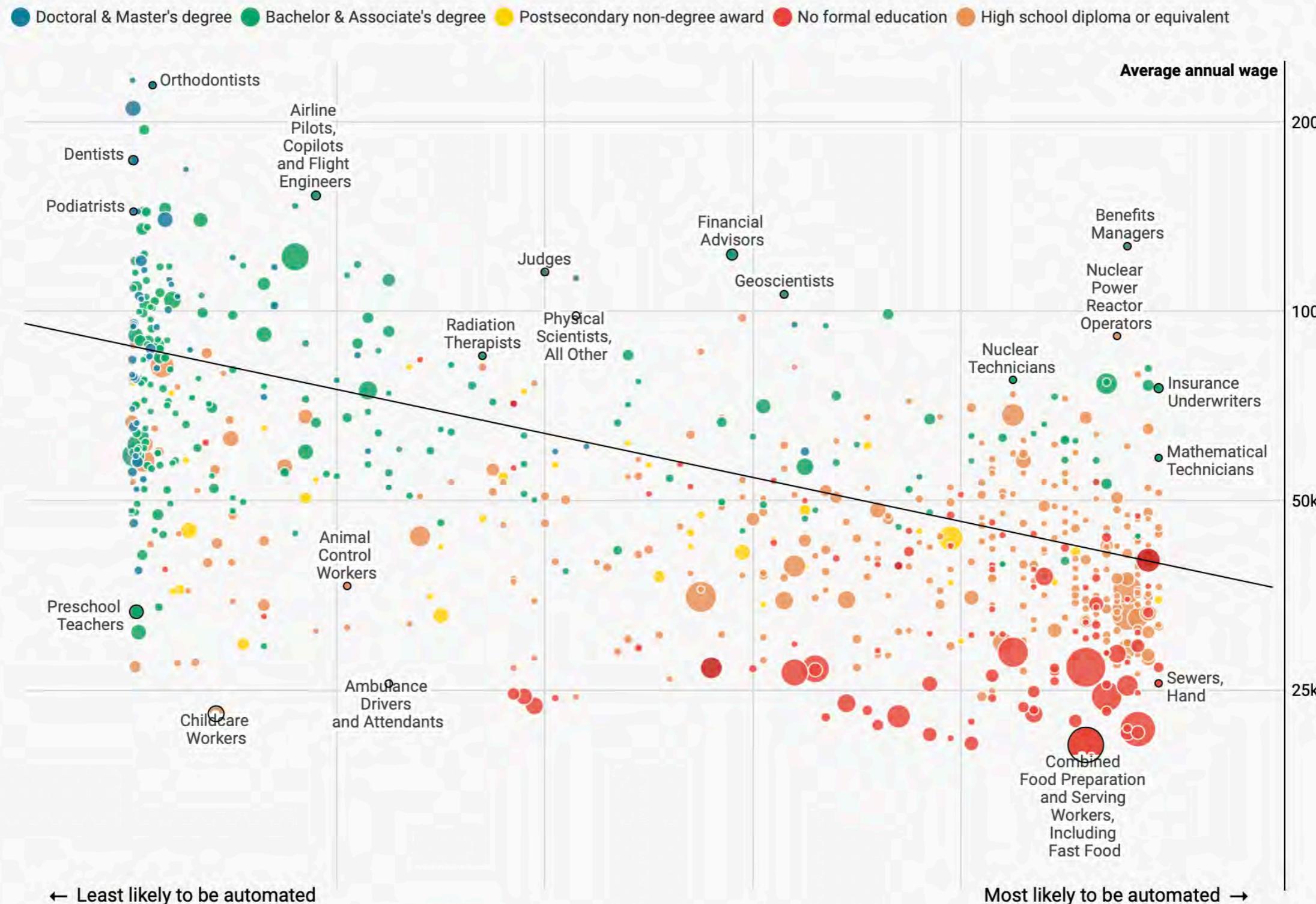
If you just want to try Datawrapper, here's a list of some example datasets you can use:

Select a sample dataset

Proceed

# Our charts feel at home on the web. They're interactive, responsive and embeddable in your website.

## Higher Risk of Job Automation in Lower Paying Jobs



Inspired by a [Bloomberg chart](#).

Source: FREY & OSBORNE, BUREAU OF LABOR STATISTICS • [Get the data](#)

# River

A place to exchange relevant data, charts and maps. [FAQ](#)

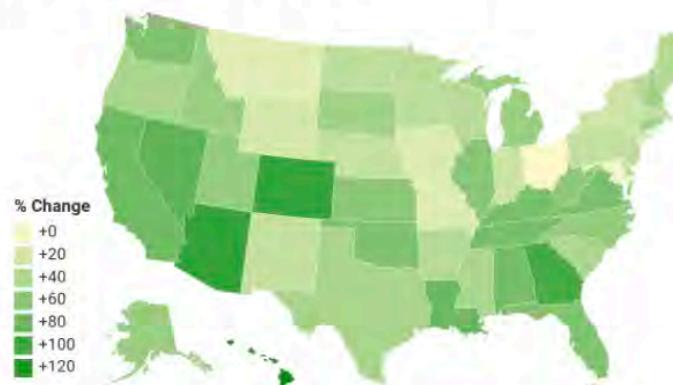
Search charts

## MOST RECENT CHARTS

Want to add your own charts to the River?  
Find out how in our [FAQ](#)

4 hours ago

### 10-Year Growth in Tuition and Fees at Public Universities



5

Reuse this chart

ASRomaData · a day ago

AS Roma - Infographic

WhaleSongServices · 7 hours ago

### Global Measles Reports 2019



2

Reuse this chart

Les Marchés · 2 days ago

### Bovins : destination des exportations européennes

Volumes importés de l'UE (t)  
25 000 t  
45 000 t  
65 000 t



## OUR FAVORITES

Lisa Charlotte Rost, Datawrapper · 6 months ago

### Johnny Depp's life partners

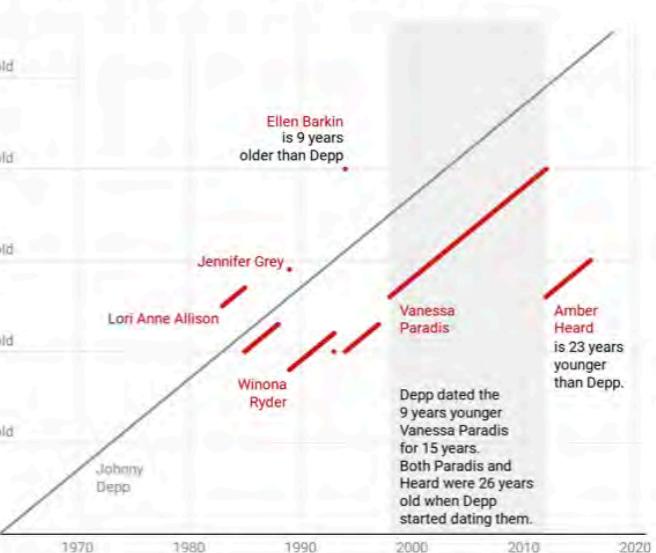
50 years old

40 years old

30 years old

20 years old

10 years old



19

Reuse this chart

Lisa Charlotte Rost, Datawrapper · 13 days ago

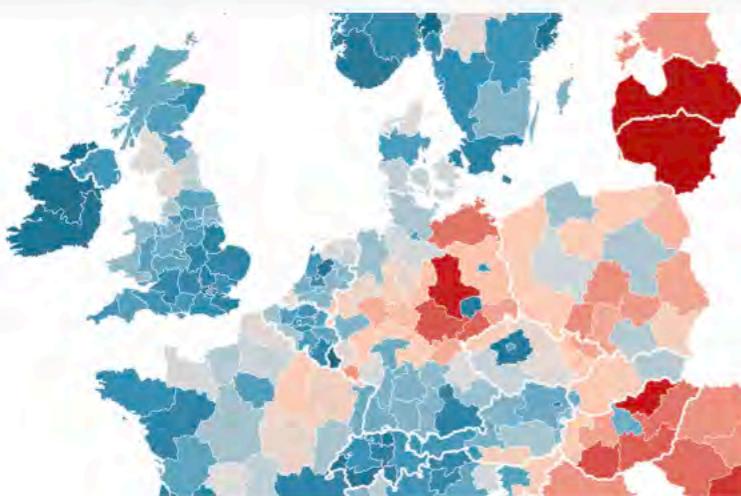
### Six kinds of sugar in thirty kinds of food

— Sucrose — Glucose (Fructose) — Fructose — Lactose — Maltose — Galactose

AS Roma - Infographic

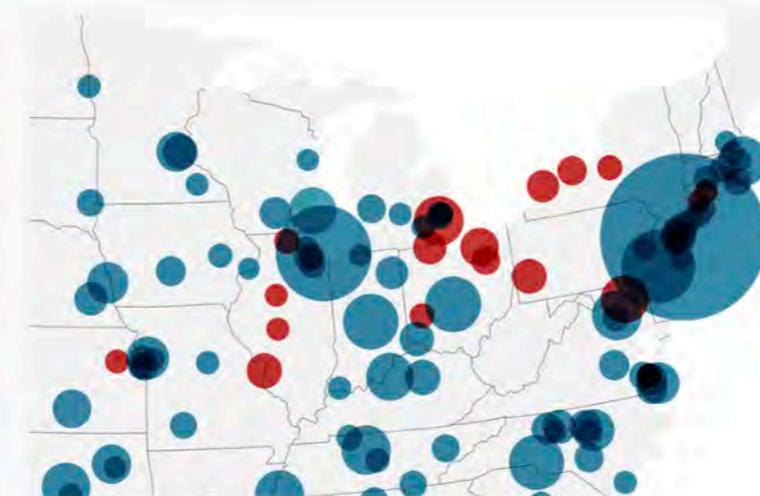
# Hi! What type of map do you want to create?

Choose the map type that will show your data best:



## Choropleth map

**Color regions to show data like unemployment rates or election results on a map.** Upload your own map or use any of our more than 1000 maps. The resulting map is responsive & interactive.



## Symbol map

**Create symbols sized and colored according to your data.** Works great for specific locations (like cities). Upload your own map or use any of our more than 1000 maps. The resulting map is responsive & interactive.



## Locator map

**Add makers to a map to show where something is located or happened, e.g. events within a city.** Perfect for showing readers the places you mention in an article. The resulting map is responsive and static.

## Choropleth map

» Next

What type of map do you want to create?

-  Search world, continent or country names...
- USA » Colorado » State Legislative Districts Lower
- USA » Colorado » State Legislative Districts Upper
- USA » Connecticut » Census Tracts
- USA » Connecticut » Counties
- USA » Connecticut » District Courts
- USA » Connecticut » Congressional Districts
- USA » Connecticut » State Legislative Districts Lower
- USA » Connecticut » State Legislative Districts Upper
- USA » Delaware » Census Tracts
- USA » Delaware » Counties
- USA » Delaware » District Courts
- USA » Delaware » Congressional Districts
- USA » Delaware » State Legislative Districts Lower

 or Upload Map

You can upload your own map by selecting a TopoJSON or GeoJSON file. The file size may not exceed 2MB. Please read the [Datawrapper Academy article](#) for more information.



# Automatic chart updates: How to publish charts with external data sources

Datawrapper has an option to update charts automatically, without republishing. This can be used e.g. in election nights when you get new data every hour and want to avoid that all charts have to be re-published. Every time a user updates a website with your chart, the chart will freshly get the data from the CSV.

If you're in **Step 1: Upload data**, click on **Link external data**:



You'll see two options:

1. **Use Datawrapper server:** Here, we try to make it as easy for you as possible to publish charts based on live data. You will need to put your CSV somewhere on the web. We will periodically download it and upload it to our server, from where it will be served to the chart viewers. The data will be **updated in increasing intervals**, depending on when you last published the chart (every minute in the first 24h, every hour in the next 29 days). You can republish the chart any time to reset the update period.
2. **Serve data file directly:** This is a good option for advanced users. The data file will be served directly from your server, giving you maximum control over the cache time and update intervals. Note that your server needs to support CORS (cross-origin resource sharing), HTTPS, and need to be ready to handle high loads.

# DATAWRAPPER

## PROS

- Great data recognition and management
- Lots of map templates with good projections
- Lots of charts templates
- Generates interactive, responsive, annotated graphics

- Generates PDFs that you can edit in illustrator (Paid version)

## CONS

- Some bugs, but Datawrapper team is very responsive
- Full version expensive

# FLOURISH



[Features](#)   [Examples](#)   [Pricing](#)   [Sign up](#)

[JOBS \(1\)](#)   [BLOG](#)   [COMPANY](#)   [DEVELOPERS](#)   [SIGN IN](#)

Powerful, beautiful, easy  
data visualisation.

[Get started for free](#)

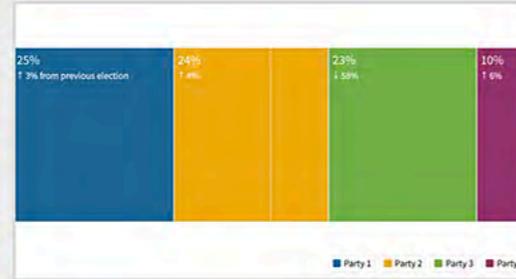
# Choose a template

Showing [Featured](#) [Favourites](#) [Mine](#) [Company](#) [All by Flourish](#)



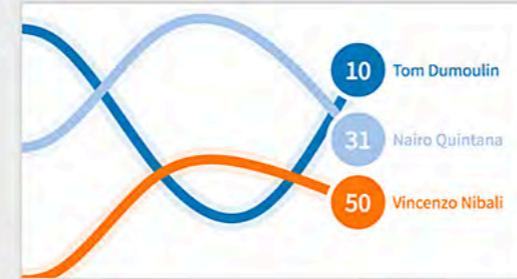
**Connections globe**

Made by Flourish team



**Election results chart**

Made by Flourish team



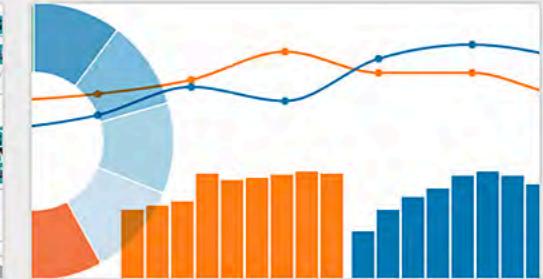
**Horserace chart**

Made by Flourish & Google News Lab teams



**Icon map**

Made by Flourish team



**Line, bar and pie charts**

Made by Flourish team



**Map: the world**

Made by Flourish team



**Map: UK constituencies**

Made by Flourish team



**Map: US counties**

Made by Flourish team



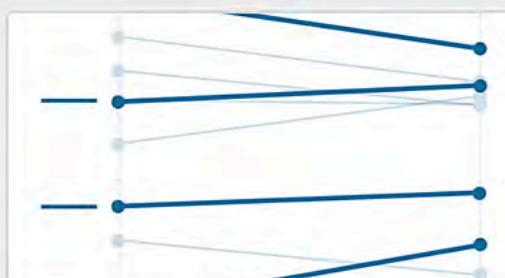
**Sankey diagram**

Made by Flourish team



**Scatter**

Made by Flourish team



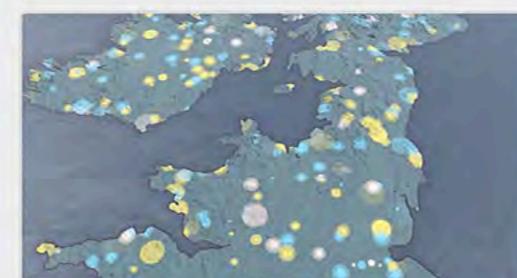
**Slope chart**

Made by Flourish team



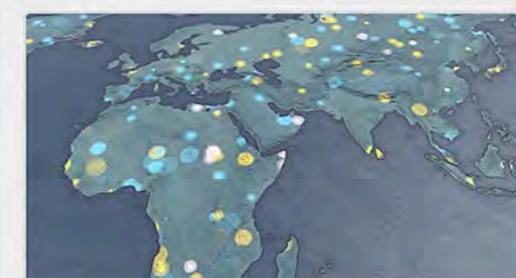
**Survey**

Made by Flourish team



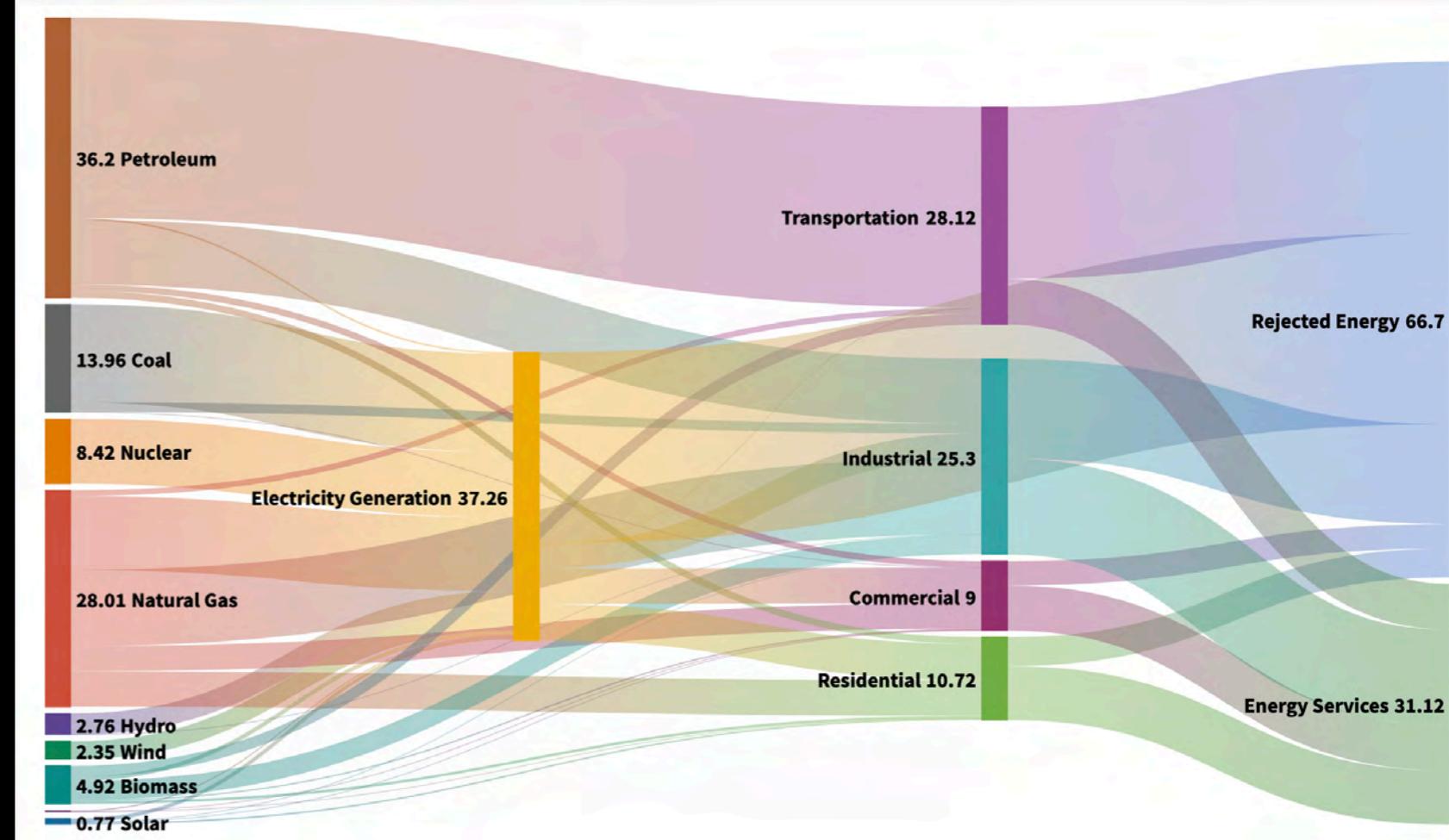
**Time map (UK)**

Made by Flourish team

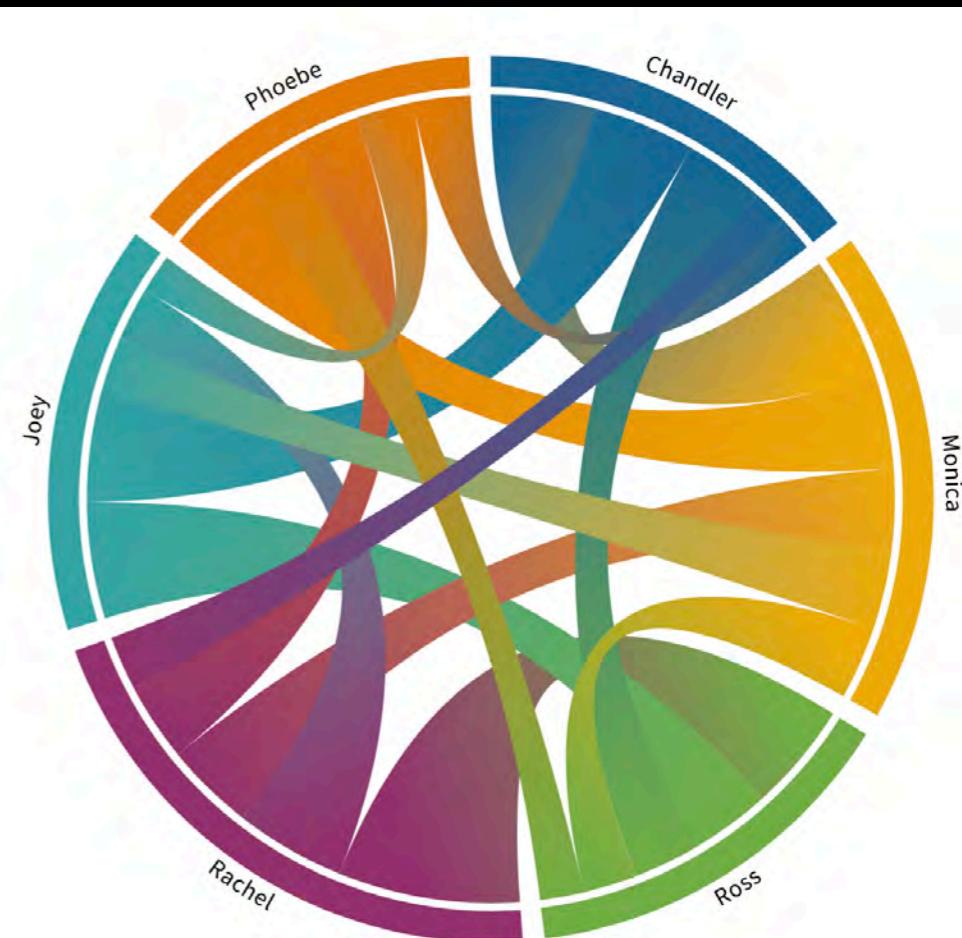


**Time map (world)**

Made by Flourish team



Official State Bird	Capital	Official State Nickname	Vote share	Population
Western meadowlark	Carson City	Silver State		
House finch	Phoenix	Grand Canyon State		
Northern mockingbird	Tallahassee	Sunshine State		
Willow ptarmigan	Juneau	The Last Frontier		
California gull	Salt Lake City	Beehive State		
Rock bunting	Denver	Centennial State		
Northern mockingbird	Austin	Lone Star State		
Town thrasher	Atlanta	Peach State		
California quail	Sacramento	Golden State		
Willow goldfinch	Olympia	Evergreen State		



Untitled visualisation

by Juan Vélezco Publicly visible

[Create a story](#) [Export & publish](#)

Regions Points

Q Import your data

	A	B	C	D	E
1	geometry	District	Code	Clinton increase in vote share	Trump increase in vote share (from Romney)
2	MultiPolygon	Alaska At-Large	AK-AL	-3.6	-2.5
3	Polygon	Hawaii 1st	HI-01	-6.6	1.5
4	MultiPolygon	Hawaii 2nd	HI-02	-10	2.9
5	Polygon	Arizona 5th	AZ-05	1.9	-6.2
6	Polygon	Arizona 1st	AZ-01	-1.3	-2.7
7	Polygon	California 37th	CA-37	0.8	-3.1
8	Polygon	Indiana 1st	IN-01	-7.1	4.1
9	Polygon	New York 2nd	NY-02	-7.7	5.8
10	Polygon	Ohio 15th	OH-15	-6.4	3.4
11	Polygon	Ohio 4th	OH-04	-11.3	8.3
12	Polygon	Kansas 3rd	KS-03	2.9	-7.8
13	Polygon	Kentucky 2nd	KY-02	-7.5	4.2
14	MultiPolygon	Kentucky 1st	KY-01	-8.2	6
15	Polygon	Alabama 4th	AL-04	-6.6	5.6
16	MultiPolygon	Alabama 1st	AL-01	-3.3	1.7
17	Polygon	Alabama 5th	AL-05	-3.6	0.8
18	Polygon	Alabama 6th	AL-06	1.4	-3.5
19	Polygon	Alabama 7th	AL-07	-2.6	1.5
20	Polygon	Alabama 3rd	AL-03	-4.5	3
21	Polygon	Alabama 2nd	AL-02	-3.4	2

+ more rows

Select columns to visualise

Fill in the column id you want to visualise. Add multiple columns with a comma or hyphen (eg. A,B or A-C)

Regions Regions

Geometry A

Name B

Value D

Metadata for popups

Points Points

Name A

Need help?



Preview

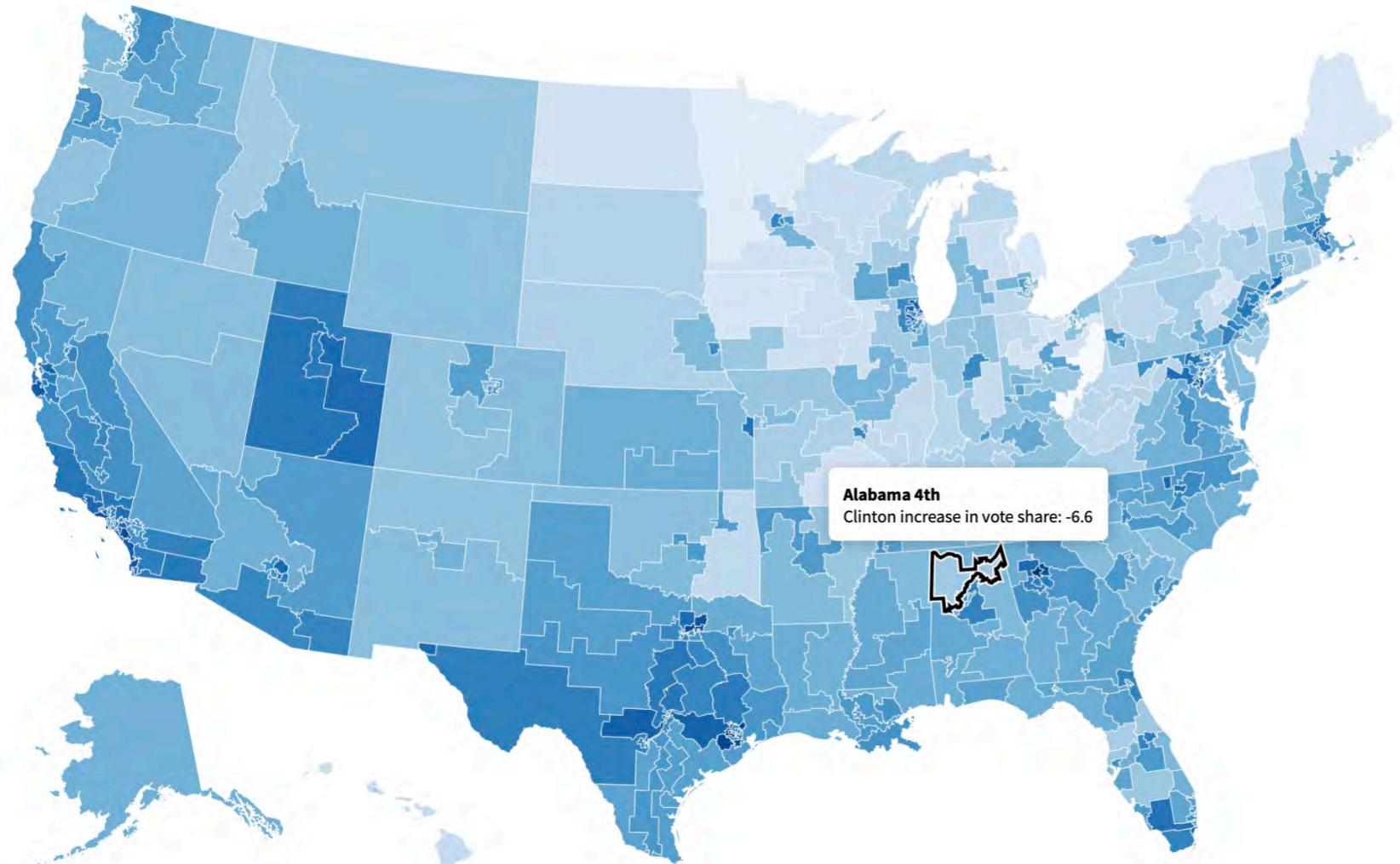
Data

Saved

# U.S. Congressional Districts

-16

10



Points layer

Regions layer

Graticule layer

Globe layer

Zoom

Number styles

Layout

Header

Alignment



TITLE

U.S. Congressional Districts

 Change title styles

Size

A A A ...

Weight: Bold Regular Color: #333333 Line height: 1.2

SUBTITLE

 Change subtitle styles

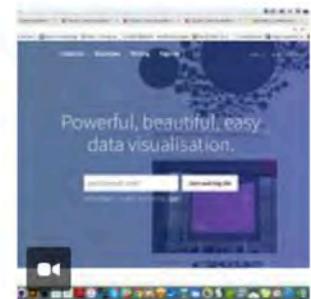
TEXT

 Change text styles

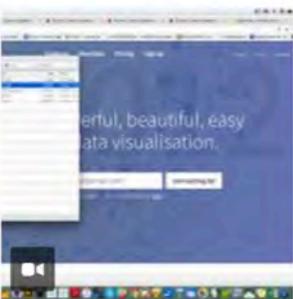
Need help?

## 5.VIDEOS\_FLOURISH from Alberto Cairo (WIAD Miami 2016)

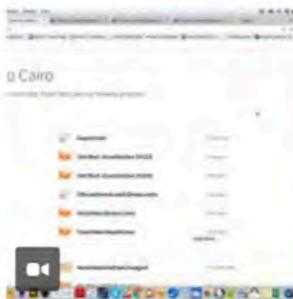
Sorted by name



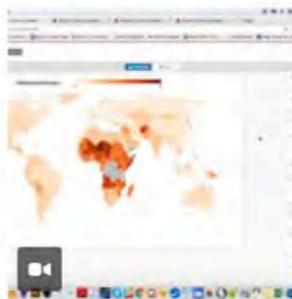
1.Intro.mov



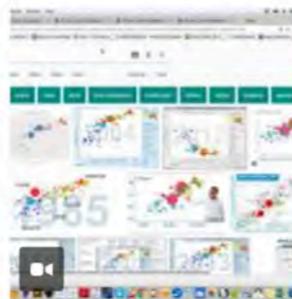
2.OverviewAndTemplates.  
mov



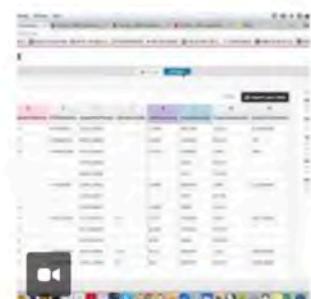
3.BasicWorldMap.mov



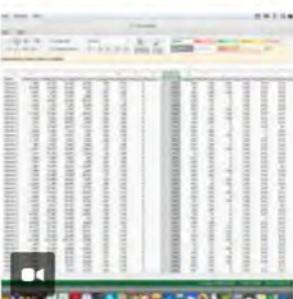
4.AddingMoreMapsAnd...  
n.mov



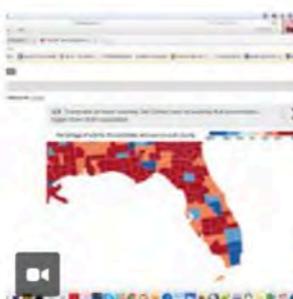
5.AnimatedScatterPlot.mov



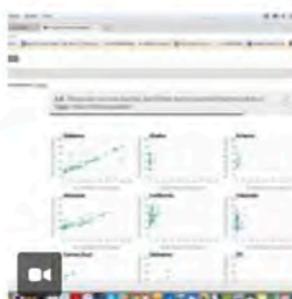
6.FacetAndStories.mov



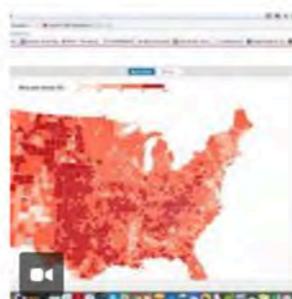
7.CountyLevelBubbleMap.  
mov



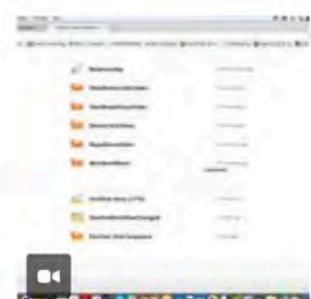
8.PreparingDataBeforeU...  
ng.mov



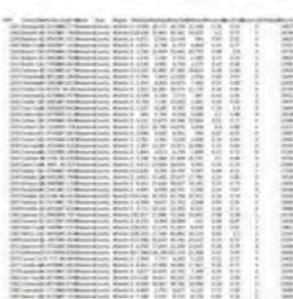
9.DivergingMap.mov



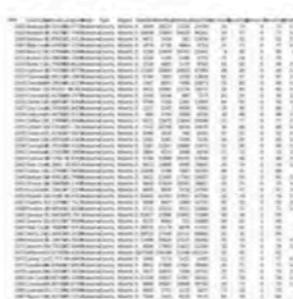
10.MoreMapsAndPlots.mov



11.StoryAndEnd.mov



CountyData.csv



CountyDataMODIFIED.csv



Gapminder2012.csv



GapminderAllyears.csv

# Good Resource for Flourish

**YouTube playlist**  
*Data Visualization  
with Flourish,  
by Alberto Cairo*

# GREAT RESOURCE

**datajournalism.com (free)**

## Mapping for Journalists

The screenshot shows a video player interface for a course titled "Mapping for Journalists". The video player has a play button at 00:53. Below it is a thumbnail of Maarten Lambrechts, a man with a beard, sitting in front of a window with brick buildings visible outside. The course title "Mapping for Journalists" is displayed above the thumbnail. To the right of the thumbnail is a red sidebar with the title "Data visualisation - Mapping for Journalists" and the name "Maarten Lambrechts". It also features a hexagonal logo and a "What can you expect?" section with icons for free lifetime access, high quality video production, mobile friendliness, and subtitles in English. A "PREVIEW" button is at the bottom.

## Charting tools for the Newsroom

The screenshot shows a video player interface for a course titled "Charting Tools for the Newsroom". The video player has a play button at 01:12. Below it is a thumbnail of Maarten Lambrechts, a man with a beard, sitting in front of a window with brick buildings visible outside. The course title "Charting Tools for the Newsroom" is displayed above the thumbnail. To the right of the thumbnail is a red sidebar with the title "Data visualisation - Charting Tools for the Newsroom" and the name "Maarten Lambrechts". It also features a hexagonal logo and a "What can you expect?" section with icons for free lifetime access, high quality video production, mobile friendliness, and subtitles in English. A "PREVIEW" button is at the bottom.

- QGIS for print and online
- Carto
- Google Earth Pro
- GeoJSON.io

- Chartbuilder
- Datawrapper
- RAWGraphs

# FLOURISH

## PROS

- No programming needed
- Fully responsive graphics
- Great variety of maps and charts templates
- Map projections
- You can upload map data (GeoJSON, shapefiles) to define your own boundaries
- Customizable templates

- HTML/CSS/JS output
- Illustrator-compatible SVGs

## CONS

- Free version makes all data publicly available

# Our take

Both **Datawrapper** and **Flourish** are great options.

- They are easy to use and have customizable map and charts templates.
- You can upload your own shapefiles and map data onto them.
- You can update/refresh data. And the output is a HTML/CCS/JavaScript graphic that is responsive and refreshes quickly
- **Datawrapper** has more pre-made templates
- **Flourish** has more chart variety and nice animations/transitions

# Promising but still too early

The screenshot shows the Data Illustrator website. At the top, there's a navigation bar with links for "Getting Started", "Gallery", "About", and "Release Notes". A prominent "Launch" button is located in the top right. Below the navigation, a large text area says "Create infographics and data visualizations without programming." A "Launch Data Illustrator" button is centered above a video player. The video player displays a dark interface with several small screenshots of data visualizations. A play button and a timestamp of "05:21" are visible at the bottom of the video player.

Data Illustrator  
(Adobe)

Charticulator  
(Microsoft)

The screenshot shows the Charticulator website. The title "Charticulator" is displayed prominently in large, bold letters. Below it, the subtitle "Interactive Construction of Bespoke Chart Layouts" is shown. A "Launch Charticulator" button is located in the upper right. A note below the button states "Charticulator requires the use of a mouse or touch screen and works best in Google Chrome." A video player at the bottom features a dark background with colorful, abstract chart patterns. The title "Charticulator" and subtitle are repeated in white text over the video. The names "Donghao Ren, Bongshin Lee, and Matthew Brehmer" and their affiliation "Microsoft Research" are listed. Below that, two URLs are provided: <https://charticulator.com> and <https://github.com/Microsoft/charticulator>. The copyright notice "© 2018 Microsoft" is at the bottom.

## Charticulator

Interactive Construction of Bespoke Chart Layouts

Launch Charticulator

Charticulator requires the use of a mouse or touch screen and works best in [Google Chrome](#).

## Charticulator

Interactive Construction of Bespoke Chart Layouts



Donghao Ren, Bongshin Lee, and Matthew Brehmer  
Microsoft Research

<https://charticulator.com>  
<https://github.com/Microsoft/charticulator>

© 2018 Microsoft

timeline.knightlab.com

The screenshot shows the homepage of the Timeline website. At the top right, there is a blue button with the letters "JS". Below it, the word "Timeline" is written in a large, bold, black serif font. Underneath "Timeline", the text "Easy-to-make, beautiful timelines." is displayed in a red sans-serif font. A prominent green button with the text "Make a Timeline" in white is centered below the main title. At the bottom of the page, there is a navigation bar with four items: "Overview", "Examples", "Make a Timeline", and "Help".

JS

# Timeline

Easy-to-make, beautiful timelines.

Make a Timeline

Overview Examples Make a Timeline Help

SOUTH AFRICA

## Nelson Mandela's Extraordinary Life: An Interactive Timeline

By TIME Staff | Dec. 05, 2013

[Share](#) [Like 2.4K](#) [Tweet](#) [Share](#) [Save](#)

[Read Later](#)



Dennis Lee Royle / AP

12:00 AM  
Forms the ANC's military wing, Umkhonto we Sizwe (Spear of the Nation).

12:00 AM  
January 11, 1962

### Sneaking for Support

Mandela sneaks out of South Africa, traveling the continent and visiting England to drum up support for the ANC's cause. After receiving military training in North Africa, Mandela returned to South Africa in July.

12:00 AM  
Prison Sentence

African women join in a demonstration demanding the release of Mandela in South Africa, Aug. 16, 1962.





# Mapping software

# GIS mapping for print and online

Time until freeze 2019-04-26 12:00:00 UTC 4  
Time until packaging 2019-06-21 12:00:00 U  
Time until next pointrelease 2019-03-22 12:0

**QGIS**

A Free and Open Source Geographic Information System



QGIS 3.6 Noosa has been released!

New release: 3.6!

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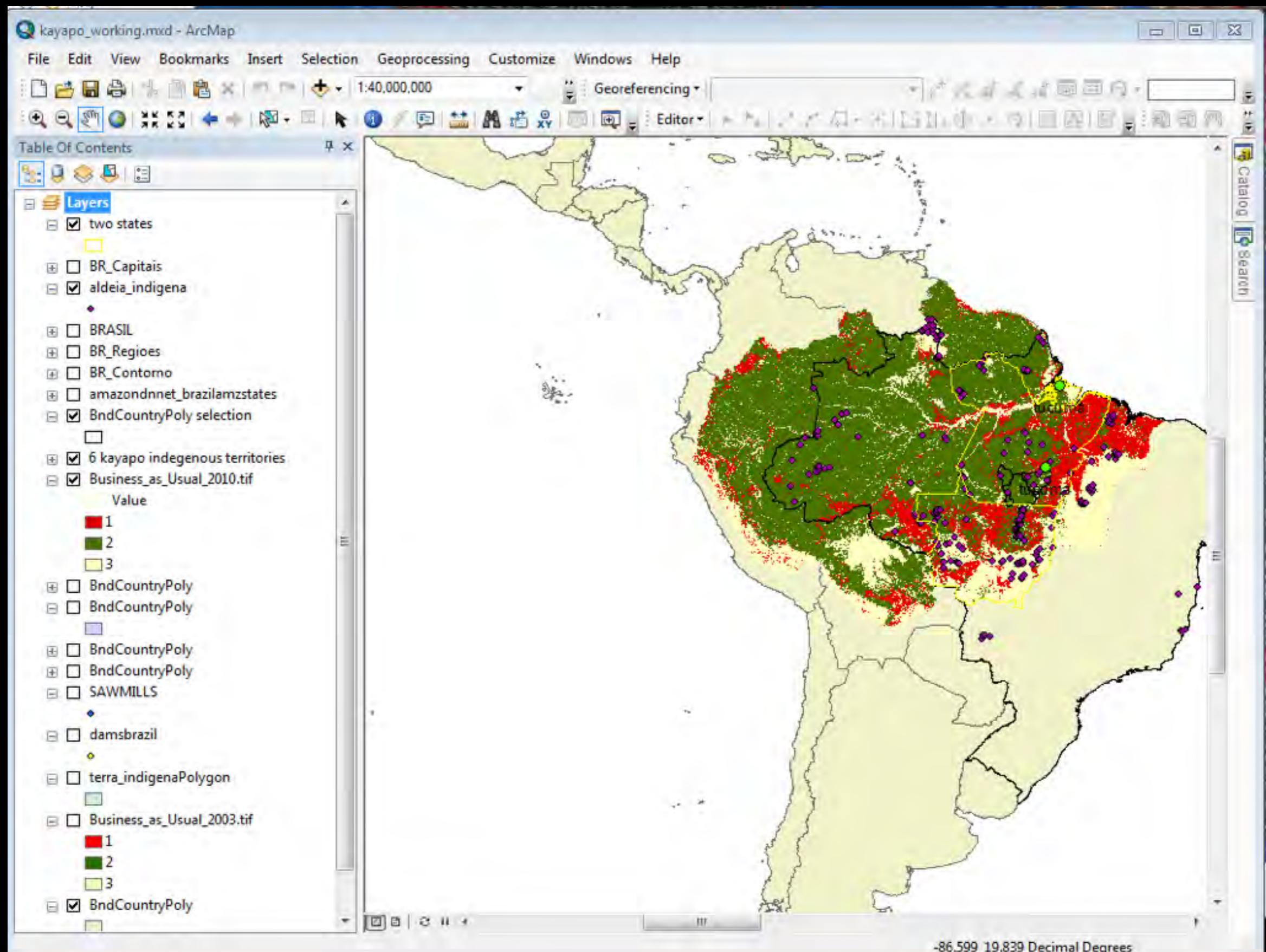
ArcGIS Online

Connect people, locations, and data using interactive maps. Work with smart, data-driven styles and intuitive analysis tools. Share your insights with the world or specific groups.

Learn more about ArcGIS Online →

Sign In

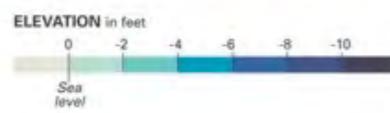
# GIS mapping



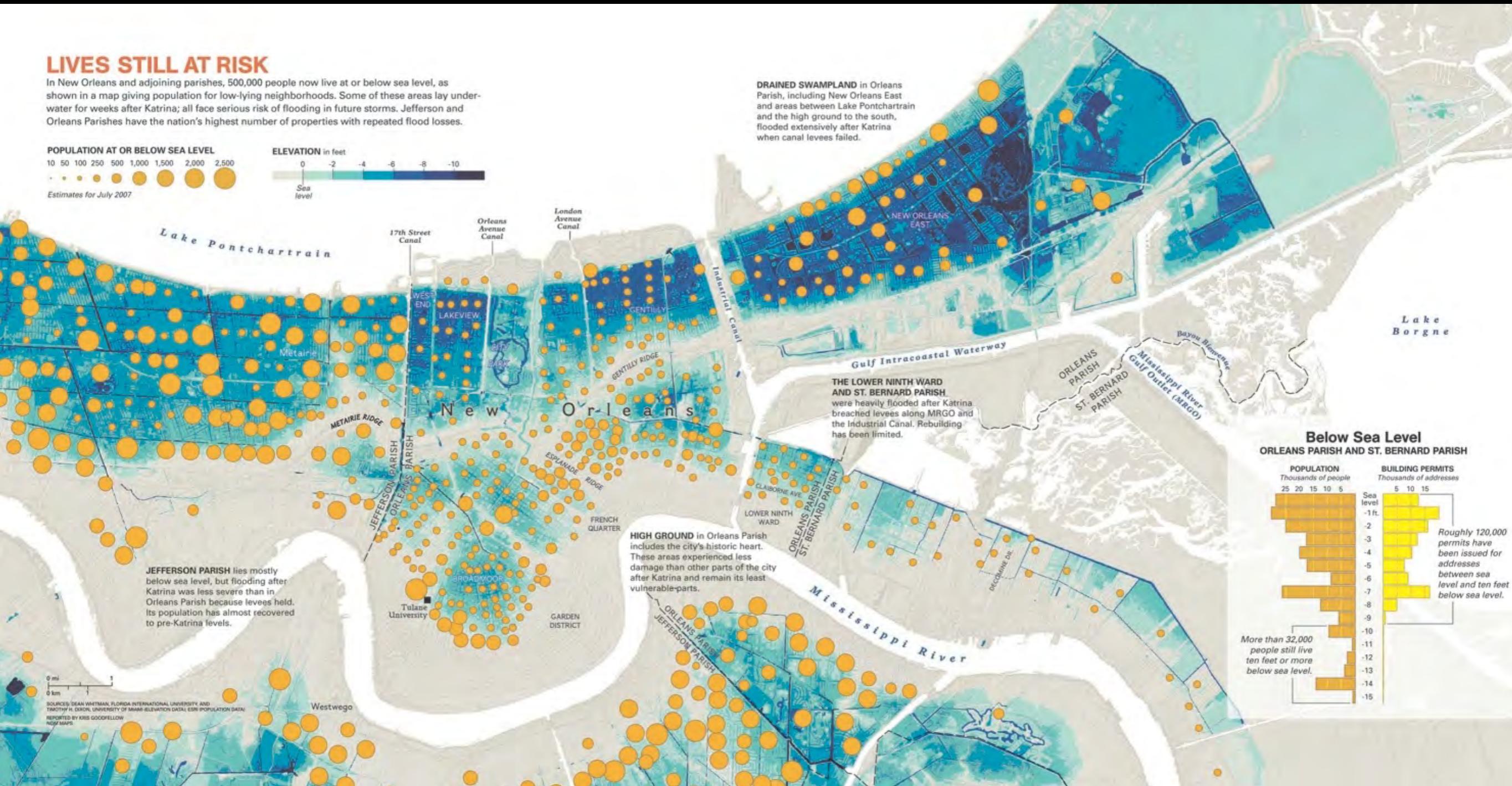
# GIS mapping

## LIVES STILL AT RISK

In New Orleans and adjoining parishes, 500,000 people now live at or below sea level, as shown in a map giving population for low-lying neighborhoods. Some of these areas lay underwater for weeks after Katrina; all face serious risk of flooding in future storms. Jefferson and Orleans Parishes have the nation's highest number of properties with repeated flood losses.



**DRAINED SWAMPLAND** in Orleans Parish, including New Orleans East and areas between Lake Pontchartrain and the high ground to the south, flooded extensively after Katrina when canal levees failed.



# Arc GIS for Adobe Creative Cloud



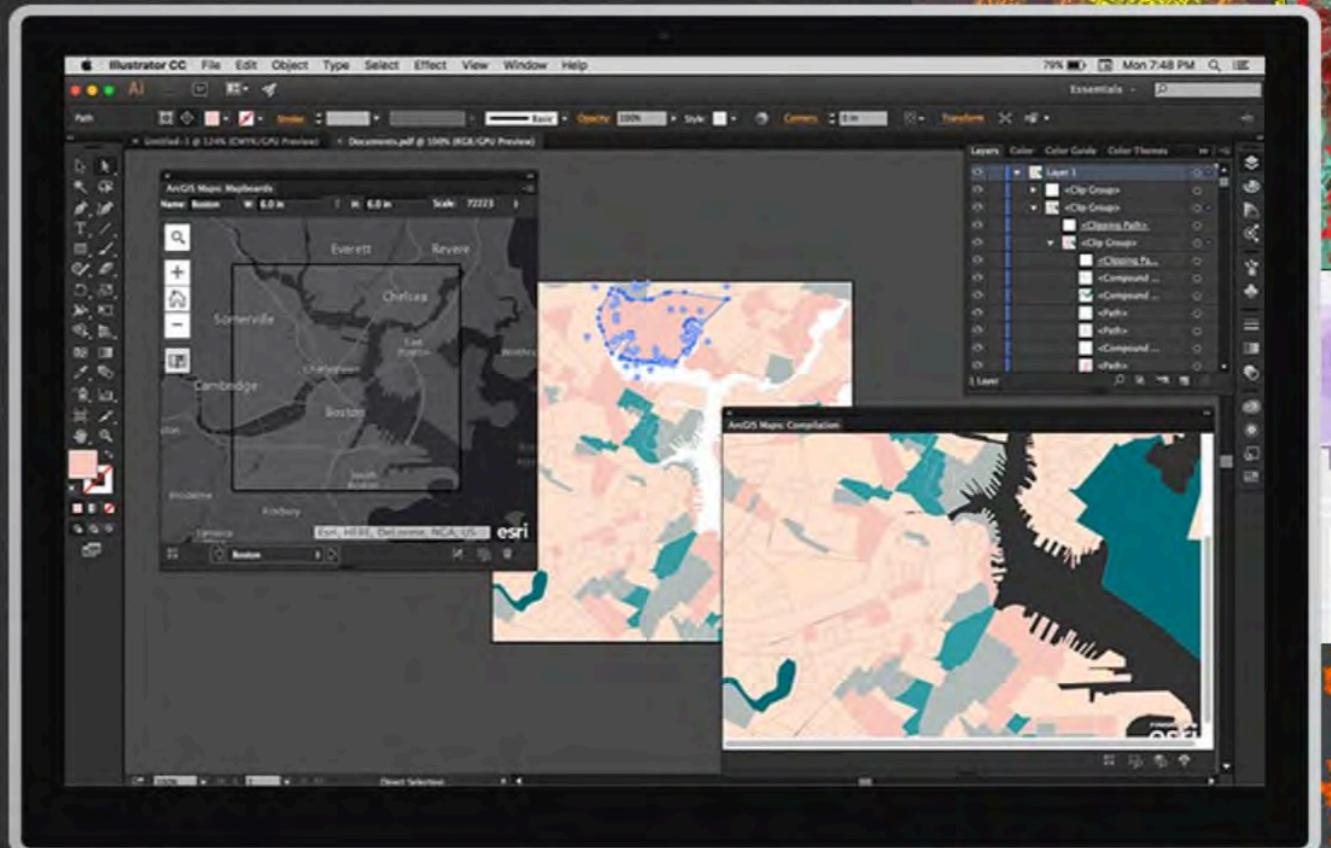
Industries ▾ Products ▾ Support & Services ▾ About ▾ Community ▾

Sign In



## ArcGIS Maps For Adobe Creative Cloud

Design with Data-Driven Maps

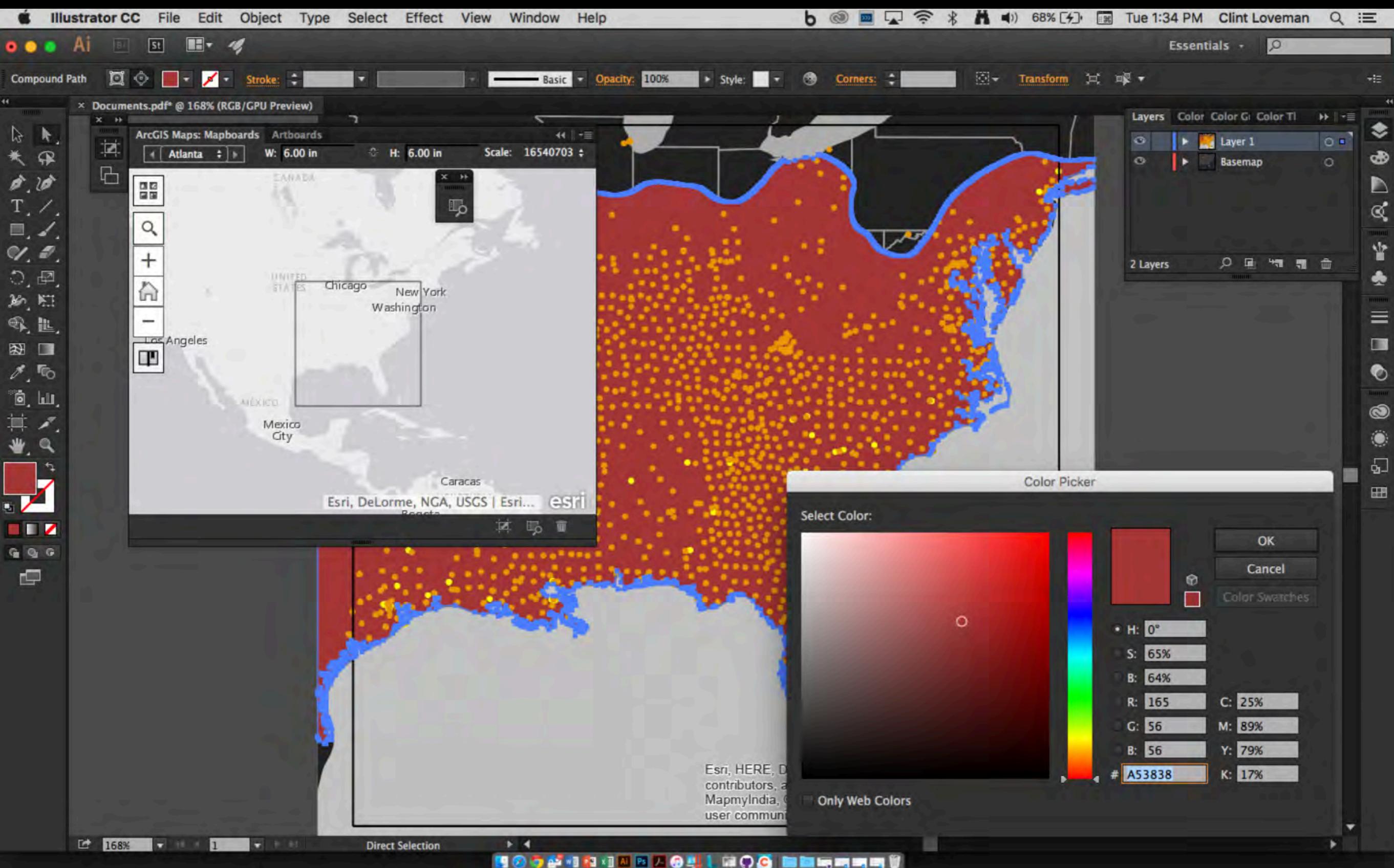


Beta Now Available

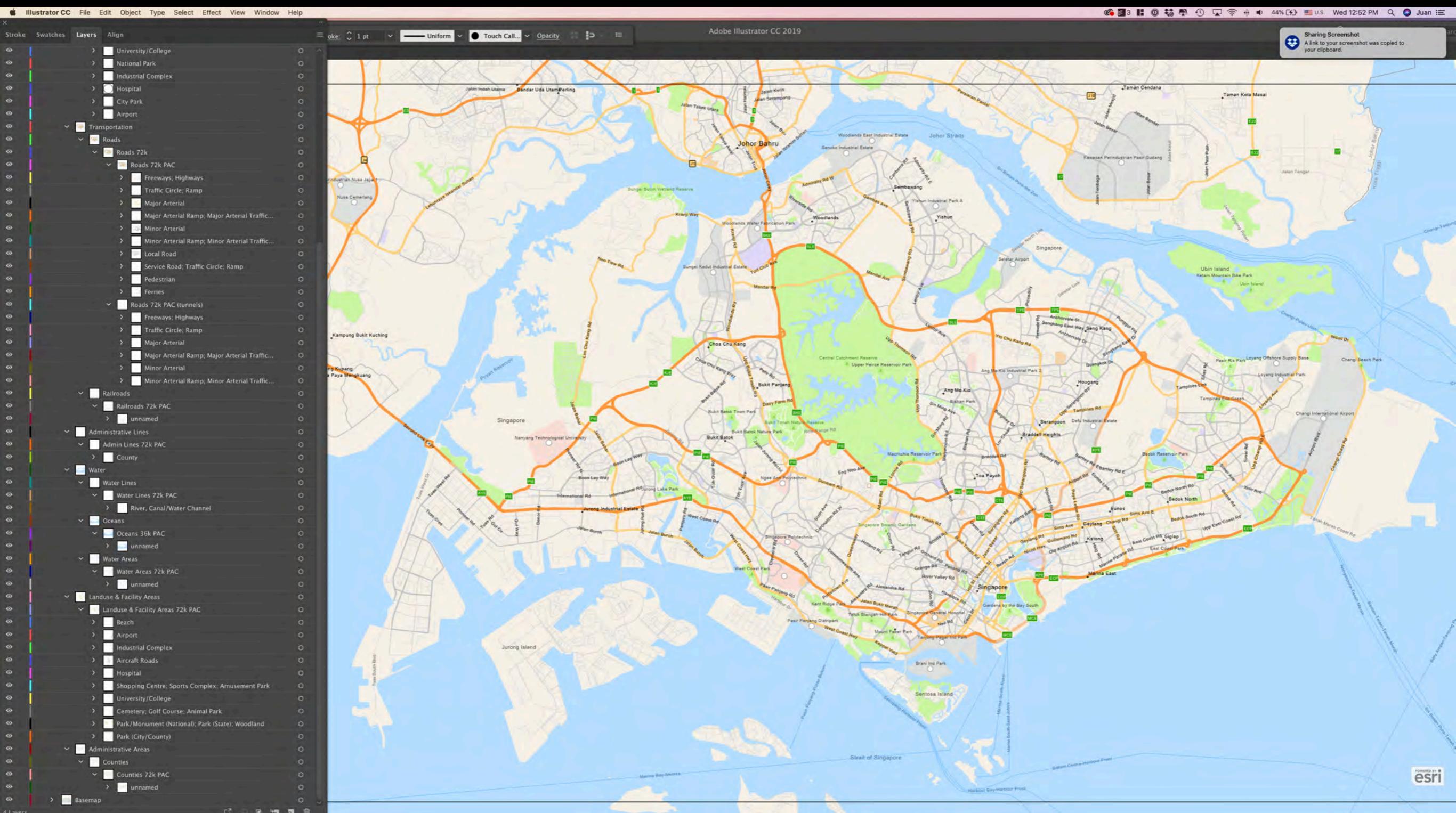
Get It Today →

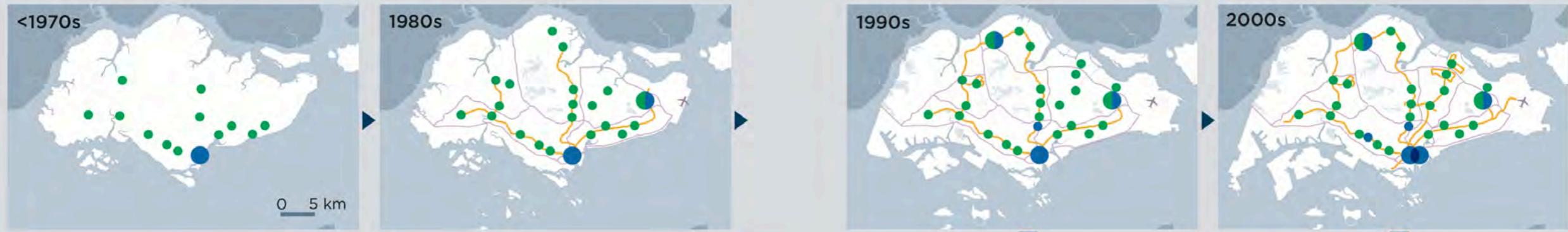
ArcGIS Maps for Adobe Creative Cloud is ideal for design and communications professionals. Access thousands of data-driven maps inside Adobe Illustrator and Photoshop. Play with colors and styles to make the exact map you want. [See It in Action →](#)

# Arc GIS for Adobe Creative Cloud



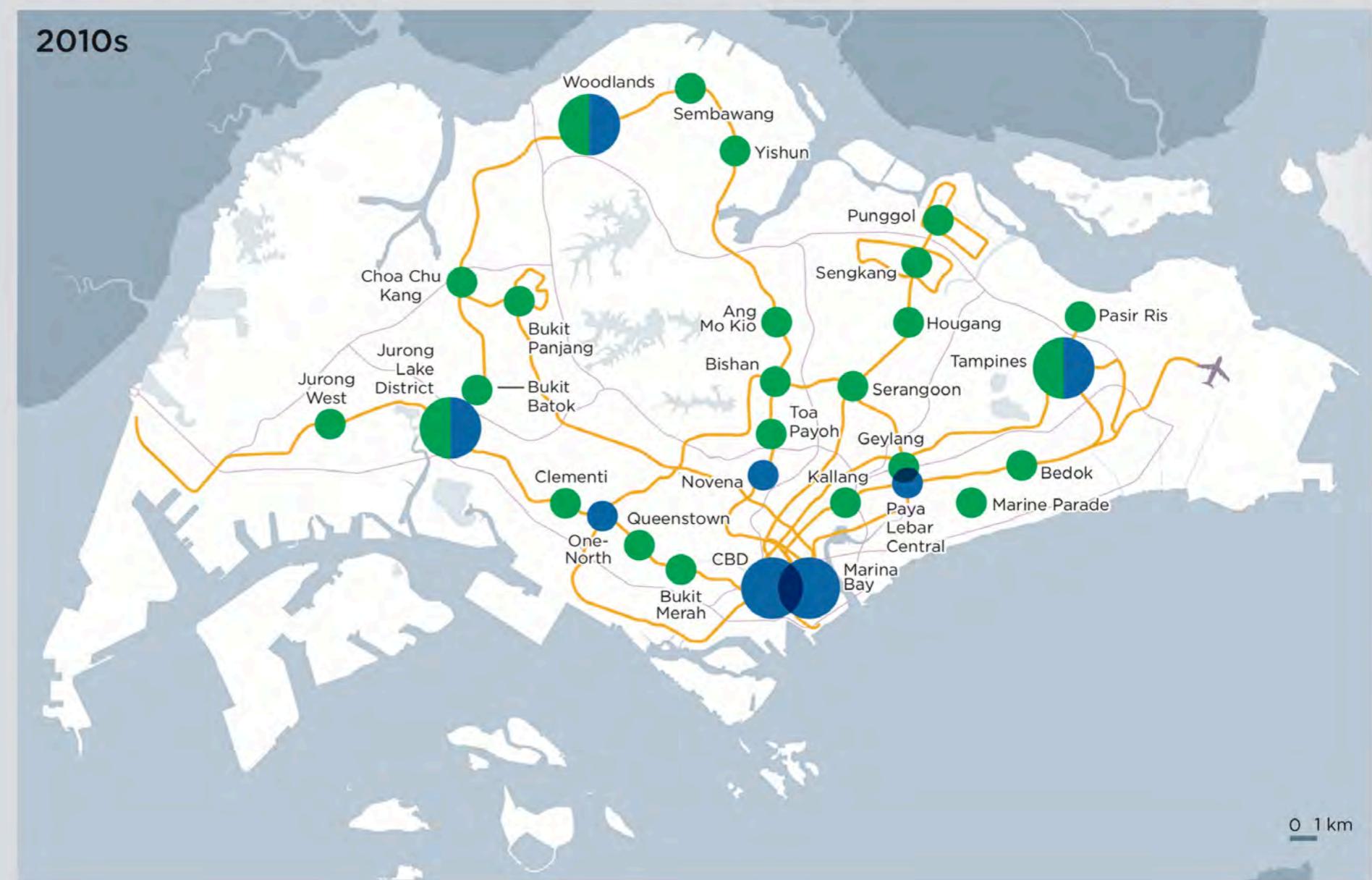
# Highly detailed and layered Illustrator files





## Integrating Land Use and Mobility: In Retrospect

Integration is achieved when the transport network is planned to align closely with areas of development. This is necessary to maximise the utility and value of Singapore's scarce land and provide an efficient, comfortable commuting experience.



# Arc GIS for Adobe Creative Cloud

## PROS

- Direct access to data-driven maps and spatial content from ArcGIS Community
- Map directly added to design as vector layers

## CONS

- Slow/buggy
- Paid subscription

✨🏀 Game on! Play Map Madness now >

## Build experiences for exploring the world

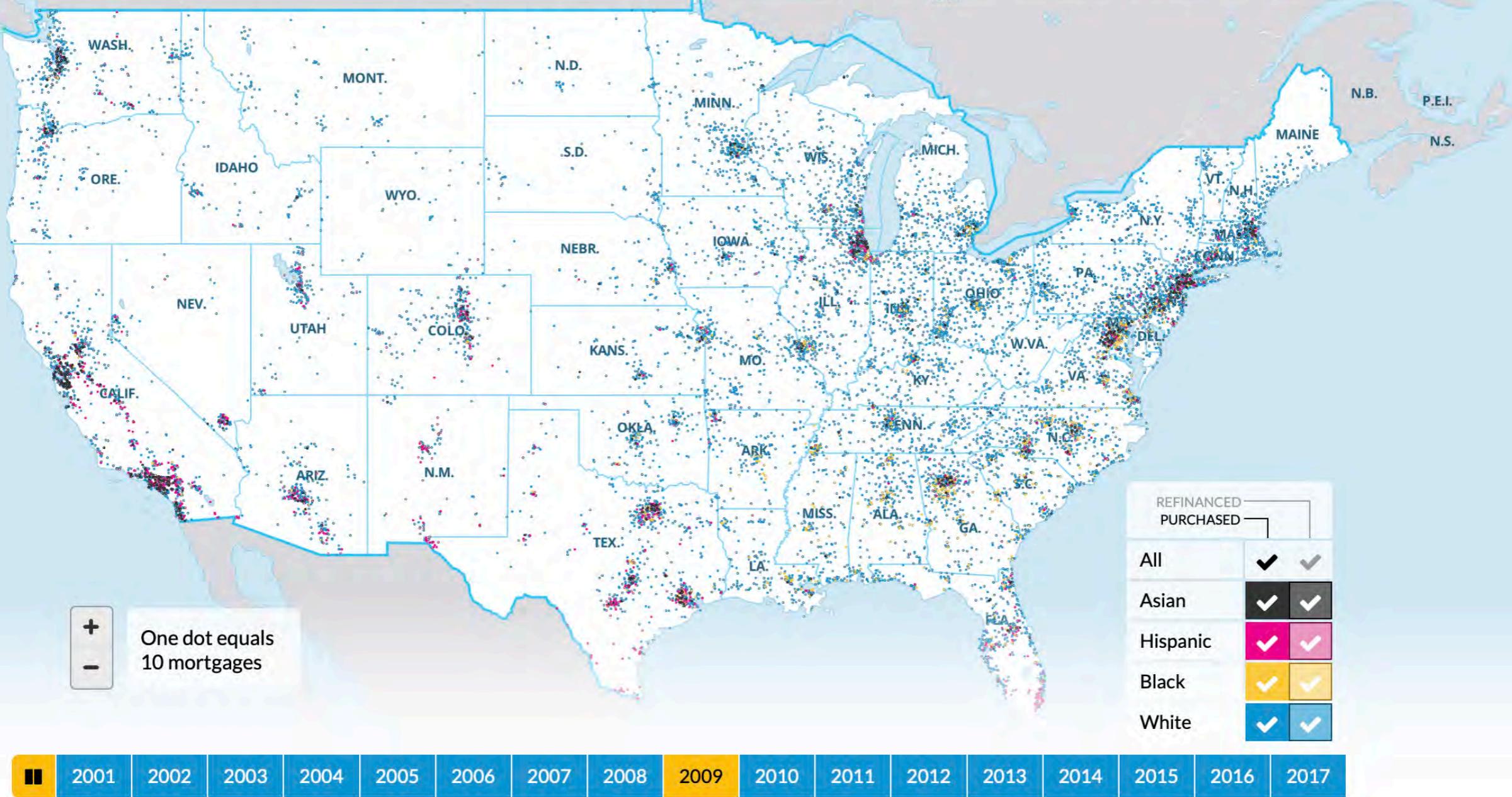
Add location into any application with our mapping, navigation, and location search SDKs

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Supports    





### An interactive look at the boom and bust

#### 2001: Baseline

Reasonable credit standards, low prices  
12.6 million new mortgages  
14% black or Hispanic

JAN. 2001

109.8

Home Price Index

APR. 2006  
193.7

#### 2006: A boom

Easy credit, high prices  
12.2 million new mortgages  
25% African American or Hispanic

#### 2009: A bust

Tight credit, reduced prices  
8.3 million new mortgages  
12% African American or Hispanic

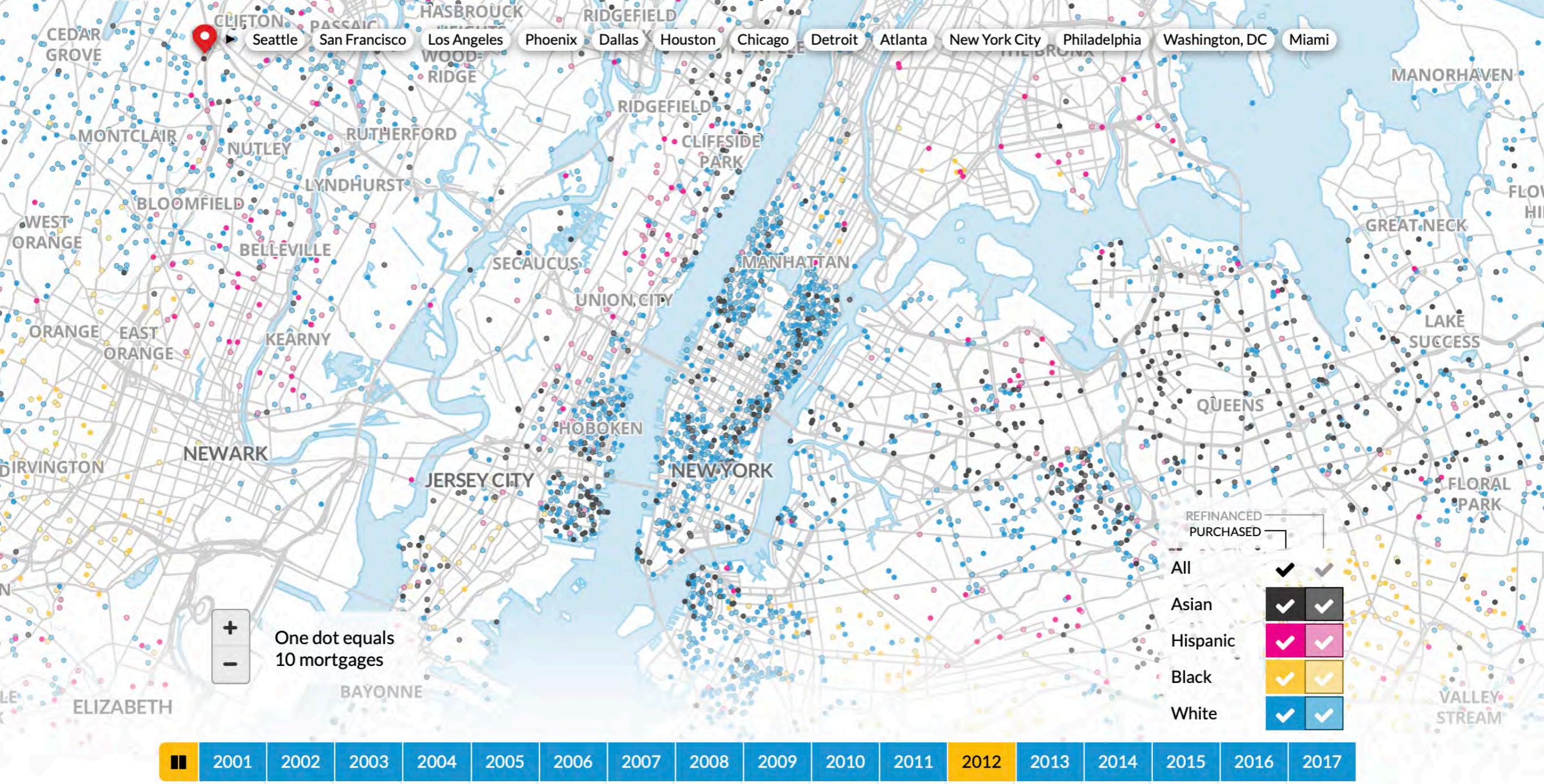
MAR. 2009

135.4

DEC. 2017  
194.9

#### 2017: Recovering

Tight credit, high prices  
6.5 million new mortgages  
18.4% African American or Hispanic



### An interactive look at the boom and bust

#### 2001: Baseline

Reasonable credit standards, low prices  
12.6 million new mortgages  
14% black or Hispanic

JAN. 2001

**109.8**

**Home Price Index**

APR. 2006  
**193.7**

2006: A boom

Easy credit, high prices  
12.2 million new mortgages  
25% African American or Hispanic

#### 2009: A bust

Tight credit, reduced prices  
8.3 million new mortgages  
12% African American or Hispanic

MAR. 2009

**135.4**

DEC. 2017

**194.9**

#### 2017: Recovering

Tight credit, high prices  
6.5 million new mortgages  
18.4% African American or Hispanic

# Coding

# D3.js

is becoming the **gold standard**  
of interactive infographics

- D3 is a large library of pre-built JavaScript functions.
- These objects can also be widely styled using CSS.
- Large datasets can be easily bound to SVG objects to generate rich charts, diagrams and maps.
- The data can be in various formats. JavaScript functions can be written to accept almost any data format.
- Extreme degree of control
- Produces maps from GIS data
- The exportable nature of SVG enables graphics to be used in print

# Programming required: HTML, CSS, Javascript, D3.js...

UPDATED February 12, 2012

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 SIGN IN TO E-MAIL

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## Four Ways to Slice Obama's 2013 Budget Proposal

Explore every nook and cranny of President Obama's federal budget proposal.

All Spending

Types of Spending

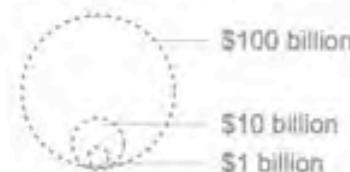
Changes

Department Totals

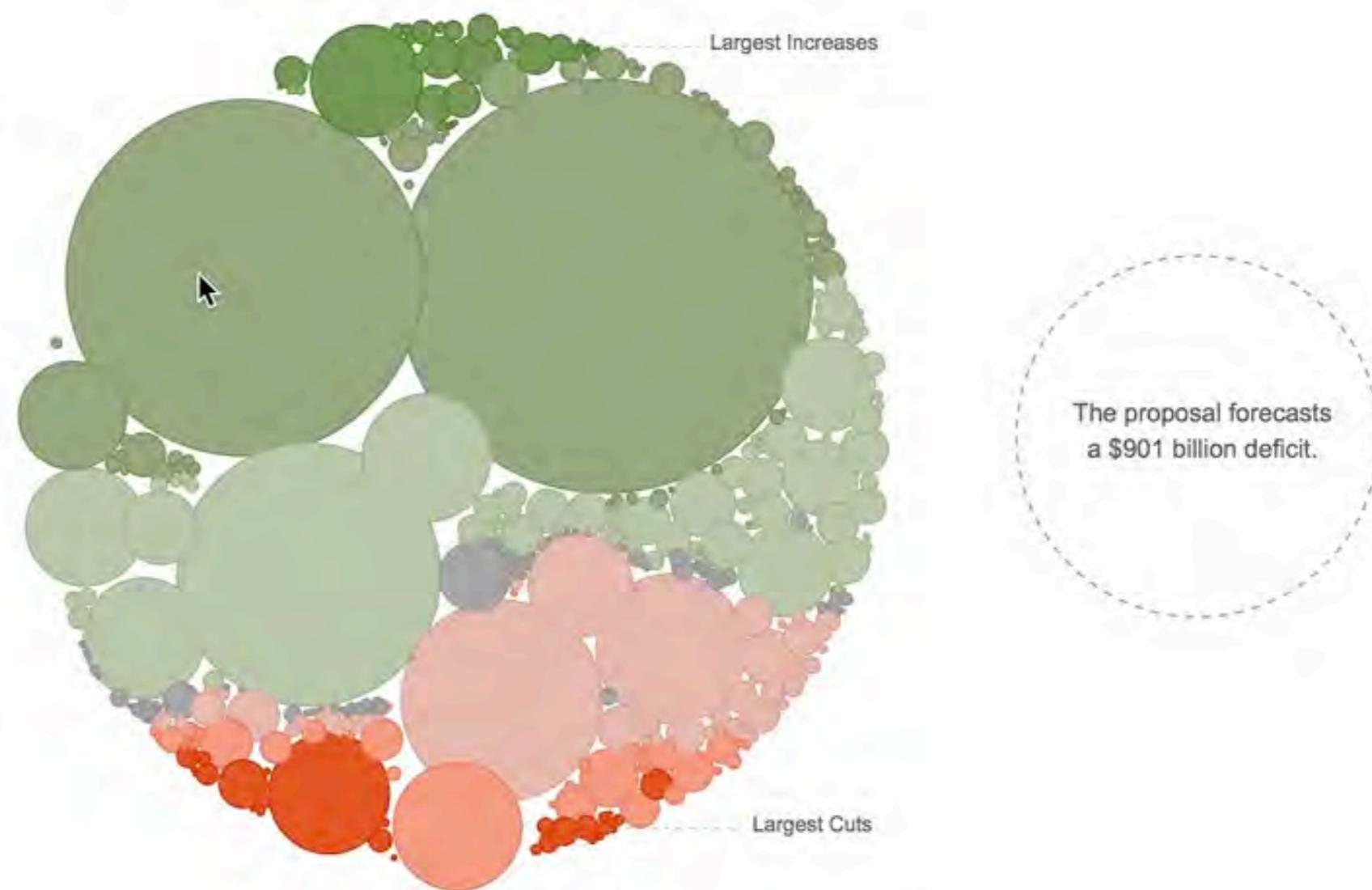
### How \$3.7 Trillion Is Spent

Mr. Obama's budget proposal includes \$3.7 trillion in spending in 2013, and forecasts a \$901 billion deficit.

Circles are sized according to the proposed spending.



Color shows amount of cut or increase from 2012.



Programming required: HTML, CSS, Javascript, D3.js...



**DAY 2**

# Graphics for social media

## Fact

**More often than not, your intended audience finds your content in social media  
Not by going to your website**

**Facebook alone** accounts for **41-75 percent** of traffic for a quarter of all the organizations surveyed, and for **21-40 percent** for another quarter.

## 1. BRANDING

### Fact

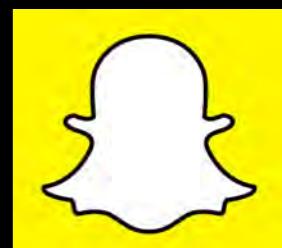
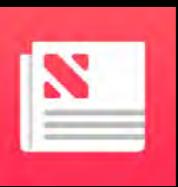
People who get information from social media usually **don't remember** the organization that published it. They remember the platform (Facebook, Twitter)

SURVEYS BY REUTERS INSTITUTE AND PEW RESEARCH CENTER

# Less loyalty to brands; more to platforms

The image displays three distinct digital interfaces side-by-side, illustrating the shift from brand loyalty to platform usage.

- Facebook:** Shows the profile page of "The New York Times" (@nytimes). It features a post from Neil Irwin about economic confidence, accompanied by a line graph comparing C.E.O. outlook, Consumer confidence, Small business optimism, and Consumer sentiment over time. A comment from Deborah Sweet expresses nostalgia for firework shows.
- YouTube:** Displays a video thumbnail for "7 billion national geographic" titled "THE GLOBE 133". The video has 2,791,328 views.
- Mobile News App:** Shows a news brief from "Your Briefings" by The New York Times. The headline reads: "North Korea, New Jersey, Uber: Your Wednesday Briefing". Below it, a snippet from The Washington Post discusses a missile test failure.



## **What to do**

Clear branding, always present in the screen  
to identify your organization

Consistent style and color palette so your  
content has a marked identity.

# Charts

## Simple, with consistent style

14:24 ↗

< Photo > ...

FT financialtimes China

### How Apple smartphone sales fell in China

Year-on-year change in unit sales, Jul-Sep 2018 (%)

Company	Year-on-year change (%)
Apple	-10
Xiaomi	-12
OPPO	-5
Huawei	+12
vivo	+15

Source: International Data Corporation FINANCIAL TIMES

1,839 likes

**financialtimes** Why is Apple struggling so much in China? Apple's fortunes rely heavily on the world's biggest smartphone market, and local rivals Huawei and Xiaomi have been able to offer cheaper alternatives to the iPhone. And sometimes, the Chinese companies have been quicker to innovate too.

Tap the link in our bio to see why China matters so

Home Search Create Like Profile

14:26 ↗

< Photo > ...

FT financialtimes New York, New York

### Smartphone data flows to the world's biggest tech companies

Data from more than 88 per cent of apps in the study could end up with Alphabet

Company	Percentage
Alphabet	88%
Facebook	40%
Twitter	35%
Verizon	25%
Microsoft	20%
Amazon	18%
Unity Technologies	15%
Chartboost	10%
AppLovin	8%
Cloudflare	5%
Opera	3%

Source: Third Party Tracking in the Mobile Ecosystem, October 2018 FINANCIAL TIMES

3,913 likes

**financialtimes** The mobile apps we use – yes, including Instagram – let data flow from smartphones to digital advertising groups, data brokers and intermediaries that buy, sell and blend information.

A peer-reviewed study of almost 1m Android apps has revealed how data from smartphones are harvested and shared, with nearly 90 per cent of apps set up to transfer information back to Google

Home Search Create Like Profile

14:27 ↗

< Photo > ...

FT financialtimes New York, New York

### The tech-heavy Nasdaq is poised for its worst month since 2008

Monthly change of Nasdaq Composite (%)

Nasdaq has fallen 9% this month

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

Source: Refinitiv, Adam Samson / FT FINANCIAL TIMES

3,036 likes

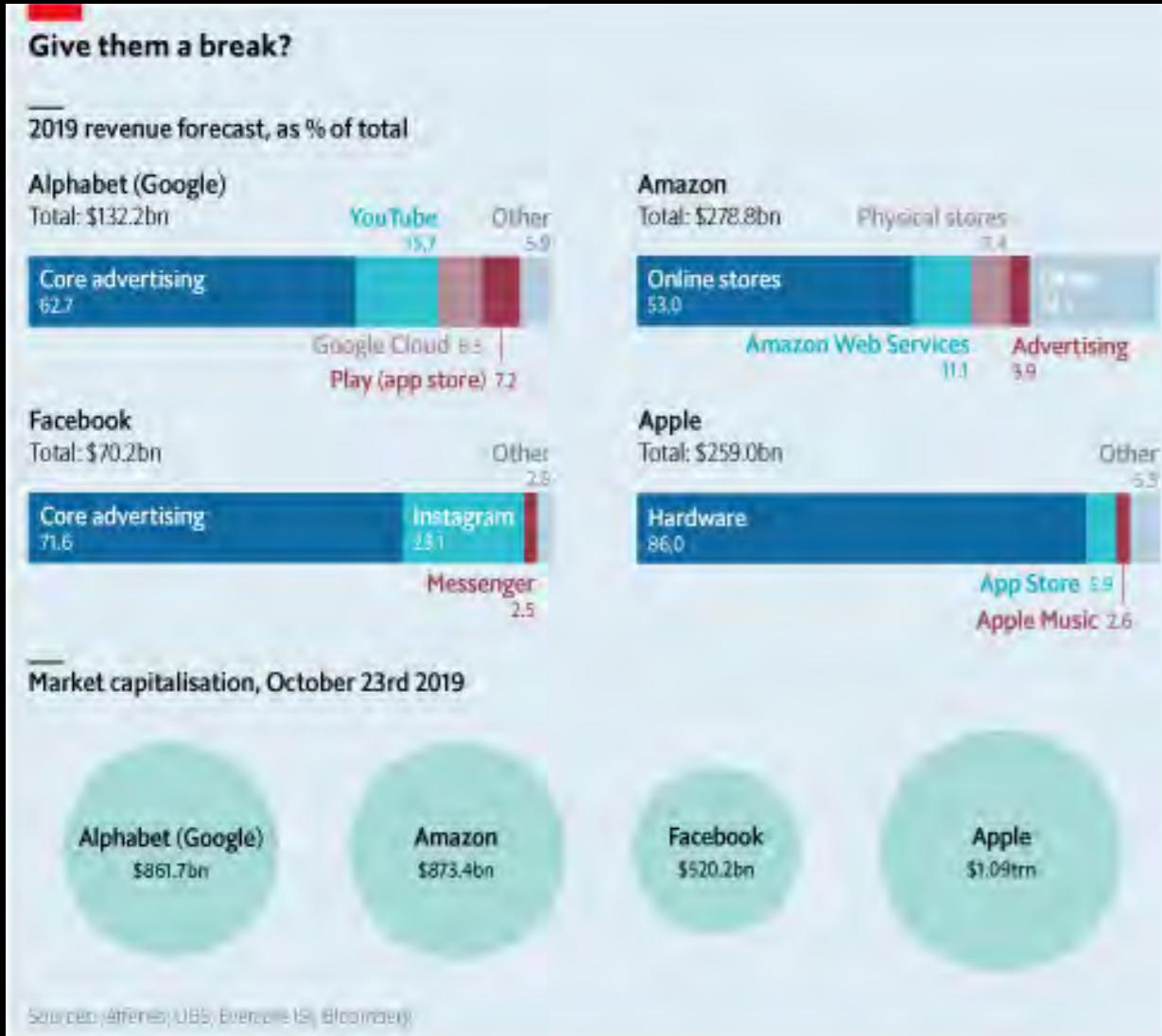
**financialtimes** US tech stocks are having their worst month since the financial crisis. And Amazon and Alphabet's stocks down again, many are predicting more bad news ahead.

Tap the link in our bio to see more as the US stock market tumbles into a correction territory – otherwise known as a fall of 10% from its recent peak.

Home Search Create Like Profile

# Charts

## Simple



### This is how the biggest technology giants make their money

2019 revenue forecast, as % of total

Alphabet (Google)



Amazon



Facebook



Apple



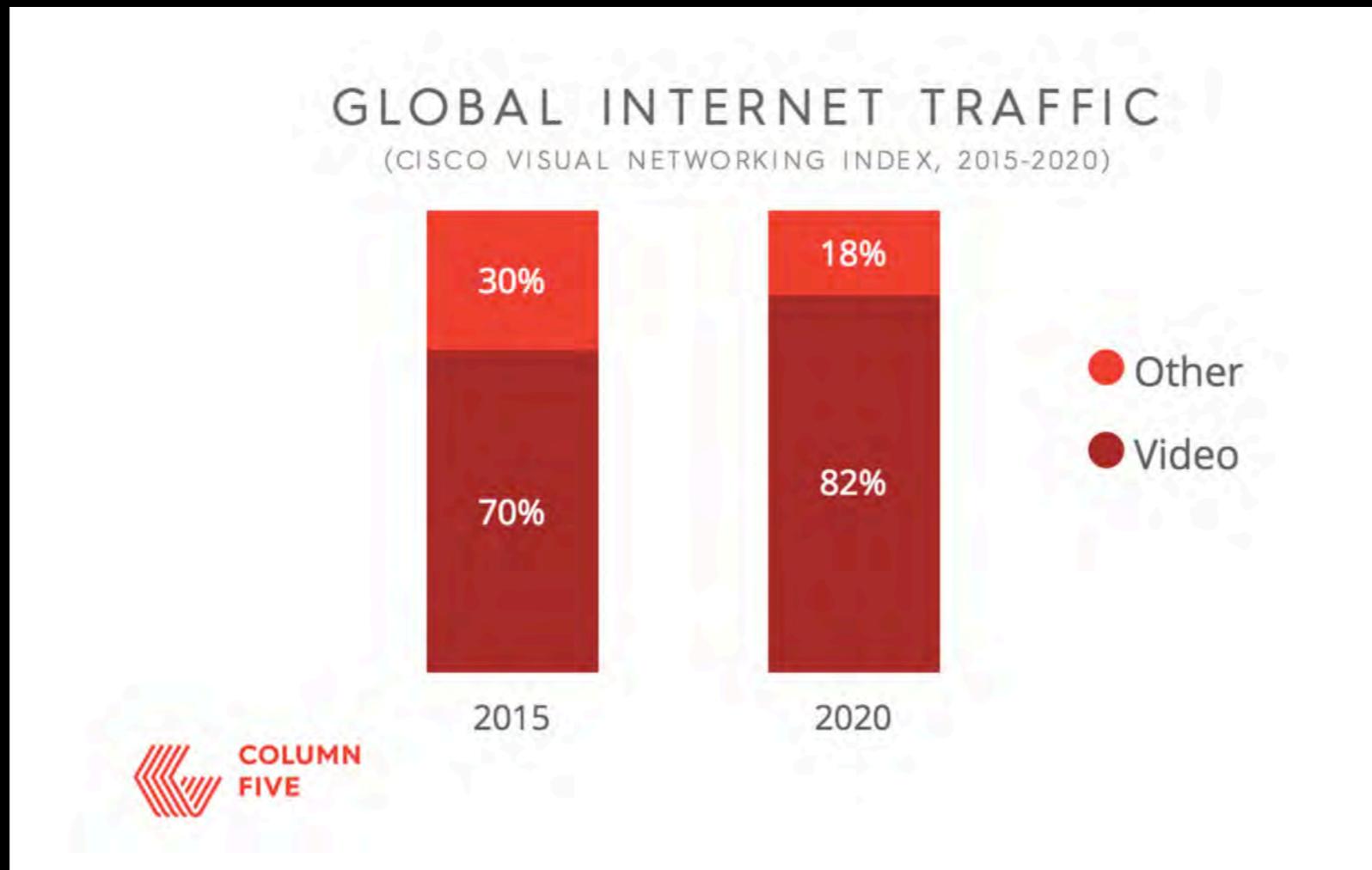
Sources: Jefferies; UBS; Evercore ISI; Bloomberg

The Economist

## 2. ANIMATIONS

### Projection:

By next year **82%** of internet traffic will consist of videos

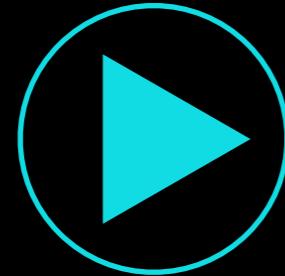


Publishers are pushing more  
and more **videos and animations**  
in social media

## What to do

Make more videos and animations!

Focus on short clips, just the kind favored by  
Facebook's algorithm

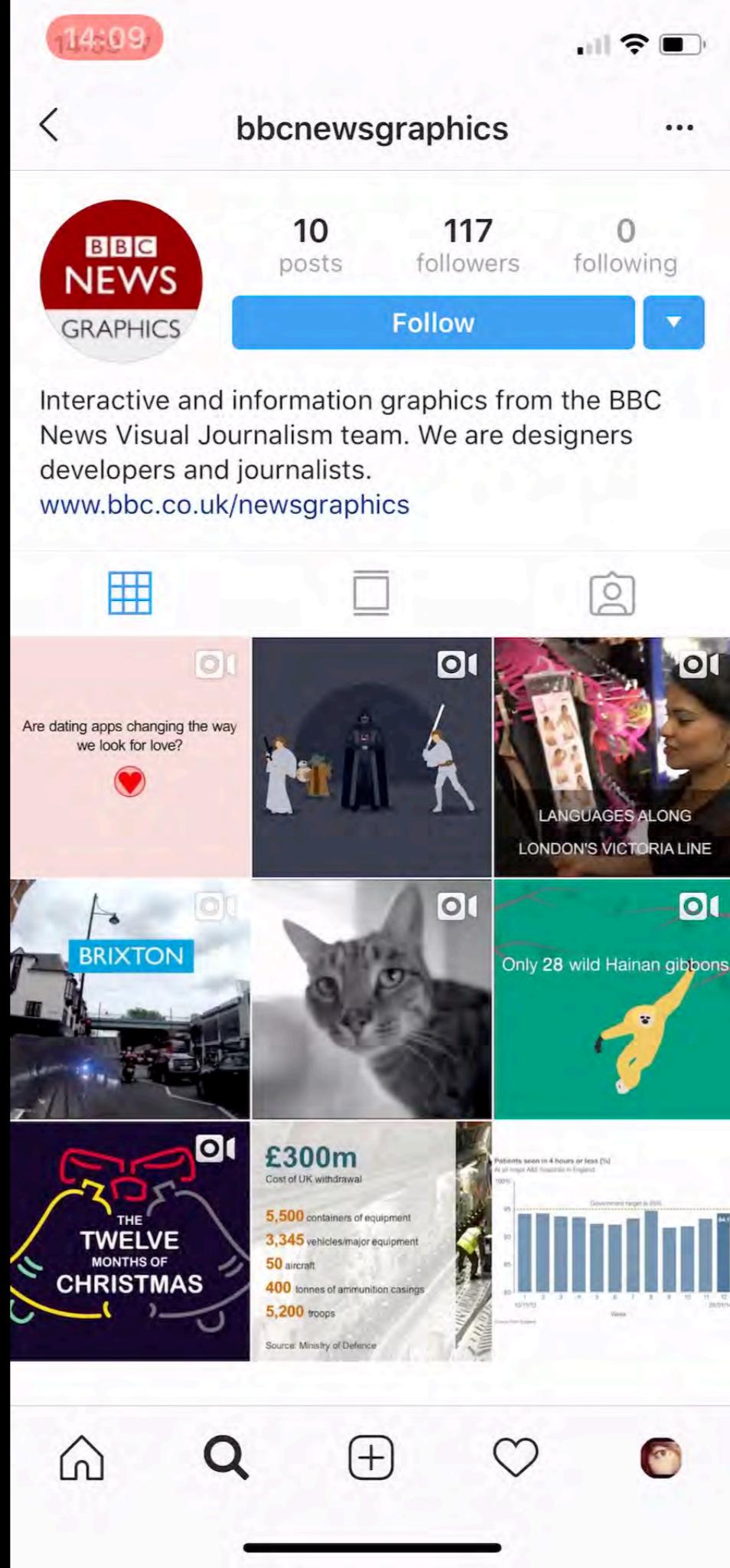


## Motion graphics

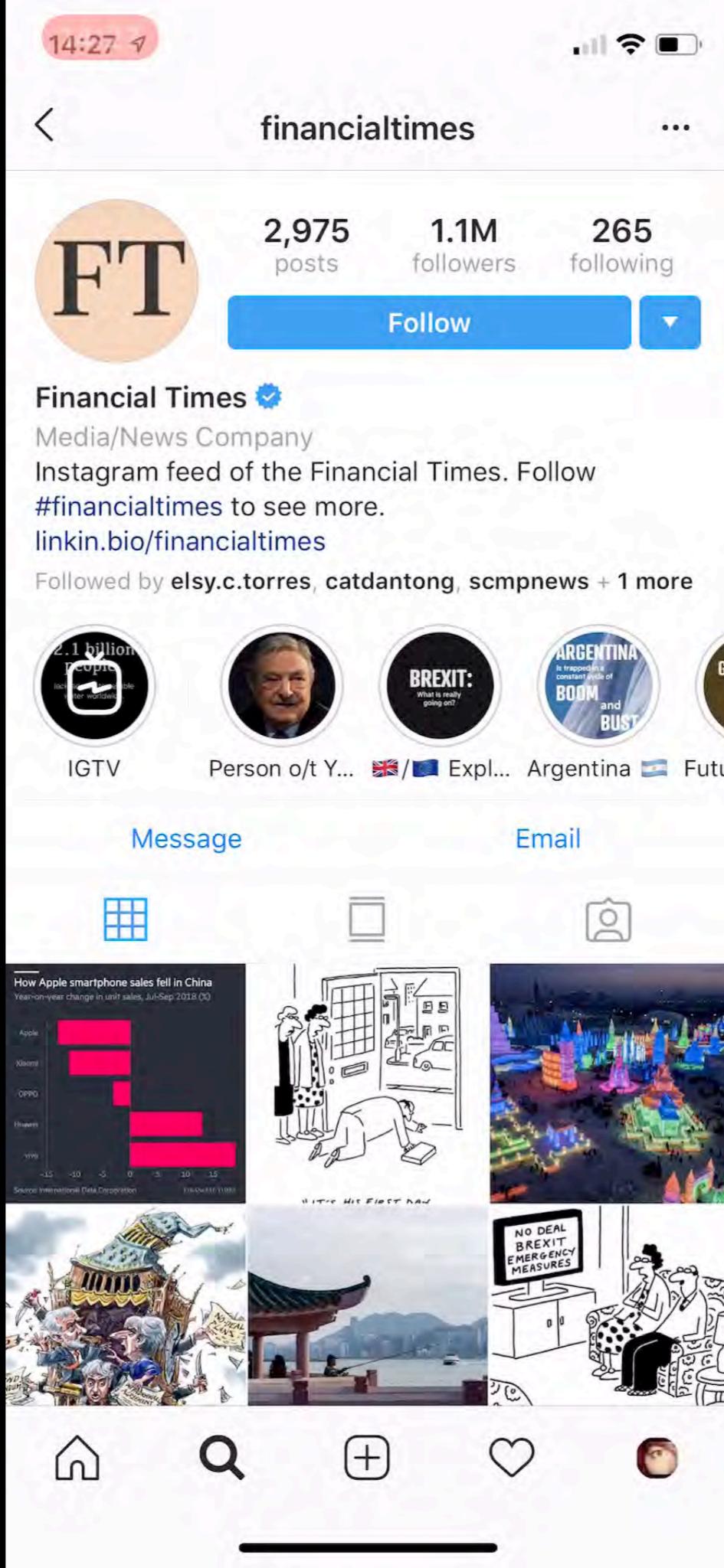
- Convey **motion** and **emotion**
- Easily shareable in social media
- Ideal for small devices



Super short  
teaser  
animation  
that lead  
readers to  
your website

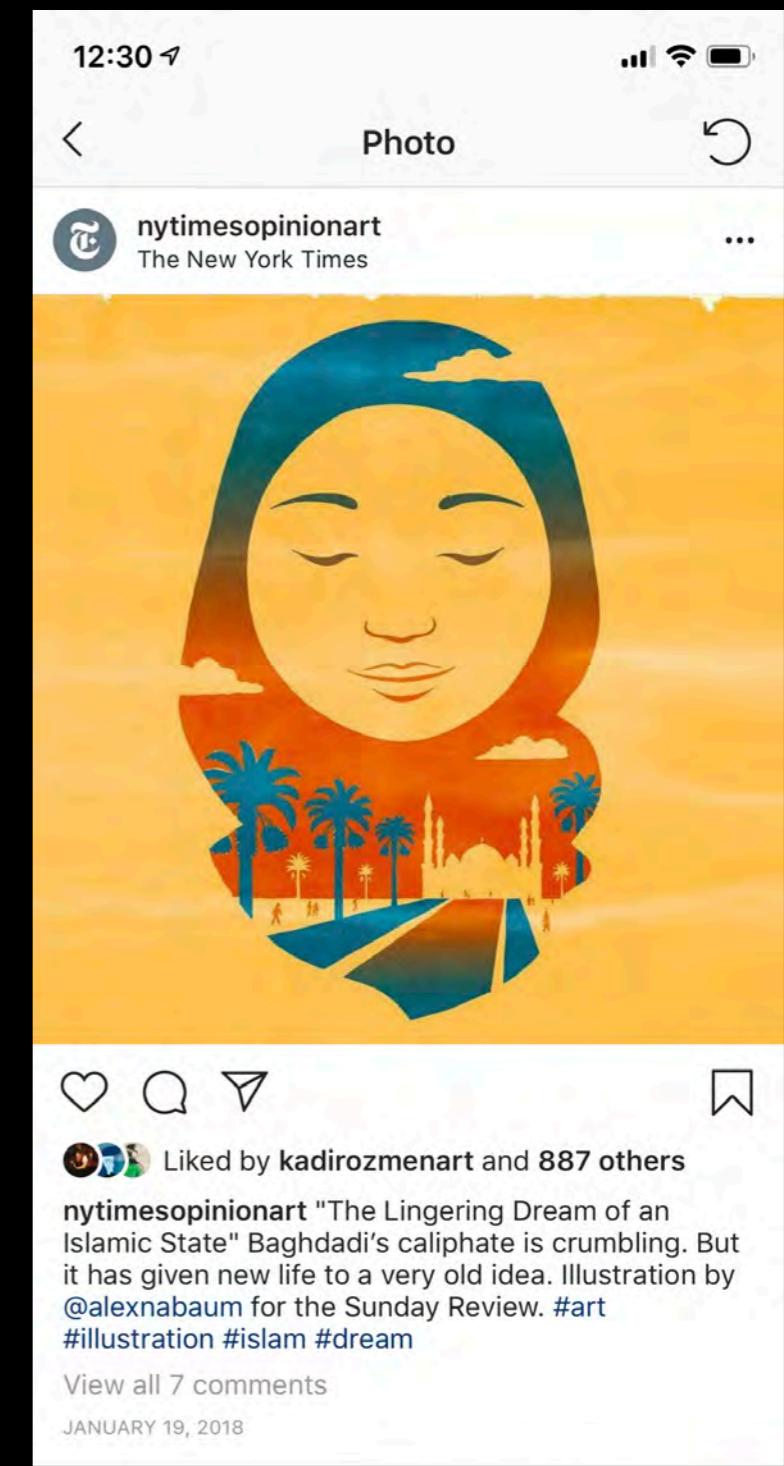


**GIFS**  
Easy way to  
show motion or  
change over  
time with a  
few static  
images



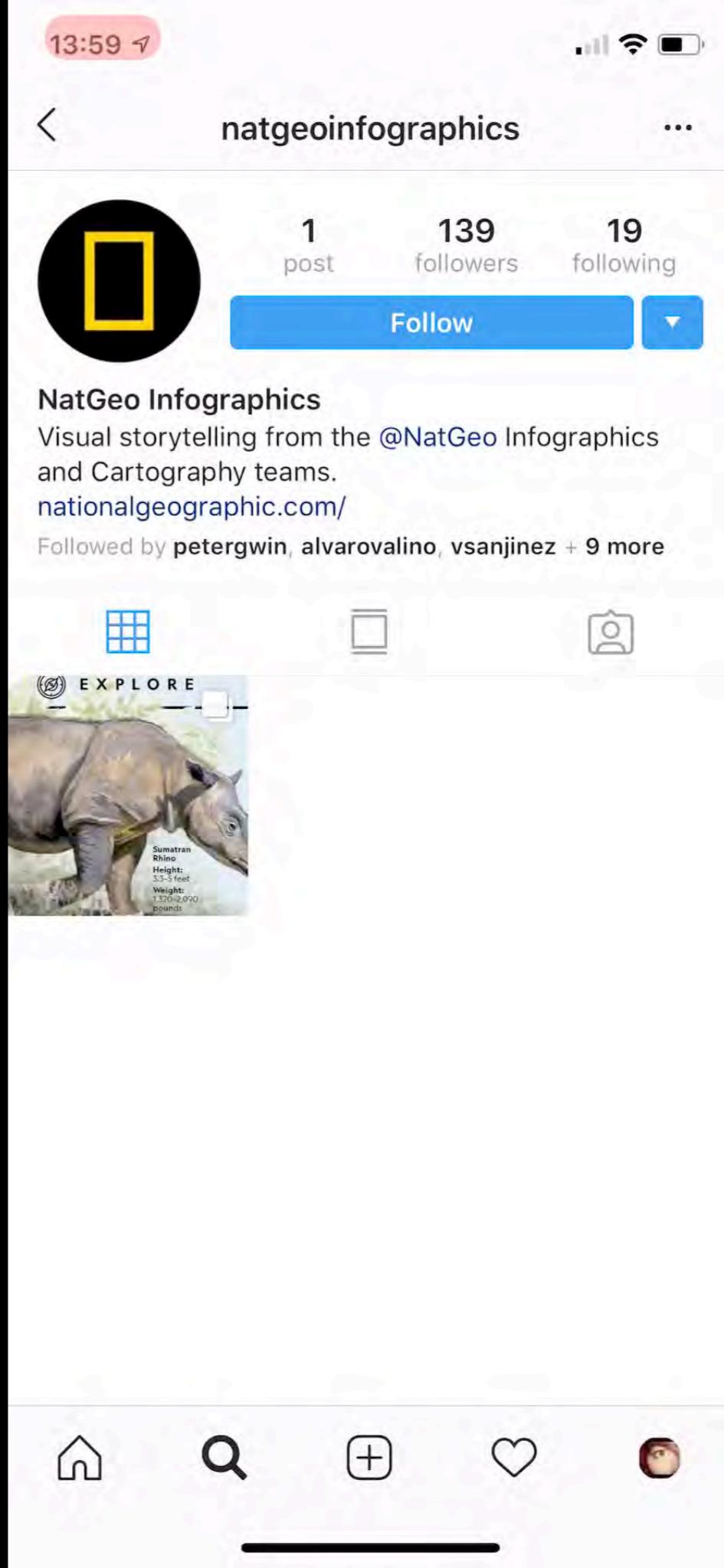
## 4. ILLUSTRATIONS

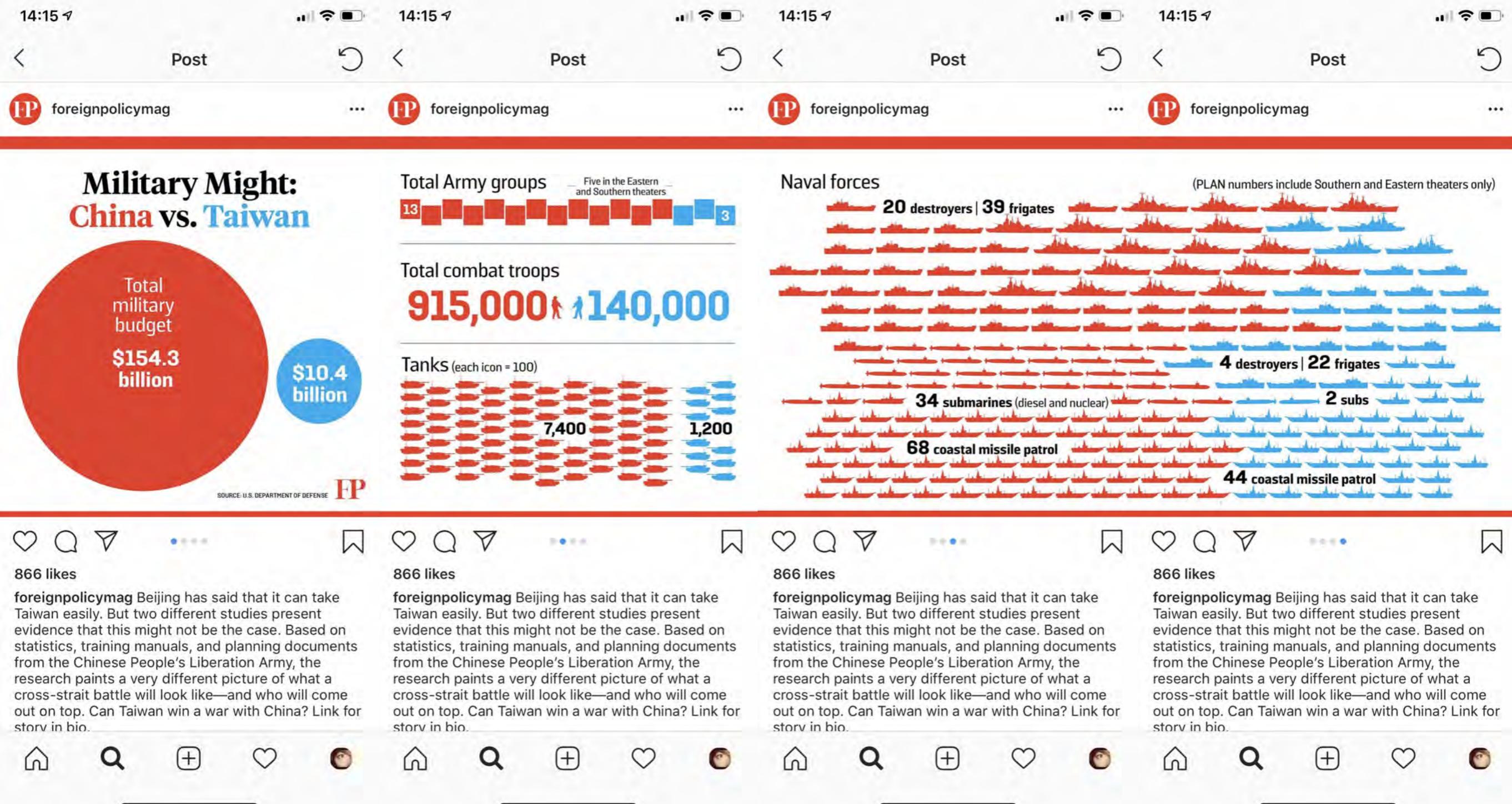
Use conceptual illustration for stories hard to photograph or with not enough data



**Instagram:**

**Multiple images**  
can be used to tell  
a step by step  
story, and even  
create the illusion of  
a continuous image





14:14 ↗



Post



foreignpolicymag

...



716 likes

**foreignpolicymag** Over the last 40 years, China has established itself as a formidable global player. But as its president Xi Jinping makes a personal grab for power—framing it under the guise of fighting corruption—everything China has built itself up to be could come crashing down. Read more in the link in our bio. (Story by: Jonathan Tepperman / Art by: Etienne Oliveau/Getty Images/Foreign Policy Illustration)



14:14 ↗



Post



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**foreignpolicymag** Over the last 40 years, China has established itself as a formidable global player. But as its president Xi Jinping makes a personal grab for power—framing it under the guise of fighting corruption—everything China has built itself up to be could come crashing down. [Read more in the link in our bio.](#) (Story by: Jonathan Tepperman / Art by: Etienne Oliveau/Getty Images/Foreign Policy Illustration)



## Imitate TV graphics

Bold and simple. One simple chart or statement. Big contrast. Large fonts

