

# Типы диаграмм и графиков: выбор правильной диаграммы для правильной задачи

Types of Charts and Graphs

Визуализация данных является незаменимым инструментом при подготовке новостей. Они передают сюжеты, то, как люди изучают данные, и уточняют информацию по компасу. Однако не все визуализации данных достигают одной и той же цели. Некоторые из них отлично подходят для сравнения двух переменных, другие показывают более широкую картину или указывают на тенденции.

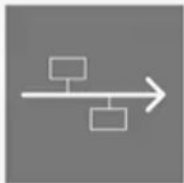


# Choose the right chart—or charts.

## Presentation



Table



Timeline

## Comparison



Bar Chart



Grouped Bar Chart



Stacked Bar Graph



Pie Chart

## Distribution



Histogram



Density Plot



Box Plot



Scatterplot

## Change



Line Graph



Stacked Area Graph

## Spatial



Bubble Map



Choropleth Map



Dot Map

## Flow



Sankey Diagram



Network Diagram



Chord Diagram

# Presentation/ Table

Presents data when the  
precise values matter

## Women do the jobs that pay the least

Percentage of female employees in the 10 highest- and lowest-paid occupations in America by median weekly pay for full-time workers, 2017

OCCUPATION	WEEKLY PAY	PCT. FEMALE
Chief executives	\$2,296	28%
Architectural and engineering managers	1,999	9
Pharmacists	1,923	58
Physicians and surgeons	1,918	40
Lawyers	1,901	37
Aerospace engineers	1,892	9
Computer and info. systems managers	1,843	29
Nurse practitioners	1,841	92
Veterinarians	1,840	63
Electrical and electronics engineers	1,803	12
:		
Cooks	466	39
Counter attend., cafeteria, food concession and café	460	62
Dining room and cafeteria attend., bartender helpers	458	46
Laundry and drycleaning workers	450	68
Maids, housekeeping, cleaners	450	88
Cashiers	438	73
Food prep. workers	425	59
Food prep. and serving workers, incl. fast food	407	60
Hosts, hostesses, restaurant, lounge, café	401	86
Dishwashers	401	20

Based on a ranking of occupations for which the Bureau of Labor Statistics provides data.

# Comparison/Bar

Compares quantities of different categories or different times.

## Crash course

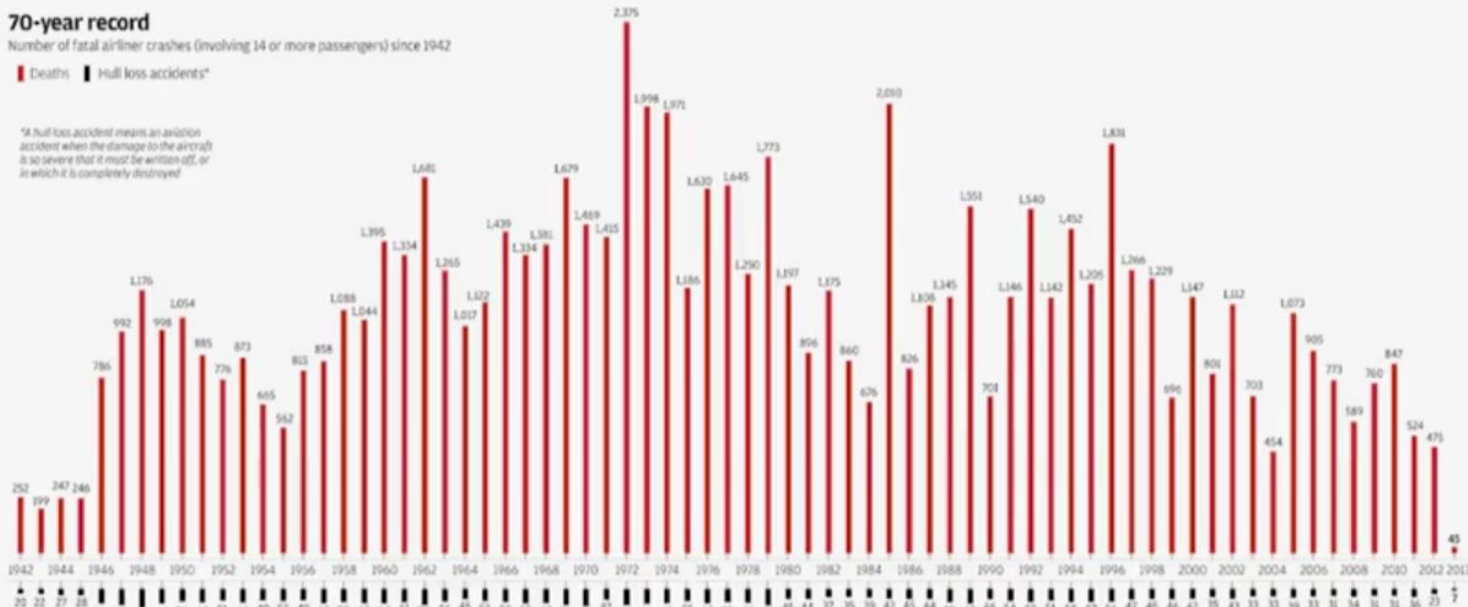
On July 6, an Asiana Airlines Boeing 777 crashed while landing at San Francisco International Airport. The accident injured more than 180 people and killed two, and was the first crash of a Boeing 777 involving fatalities since it began commercial service in 1995. Here we look at the history of aviation accidents and what causes them.

### 70-year record

Number of fatal airliner crashes (involving 14 or more passengers) since 1942

■ Deaths ■ Hull loss accidents\*

\*A hull loss accident means an aviation accident when the damage to the aircraft is so severe that it must be written off, or in which it is completely destroyed



# Comparison/Grouped & Stacked Bar

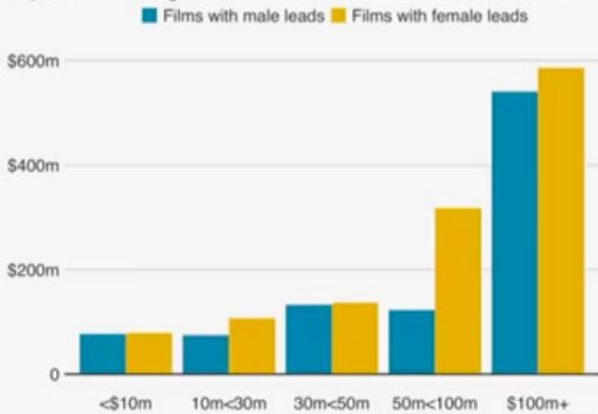
Compares grouped variables to other groups

Shows part-to-whole relationships



## Films starring women outperform

Box office revenues for films (2014-2017), grouped according to production budget



Source: Shift7

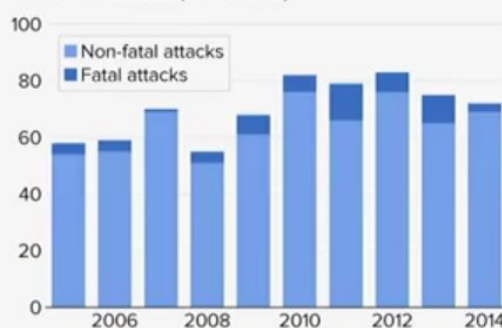


Source: BBC / shift7 / <https://bbc.in/2Vtelkb>

## SHARK ATTACK INCIDENTS AVERAGE AROUND 70 PER YEAR FOR LAST 10 YEARS

There have been 701 shark attacks from 2005–2014 in world locations with the highest shark attack activity. Only 59, or about 8.4 percent, were fatal.

### Total shark attacks (2005–2014)



SOURCE  
International Shark Attack File, Florida Museum of Natural History,  
University of Florida (Last updated Feb. 11, 2015)

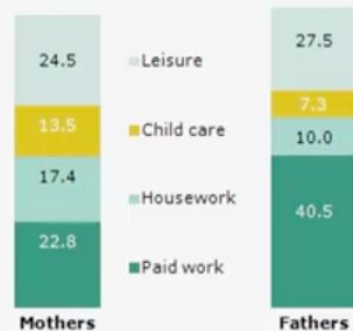


Source: ABC News / <https://abcn.ws/2T8160B>

## 100% stacked bar chart

### How Moms and Dads Spend Their Time

Average number of hours per week spent on ...



Note: Based on adults ages 18 to 64 with own child(ren) under age 18 living in the household. Paid work and child care include relevant travel time.

Source: Pew Research Center analysis of 2010 American Time Use Survey.

PEW RESEARCH CENTER

# Comparison/Pie

Compares part-to-whole data—but be aware that it is difficult to accurately compare the size of each segment.

**Pies:** The visual cue is the relative degrees in the circle.



**Donuts:** Arc length is the visual cue.



The pie charts below show only developing countries, and the gap between those who have access to electricity and those who do not have access:

Dark-blue pie slice: Percentage of the population that does not have access to electricity

Pies are scaled proportionately to each country's 2012 population

Outlined pie: 100 percent of the population has access to electricity

## ASIA



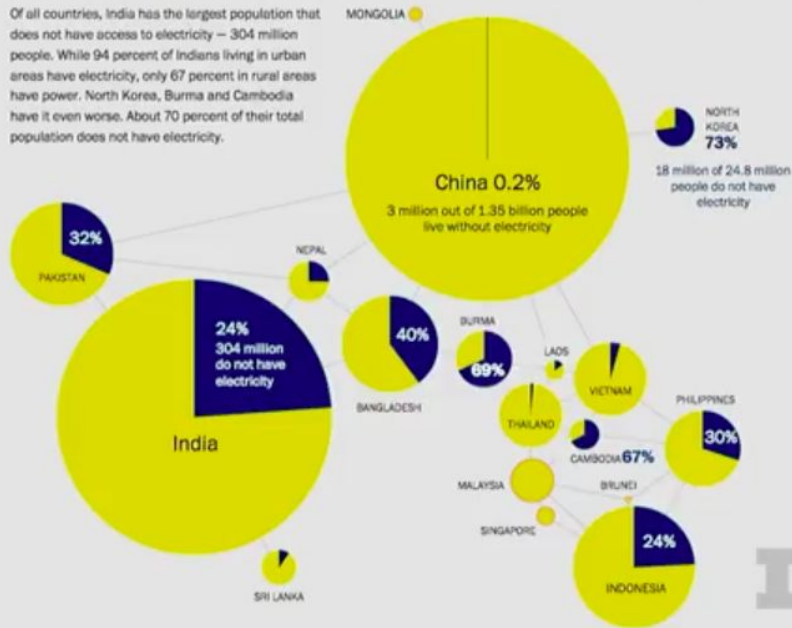
Nearly 2 out of 10 people do not have access to electricity

Of all countries, India has the largest population that does not have access to electricity — 304 million people. While 94 percent of Indians living in urban areas have electricity, only 67 percent in rural areas have power. North Korea, Burma and Cambodia have it even worse. About 70 percent of their total population does not have electricity.

## World Without Power

622 million

of 3.6 billion people do not have electricity



# Distribution/Histogram-Density Plot

Summarizes the statistical distribution of a continuous interval or time period, each bar represents a frequency

## Forecasting the race for the House

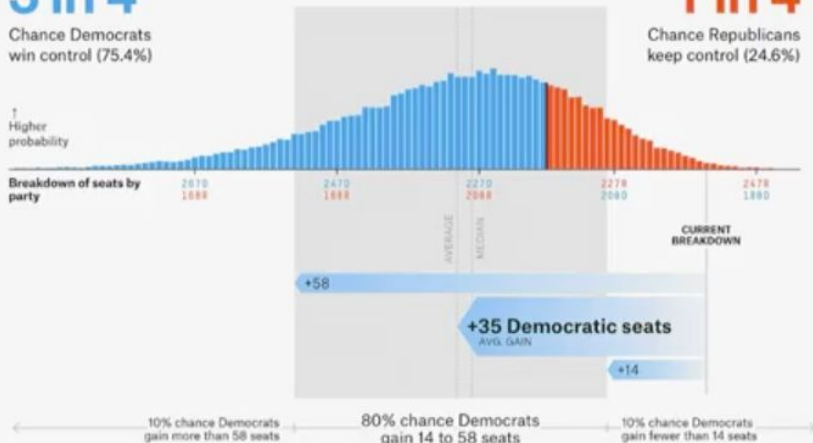
Published Aug. 16, 2019, at 12:30 PM

**3 in 4**

Chance Democrats win control (75.4%)

**1 in 4**

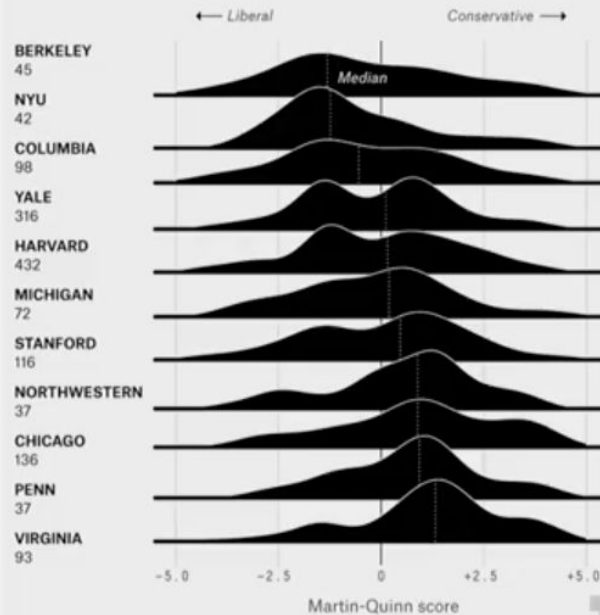
Chance Republicans keep control (24.6%)



Density plot (smoothed histogram)

## The Wide-Ranging Politics Of Elite Law Schools

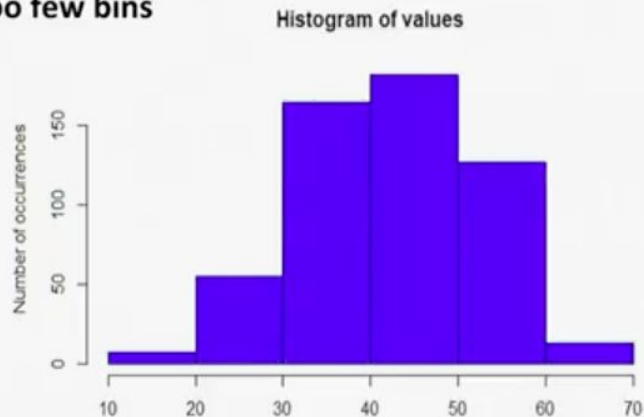
Distributions of justice ideology for Supreme Court clerks, by school since 1937



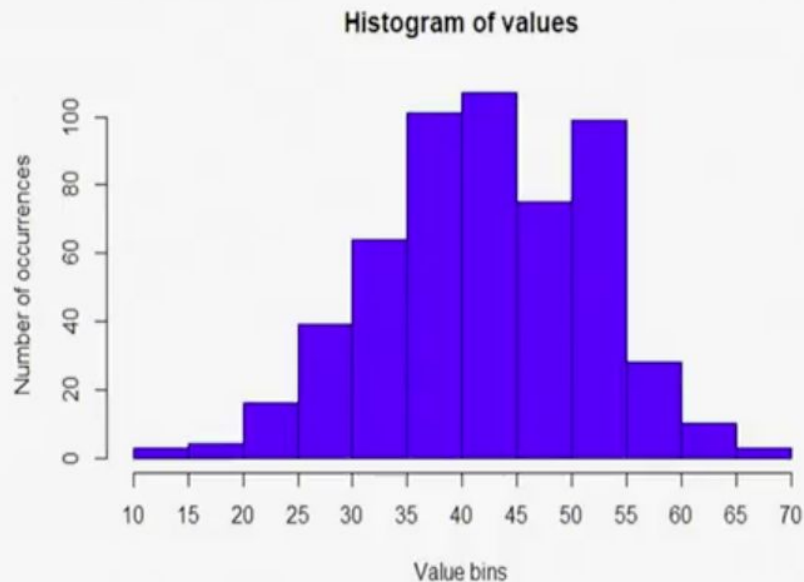


# Distribution/Histogram-Density Plot

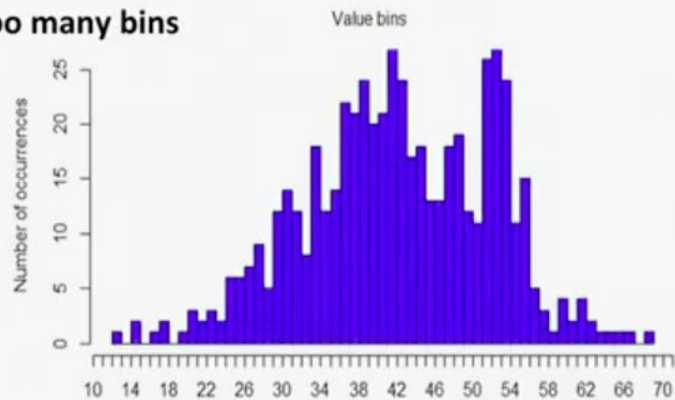
Too few bins



Ideal number of bins



Too many bins



## ! Тест

**Является ли гистограмма такой же, как бар-графика?**

А. Да, потому что они оба используют интервалы.

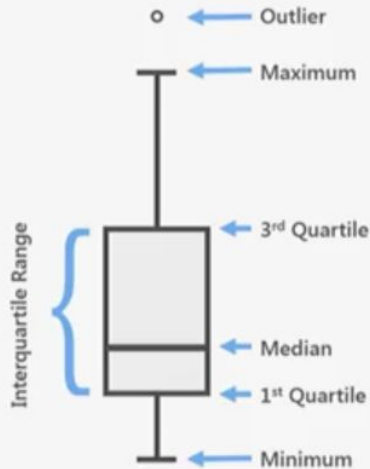
В. Нет, потому что гистограмма отображает числовые данные, в то время как бар-график отражает категориальные данные.

С. Да, потому что они оба используют столбики для отображения данных.

Д. Нет, потому что гистограмма отражает категориальные данные, а бар-графика - цифровые данные.

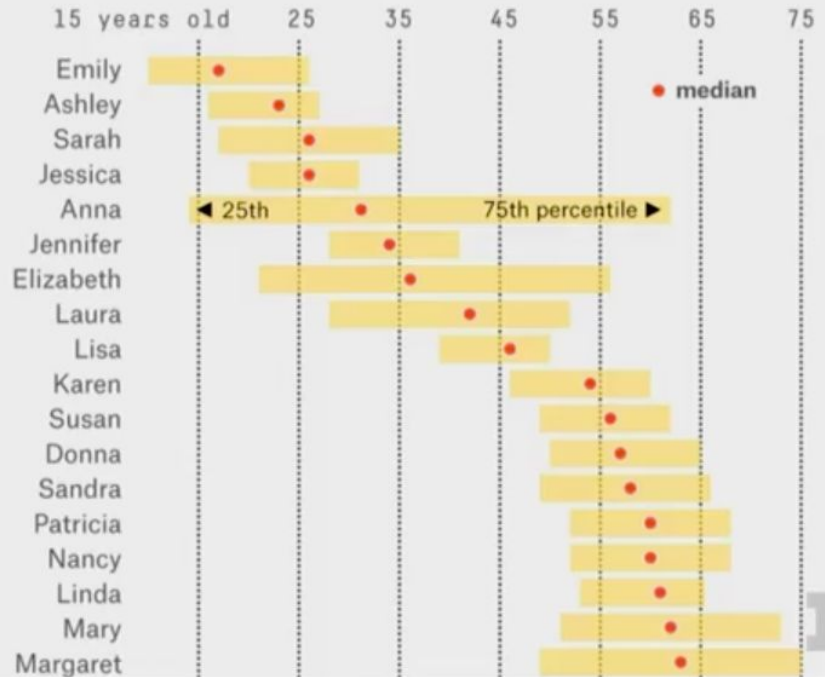
# Distribution/Box Plot

Summarizes distributions by showing the median and the range of data, but hides the sample size and the distribution.



## Median Ages For Females With the 25 Most Common Names

Among Americans estimated to be alive as of Jan. 1, 2014



# Change/Line

Tracks changes or trends over time and shows the relationship between two or more variables

## An Unhappy Country

Share of Americans who say the country is on the right track or wrong track.

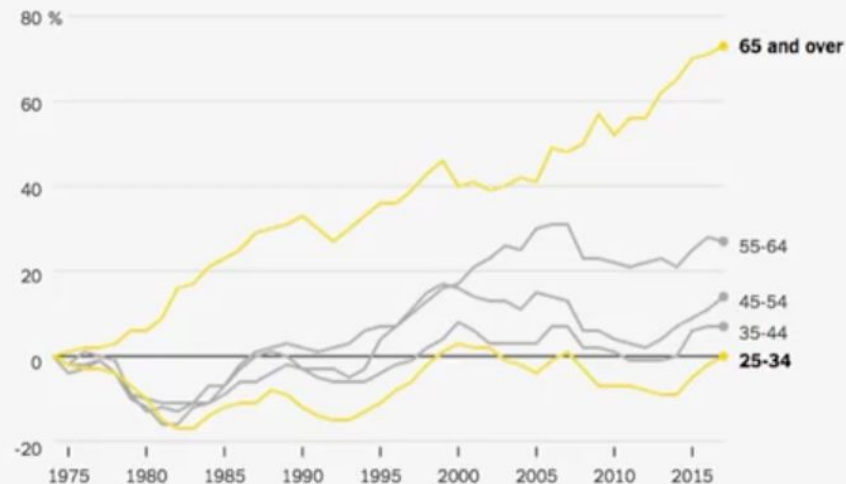


Americans are dissatisfied with the state of the union.

Recessions are shaded.

## The Struggles of the Young

Cumulative change in inflation-adjusted median income for each age group, since 1974.



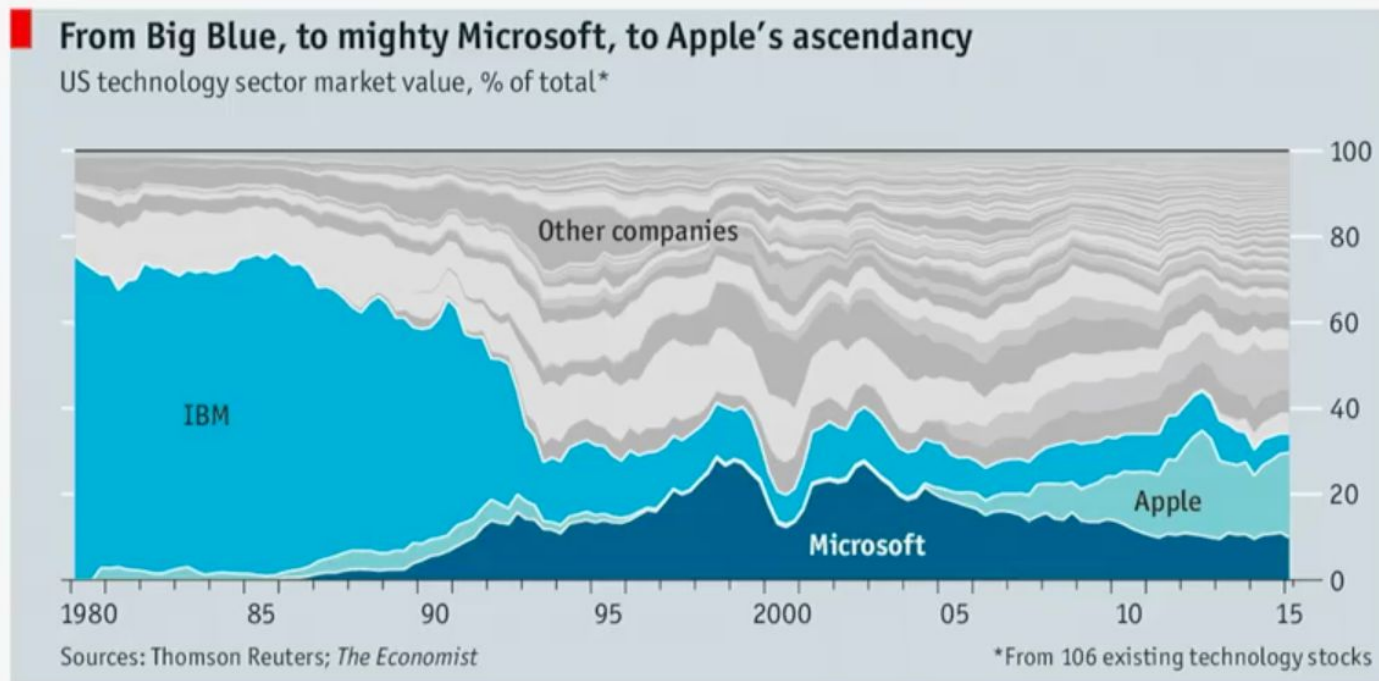
Younger Americans are faring poorly in today's economy.

By The New York Times | Source: Census Bureau



# Change/Stacked Area

Allows spotting birds-eye trends and patterns over time instead of focusing on individual values

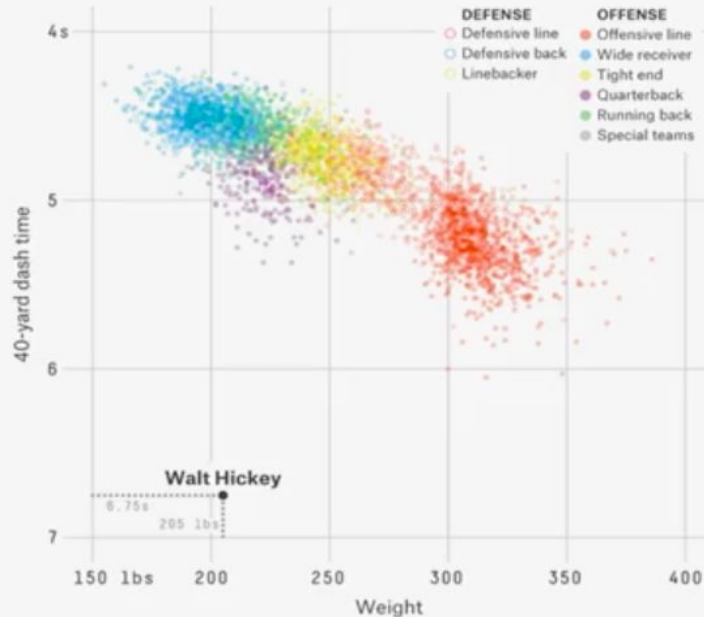


# Distribution/Scatterplot

Shows the relationship between two continuous variables, each of which has its own axis

## Walt Doesn't Have NFL Speed

40-yard dash times vs. body weight for 4,593 NFL combine participants, 1999-2014

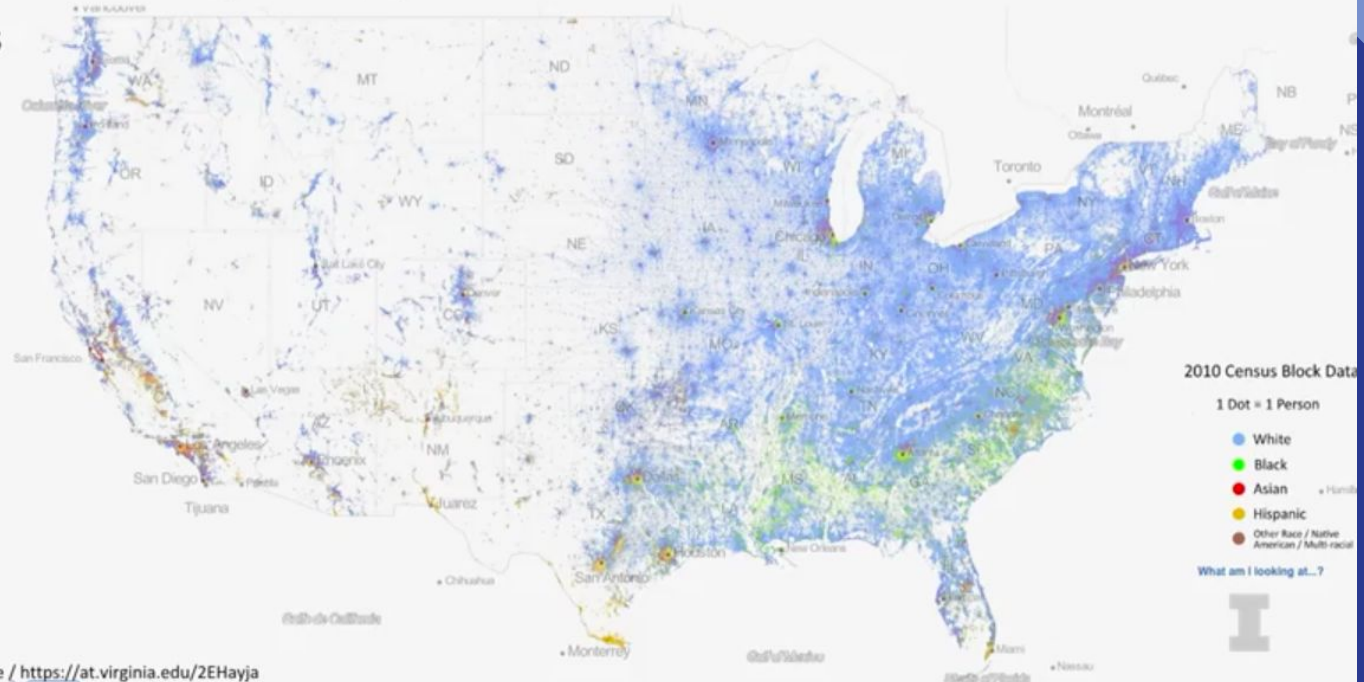


# Spatial/Dot Map

Shows the location of individual events/locations

## One Dot Per Person for the Entire United States

Created by Dustin Cable, July 2013



# Spatial/Proportional

Shows total counts/magnitude —but it is difficult to accurately compare the small differences in area

## President Map

Big Board | Map | Electoral Explorer | Obama: Victory Speech | McCain: Concession Speech | Exit Polls

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**365**  **Obama**  
Electoral Votes  
Projected Winner

**0**  
undecided

**173** **McCain**  
Electoral Votes

Popular vote: 66,362,039

270 needed to win

Popular vote: 66,318,4

- State winners
- County bubbles
- County leaders
- Voting shifts

ZOOM IN

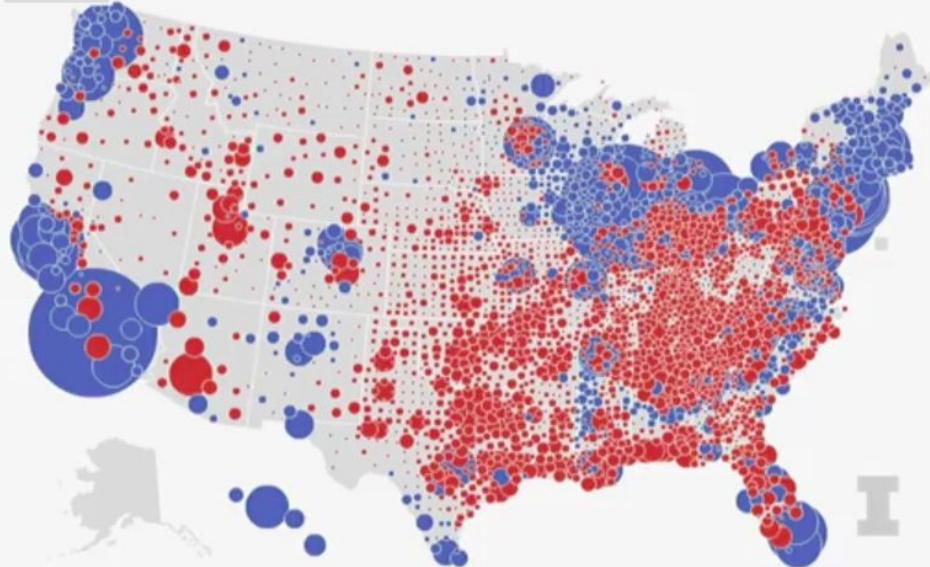
Year

08 04 00 96 92

Map key

Circle size is proportional to the amount each county's leading candidate is ahead.

Larger Smaller



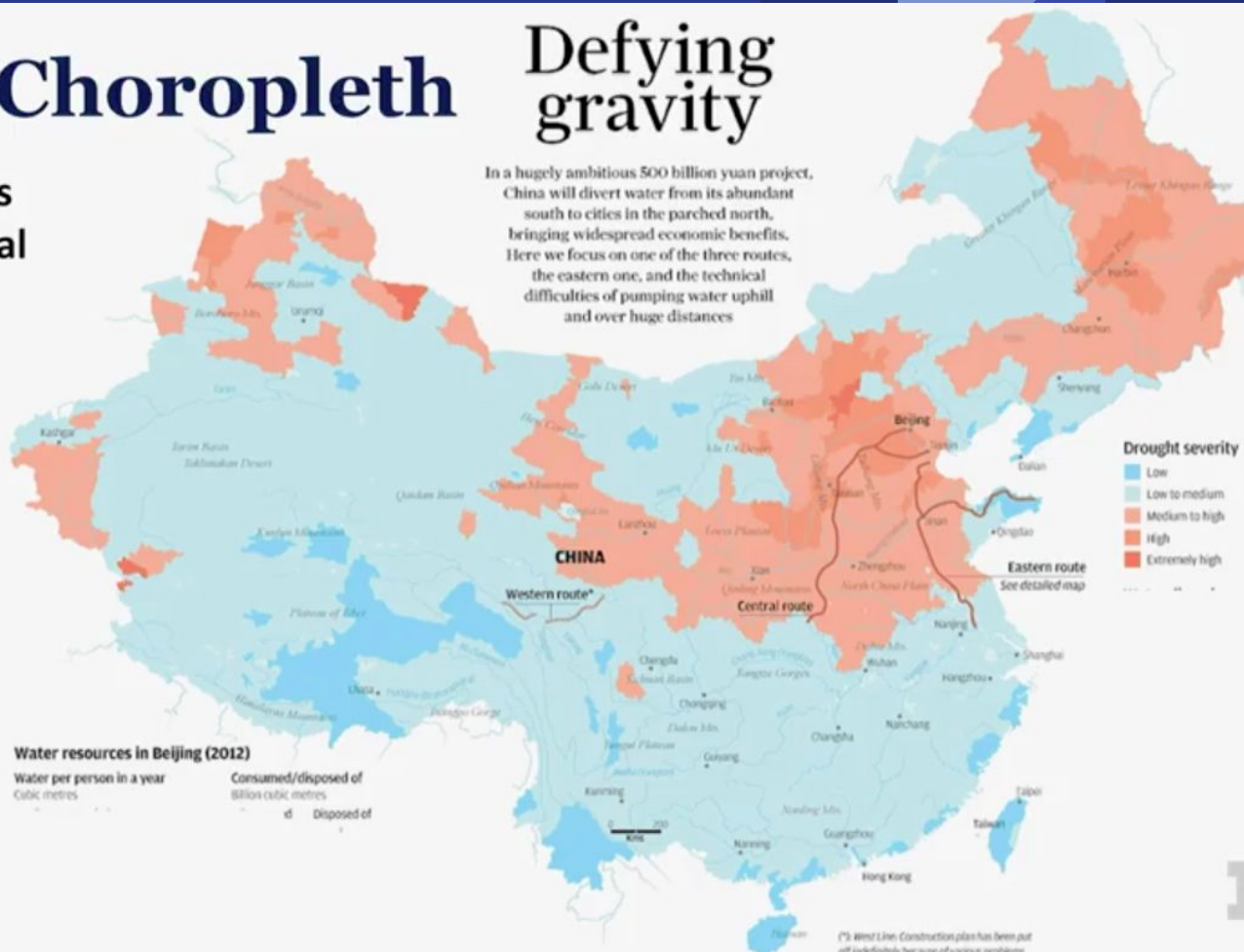


# Spatial/Choropleth

Shows rates/ratios instead of raw total

## Defying gravity

In a hugely ambitious 500 billion yuan project, China will divert water from its abundant south to cities in the parched north, bringing widespread economic benefits. Here we focus on one of the three routes, the eastern one, and the technical difficulties of pumping water uphill and over huge distances



# Flow/Network

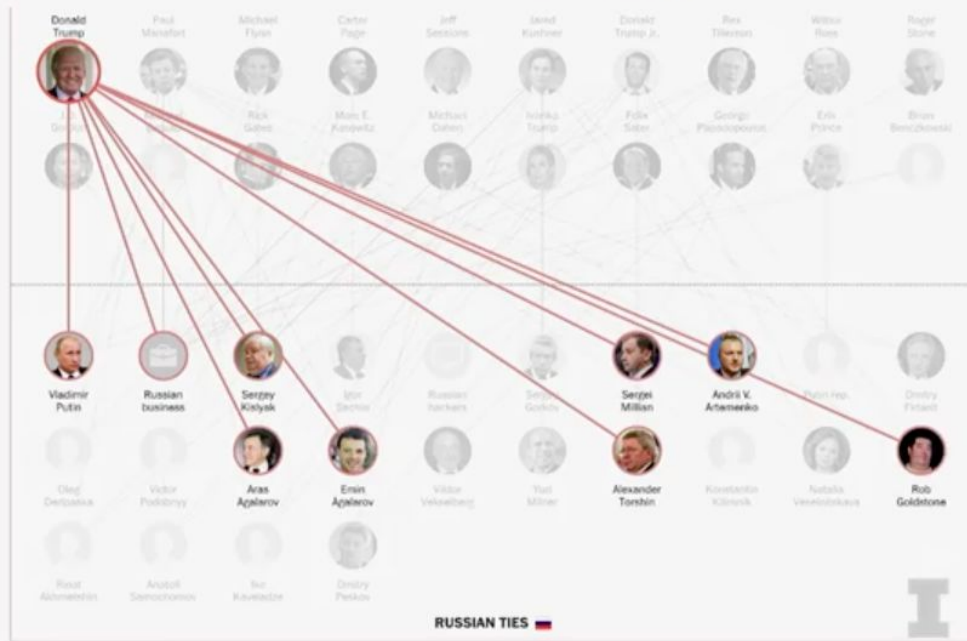
Shows the relationships and connectedness of varying types

Nodes & Links

## Here's what we learned about Team Trump's ties to Russian interests

By **Bonnie Berkowitz, Denise Lu and Julie Vitkovskaya**

Published March 31, 2017 Updated Feb. 23, 2018

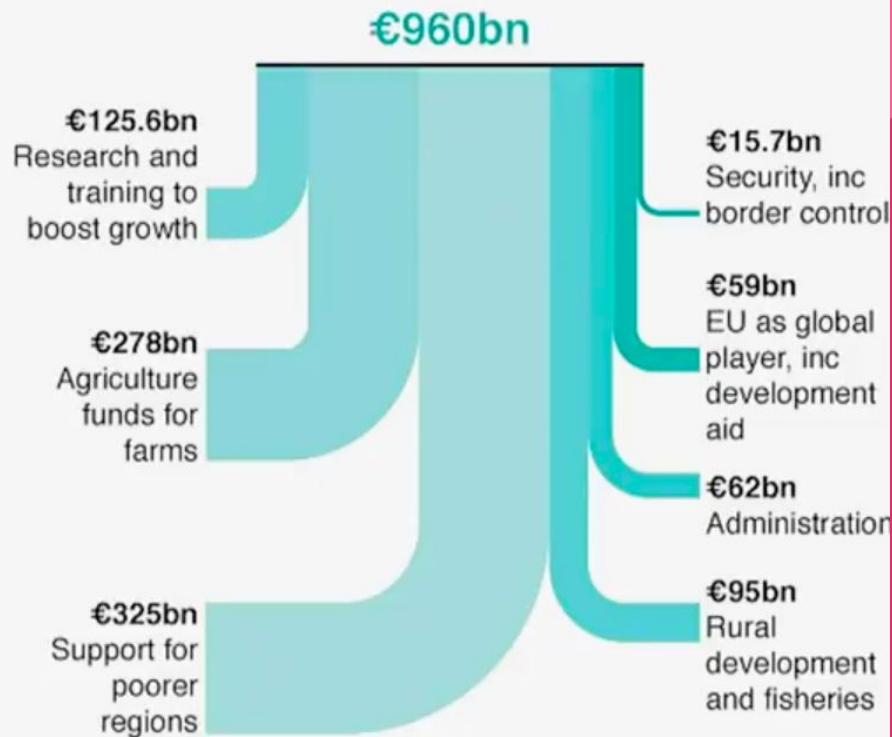




# Flow/Sankey

Displays flows and their quantities in proportion to one another

## Plans for spending the EU budget, 2014-20



Source: European Commission

Source: BBC UK / <http://www.bbc.co.uk>

# ЗАДАНИЕ

ПРЕДЛОЖИТЬ ОПТИМАЛЬНЫЙ  
ВИЗУАЛИЗИРОВАННЫЙ  
ВАРИАНТ ДЛЯ ПОСЛЕДНЕГО  
СЛАЙДА. РАЗЪЯСНИТЬ ПОЧЕМУ.

ТЕМА: РАСПРЕДЕЛЕНИЕ  
БЮДЖЕТА ЕС НА 2014-2020

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# Обязательно к чтению

<https://public.tableau.com/en-us/gallery/?tab=viz-of-the-day&type=viz-of-the-day>

[The Data Visualization Catalogue](#)

Литература:

*The [Data Journalism Handbook 1](#)*

