

Module 4: Data Visualization

STUDENT WORKBOOK

In this module, you will learn the basics of effective communication with data visualization. You will learn how the human brain is adapted for understanding data through visualization and what effective sensory engagement looks like. This module will also introduce principles to matching data types to graphical forms for effective communication, basic design principles and data visualization ethics. Students will learn to redesign data visualizations with this new knowledge. Most importantly this section is about conveying knowledge and information through visual stories, not just dry statistics.

At this end of this module, you will be able to:

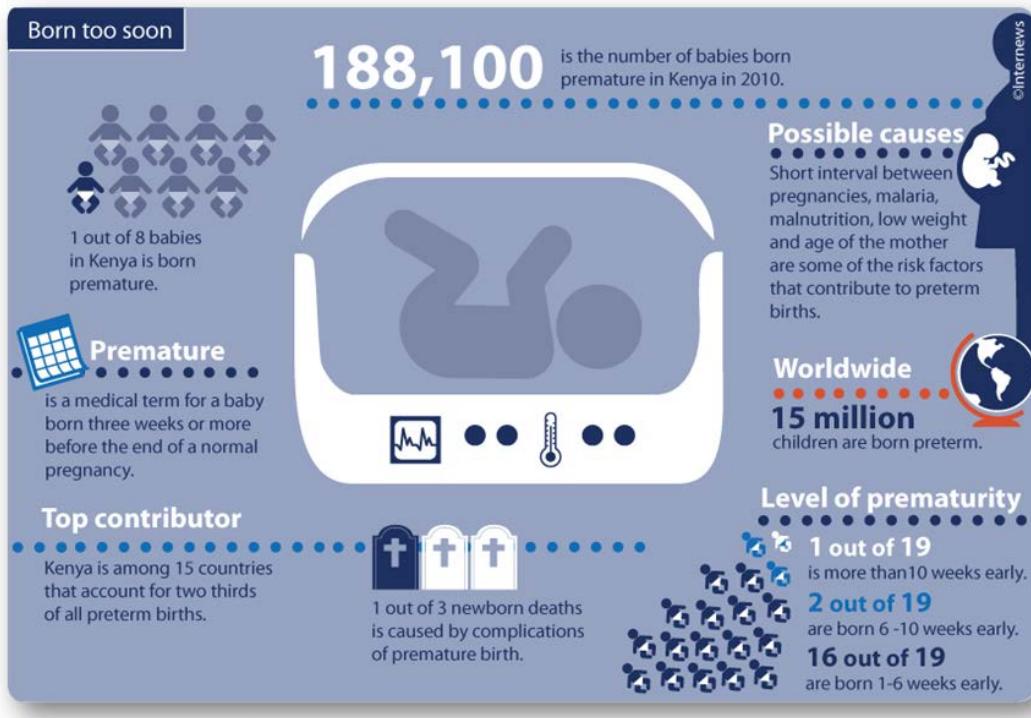
- Appreciate the purpose of data visualization
- Develop an effective data visualization design strategy
- Match data and graph types
- Address ethical issues that arise with data visualization
- Convey stories with data visualization

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Getting Started



1

Simple fixes to newborn deaths

Kenya's high child death rate of 73 per 1,000 children could be greatly reduced if the country were to employ simple and practical solutions to reduce preterm births and complications, which are the leading cause of death among newborns.

The fourth Millennium Development Goal (MDG 4) aims to reduce the 1990 mortality rate among under-five children by two thirds. Child mortality is also closely linked to MDG 5 - to improve maternal health. Since more than one third of all child deaths occur within the first month of life, providing skilled care to mothers during pregnancy, as well as during and after birth, greatly contributes to child survival.

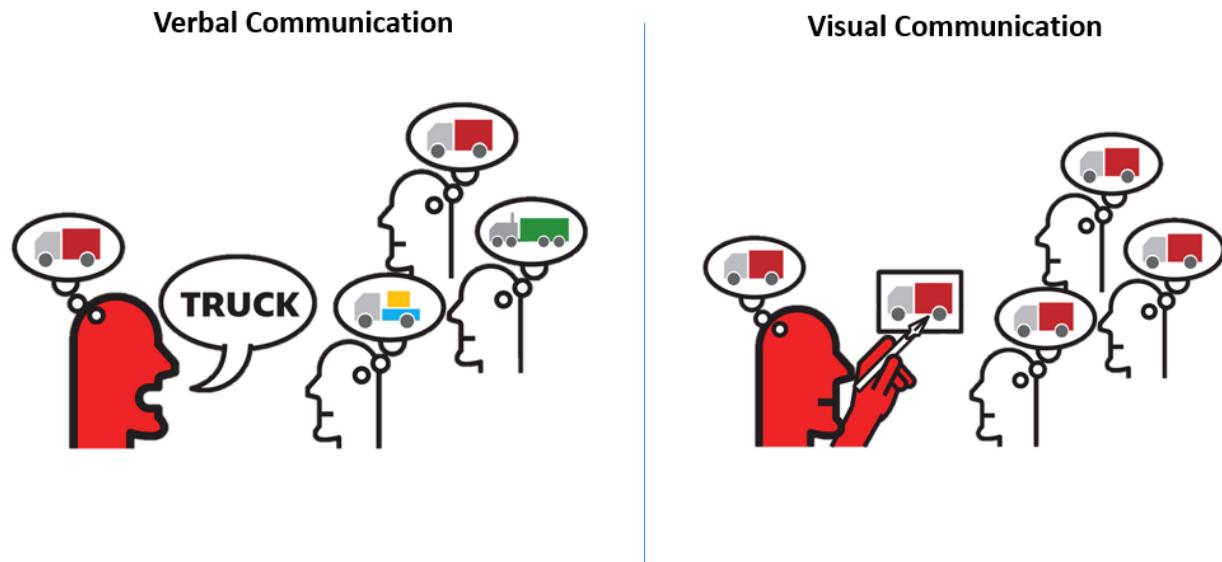
In this module, you will use data to quantify and explain the problem of major development issues, like the rate, causes and solutions for newborn deaths.

Lesson 1: Purpose of Data Visualization

¹ <http://www.internewskenya.org/dataportal/data/52>

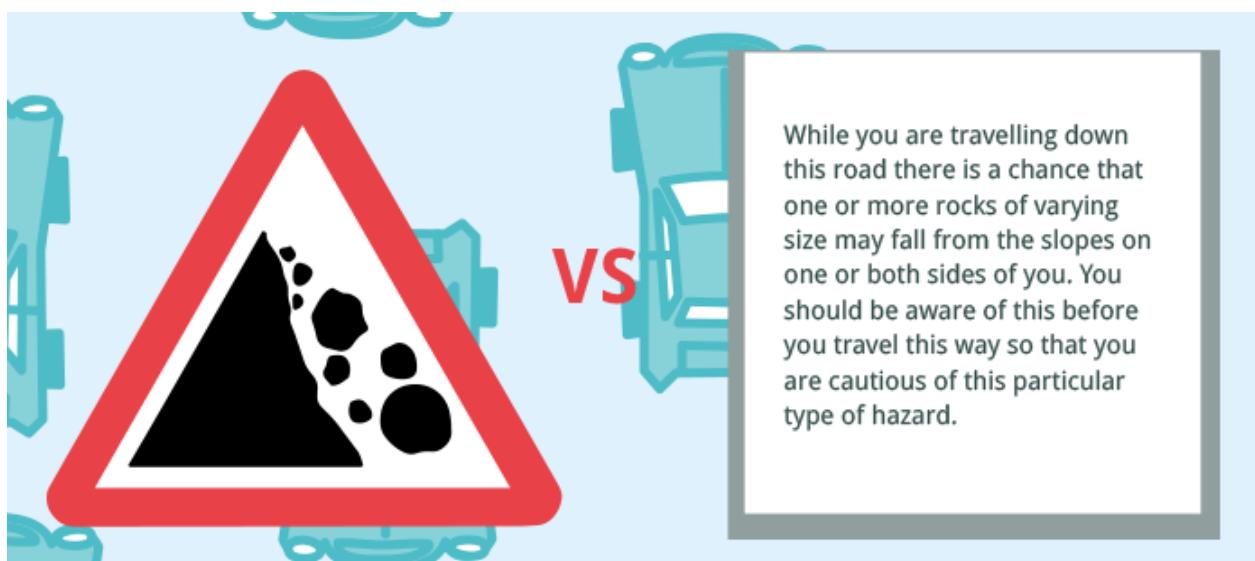
In this lesson, we will review some best practices to follow when considering data visualizations to tell a data story.

Why do we use data visualization?



2

Visual communication has some distinct advantages over verbal or text communication. This section explores how visualization can be more precise and concise than other forms of communication.



² Alberto Cairo

Why do we use data visualization?

The brain likes images.



Makes the data easier to understand



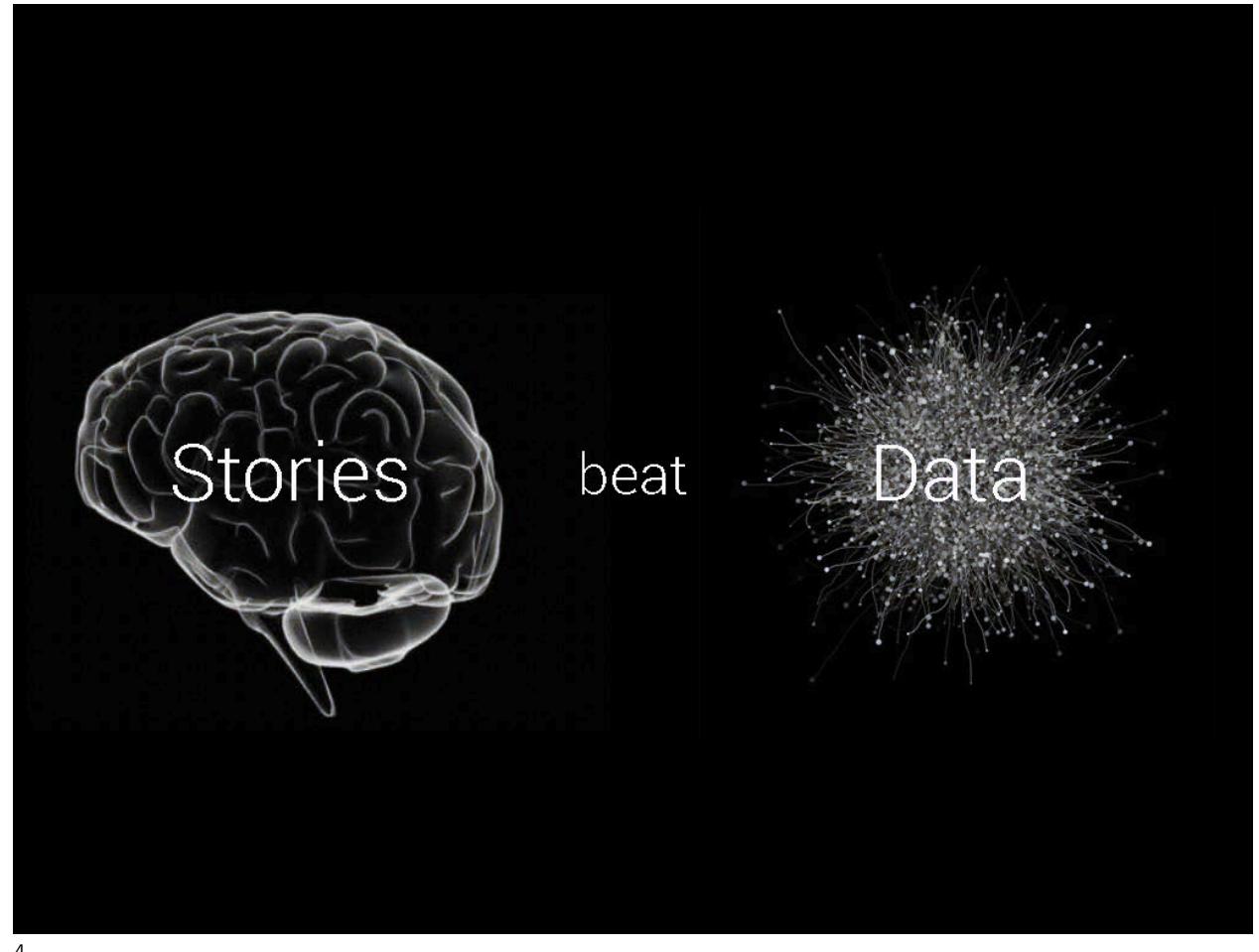
Grabs the audience attention



Increase website hits

3

³ Agnes Rube



⁴ <https://tutorials.infogr.am/>

Staying Focused

Visualizing a data set doesn't automatically make the data more understandable. Your job as a storyteller is to identify what is most important in the data and how to visualize it to tell a story. Keep these questions in mind when designing a data visualization. NEVER include ALL your data in your data visualization. Using all your data in a visualization is like using all your notes in a story. It shows that you don't actually know what the story is. Only include the data that tells a story.

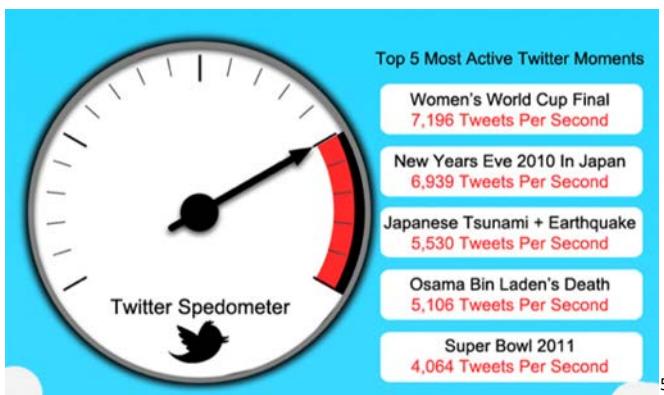
- **What's the point?**
Make sure to include only the data you want the reader to remember
- **Simplify the numbers!**
When possible, reduce numbers to simplest form
- **Make the angle clear**
Titles and labels should be specific, easy to understand and true to the data, including citing the source of the data
- **Set the scene!**
Styles and colors should aid understanding, not distract readers

Example

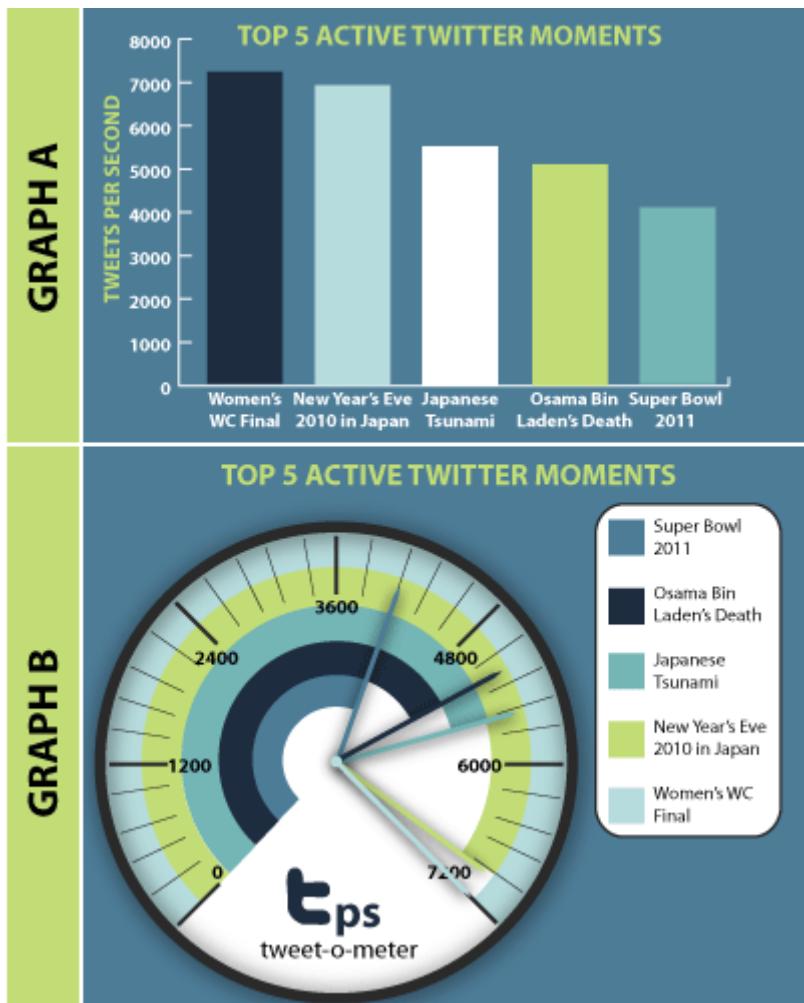
Remember data visualization should have a purpose:

- A visualization should not be just a pretty picture, but a structured visual presentation of facts.
- Infographics should be used to clarify stories, but context and complexity must remain.
- Data can be simplified, but not stories.

Choose the most informative version of this visualization.



⁵ <https://www.smashingmagazine.com/2011/10/the-dos-and-donts-of-infographic-design/>

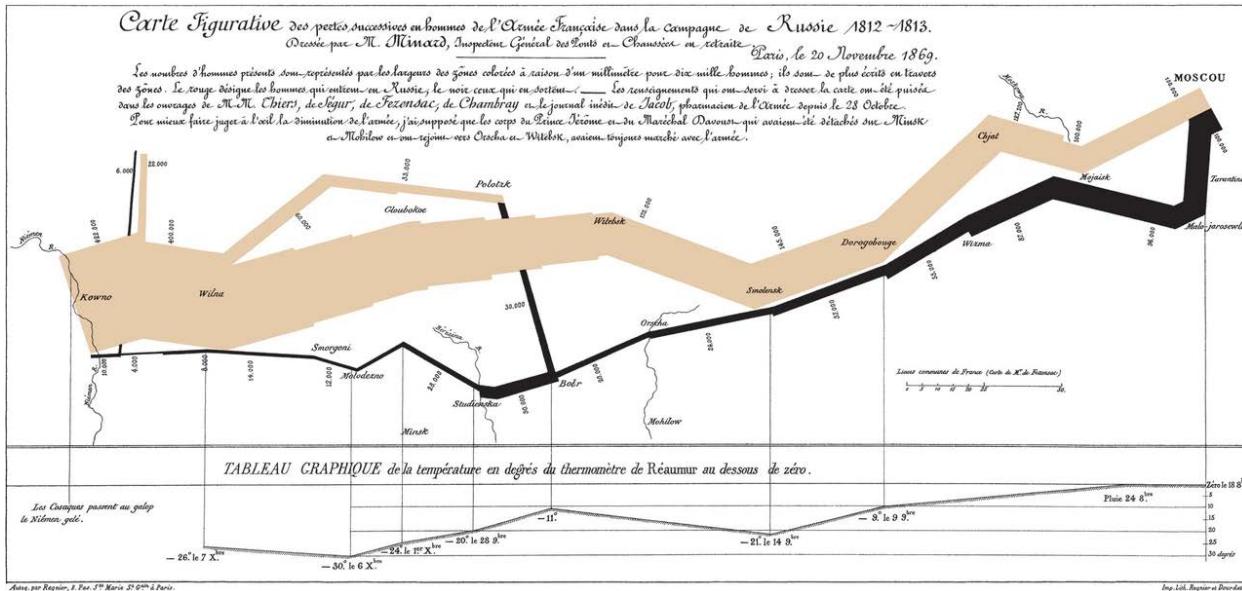


The History of Data Visualization

Diagramming Disaster: Napoleon's March to Russia

Charles Minard was a pioneer of the use of graphics in engineering and statistics. He is most well-known for his cartographic depiction of numerical data on a map of Napoleon's disastrous losses suffered during the Russian campaign of 1812 (in French, Carte figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813). The illustration depicts Napoleon's army departing the Polish-Russian border. A thick band illustrates the size of his army at specific geographic points during their advance and retreat. It displays six types of data in two dimensions: the number of Napoleon's troops; the distance traveled; temperature; latitude and longitude; direction of travel; and location relative to specific dates. This type of band graph for illustration of flows was later called a Sankey diagram, although Matthew Henry Phineas Riall Sankey used this visualisation 30 years later and only for thematic energy flow.

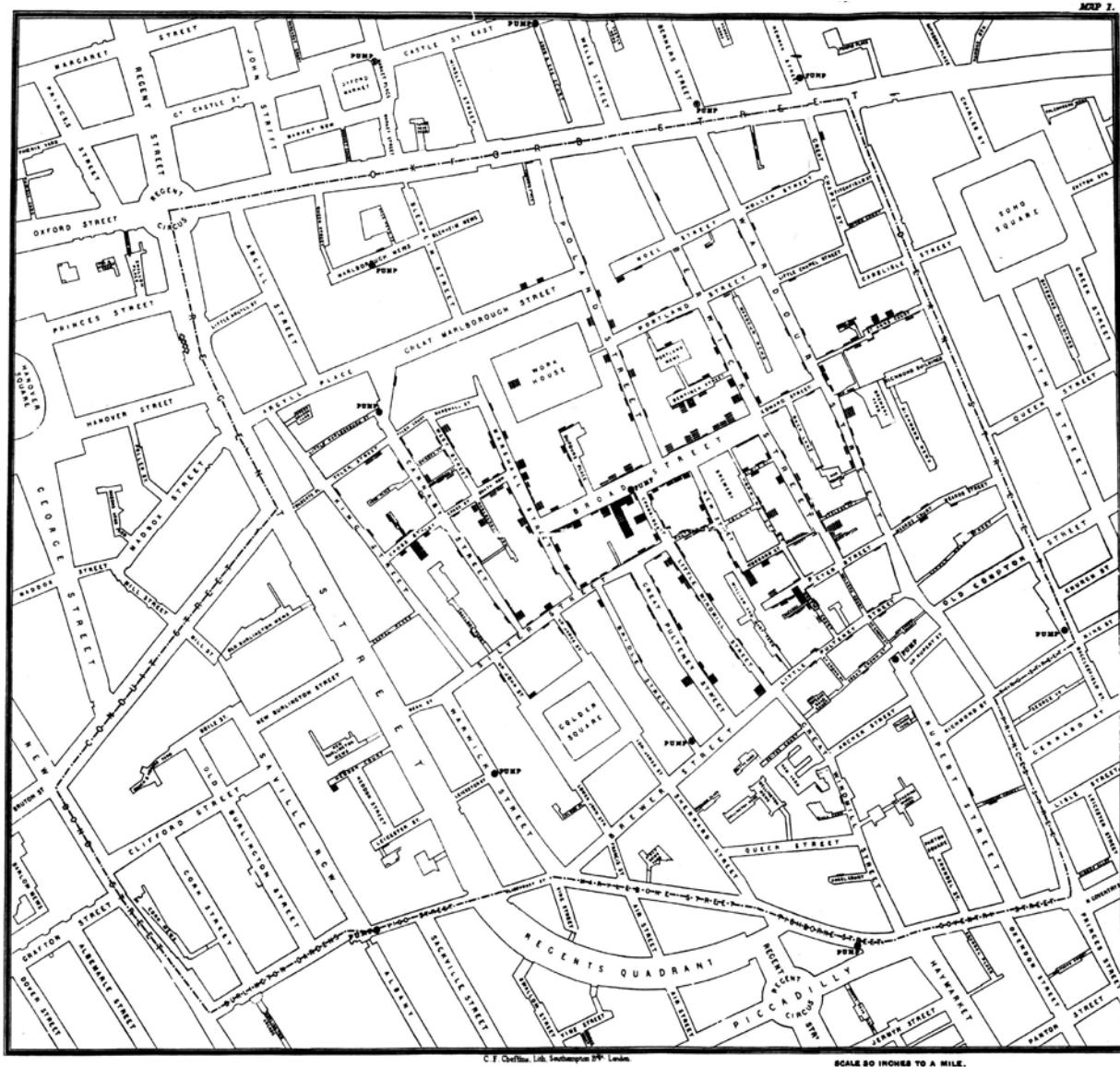
From Evidence to Stories: Thinking Like a Data Journalist



John Snow's data journalism: the cholera map that changed the world

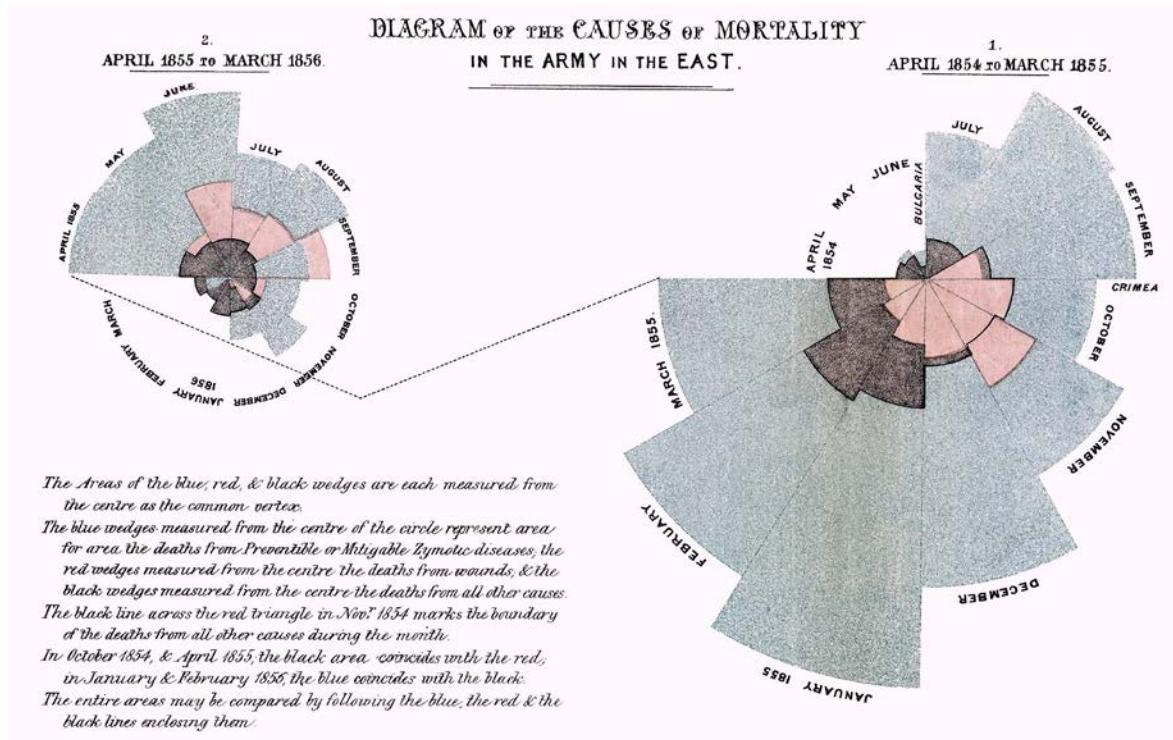
In the world of the 1850s, cholera was believed to be spread by miasma in the air, germs were not yet understood and the sudden and serious outbreak of cholera in London's Soho was a mystery. So John Snow did something data journalists often do now: he mapped the cases. The map essentially represented each death as a bar, and you can see them in the smaller image above. It turned out that the water for the pump was polluted by sewage from a nearby cesspit where a baby's nappy contaminated with cholera had been dumped.

⁶ https://en.wikipedia.org/wiki/Charles_Joseph_Minard#/media/File:Minard.png

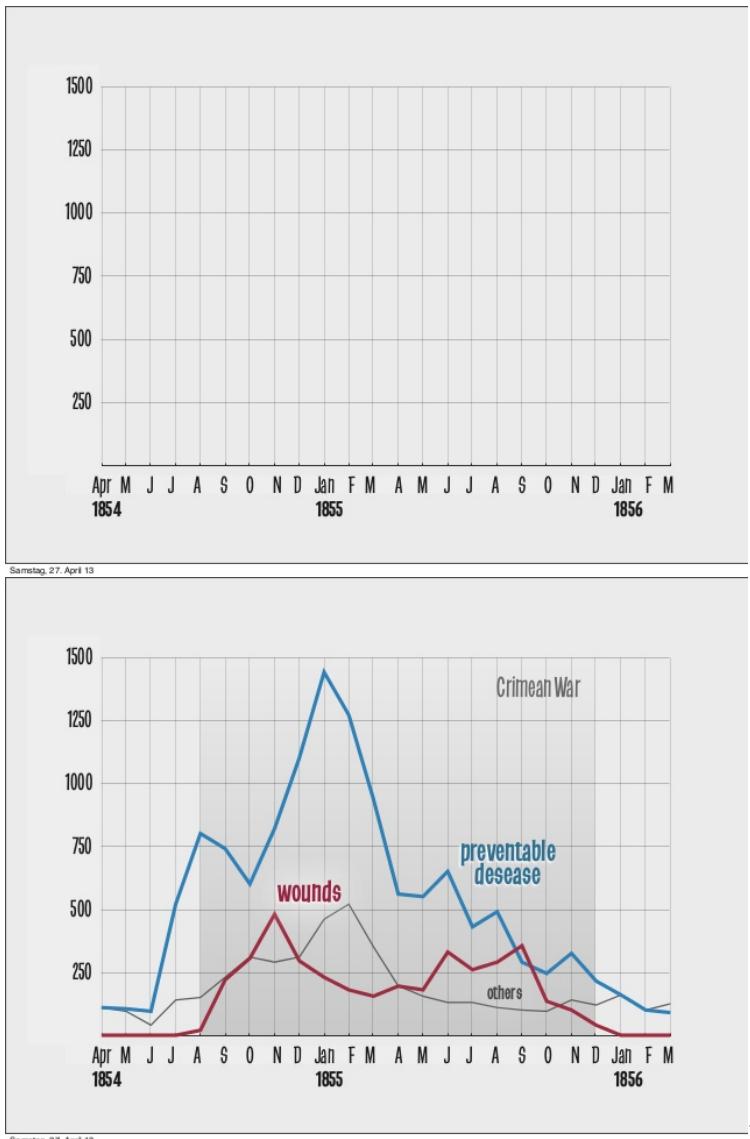


Florence Nightingale and the rise of data-driven policy

Florence Nightingale was a 19th century English social reformer and statistician, and the founder of modern nursing. She diagramed the health of the British army in India using an early type of pie chart called a polar chart. She demonstrated that bad drainage, contaminated water, overcrowding and poor ventilation were causing the high death rate. She concluded that the health of the army and the people of India had to go hand in hand and so campaigned to improve the sanitary conditions of the country as a whole.



Contemporary version of this chart:



7

Exercise: Simplifying Numbers

In January of 1855, how many more soldiers died of preventable diseases? And of other causes?
 Summarize in one sentence:

⁷ <http://www.slideshare.net/vis4/making-data-visualizations-a-survival-guide>

Consider these statements and simplify.

Statements

- The Adjusted net enrolment rate, primary, both sexes (%) in Pakistan is 72.97920227 and in India it is 97.73886871.

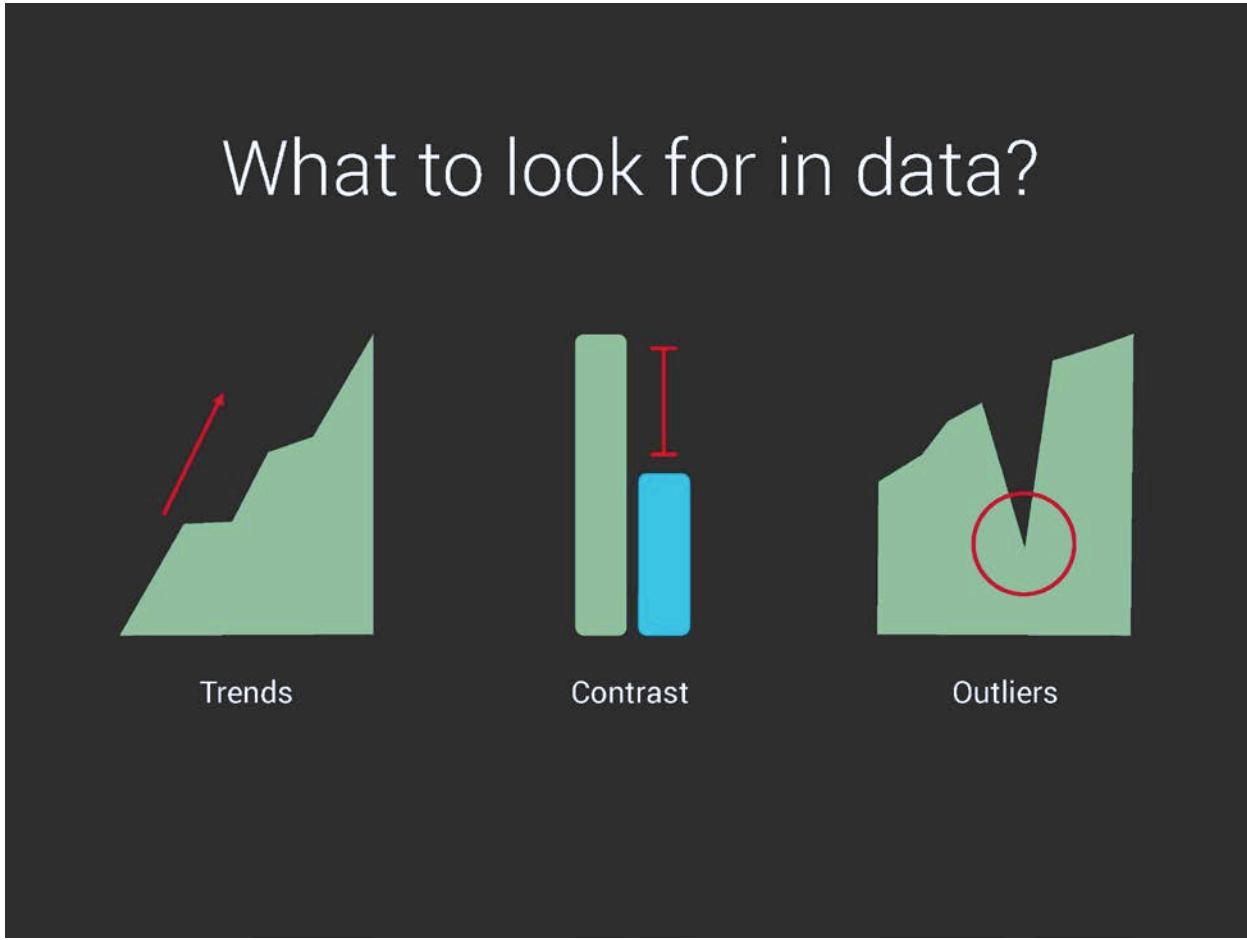
-

- The Adjusted net enrolment rate, lower secondary, both sexes (%) in Pakistan is 52.43399811 and in India it is 74.61496735.

- The Adult literacy rate, population 15+ years, both sexes (%) in Pakistan is 56.44031143 and in India is 72.22530365

Lesson 2: Matching Data and Graph Types

In this lesson, we will examine different data types, determine the message behind the data and match the data to an appropriate graphical form.

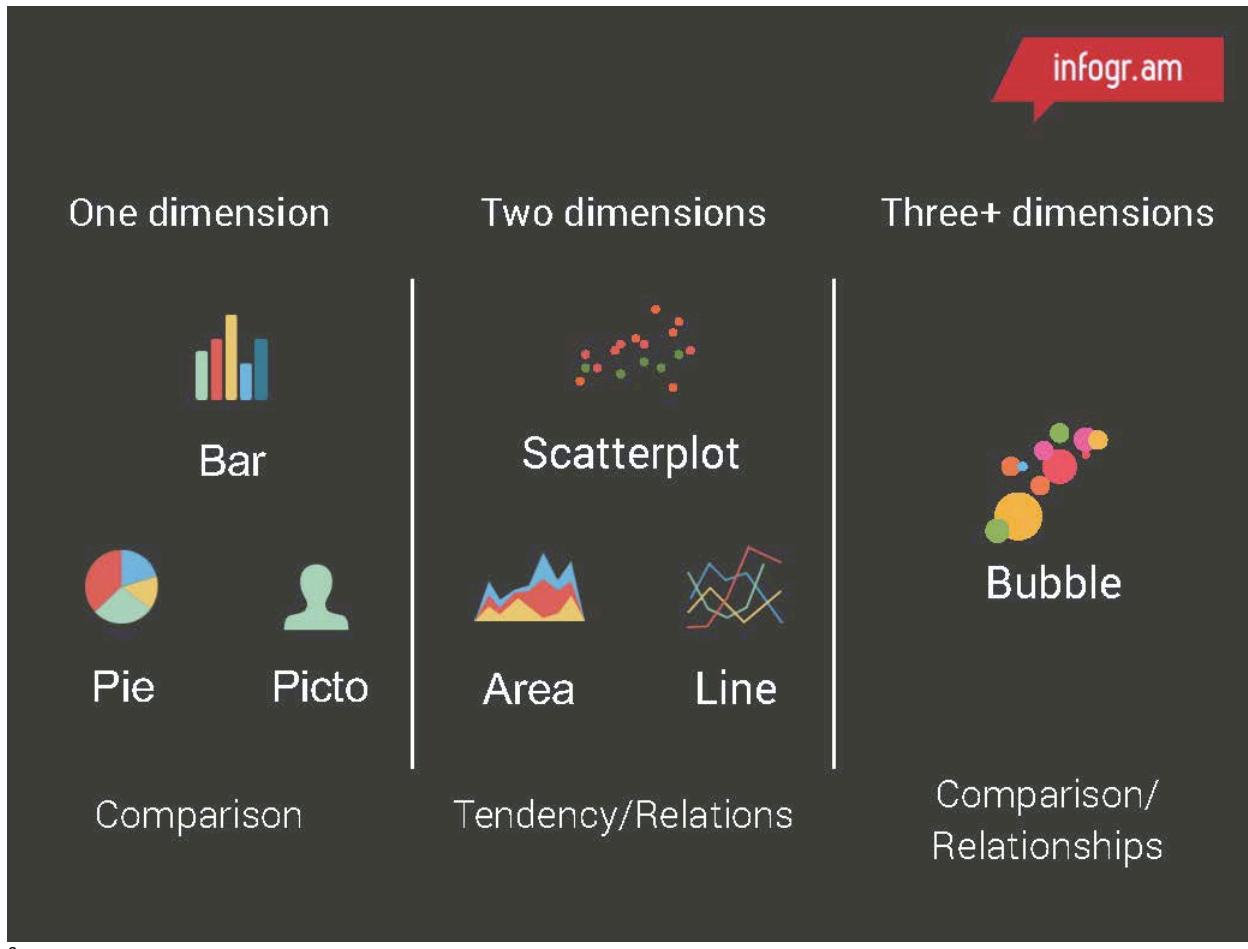


⁸ <https://tutorials.infogr.am/>

- **Bar chart:** Compare data across categories
- **Line graph:** Compare data across time
- **Scatter plot:** Compare interactions between two variables
- **Maps:** Compare data across geographical units
- **Pictogram:** Compare aspects of data through human depictions

One of the first steps towards developing a public interest story is learning how to interpret and question data – this will help you to define the ‘angle’ for your story. Before we begin working with datasets, let us begin our data literacy journey with learning how to interpret data visualizations.

Importantly, data visualizations help you to compare or connect two or more things, which are useful cues to find angles for data-driven stories. For instance, maps can help compare you compare administrative units (say the population density of two countries); while line graph can help compare time periods (say the population growth over two decades).

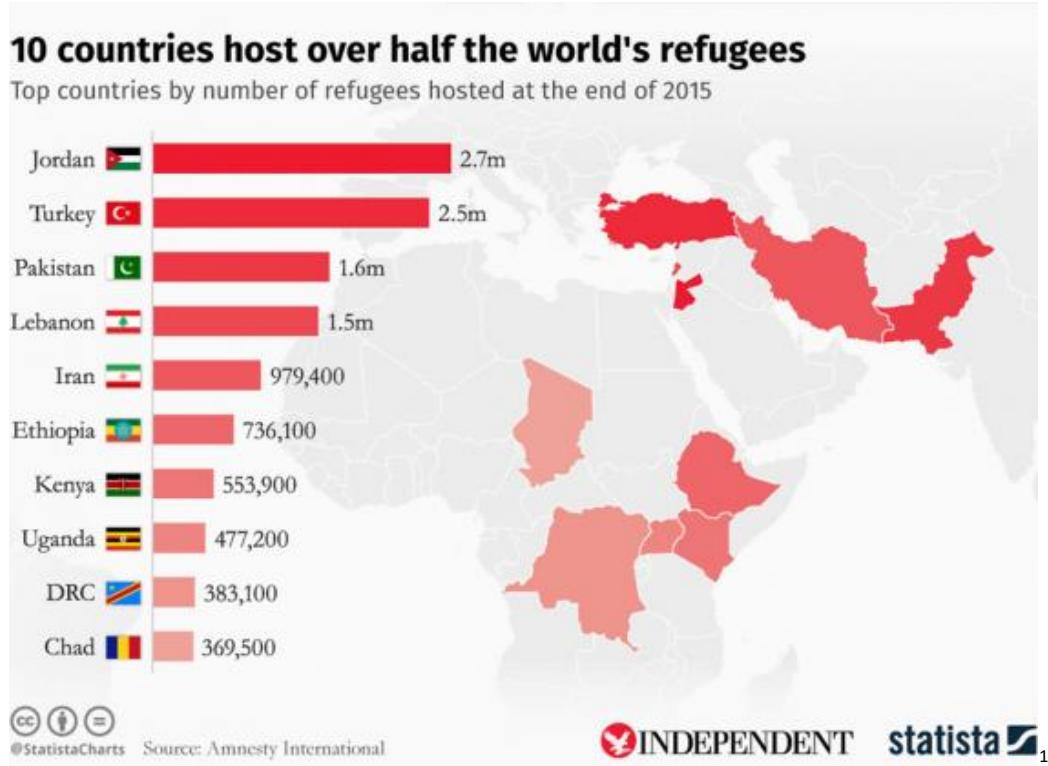


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Let's look at the following types of commonly-used data visualizations: bar chart, line graph, pie charts, maps, and pictograms.

⁹ <https://tutorials.infogr.am/>

Interpreting Data Visualizations: Bar Chart



Bar charts are used to compare values across categories. In this example¹¹, total number of refugees is compared across countries of their origin.

Questions:

- Which countries host the most refugees?
- How many times more refugees are in Pakistan than in Kenya?
- What tells you that you can verify the data in this chart?

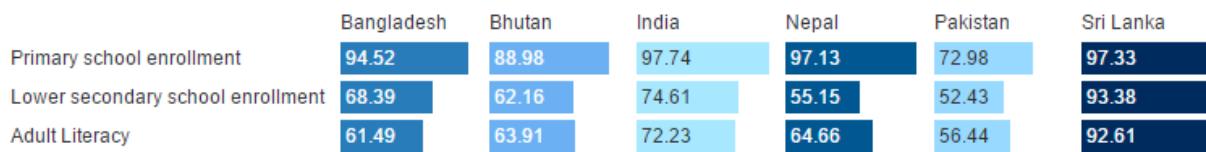
Which bar chart is better?

¹⁰ <http://www.independent.co.uk/news/uk/home-news/refugee-crisis-amnesty-international-10-countries-host-more-half-uk-needs-to-do-more-a7344171.html>

| Country | Primary school enrollment | Lower secondary school enrollment | Adult Literacy |
|------------|---------------------------|-----------------------------------|----------------|
| Bangladesh | 94.51786041 | 68.38513947 | 61.49383163 |
| Bhutan | 88.98287201 | 62.16461945 | 63.90681839 |
| India | 97.73886871 | 74.61496735 | 72.22530365 |
| Nepal | 97.12654877 | 55.15013123 | 64.66364288 |
| Pakistan | 72.97920227 | 52.43399811 | 56.44031143 |
| Sri Lanka | 97.33377838 | 93.37875366 | 92.61416626 |

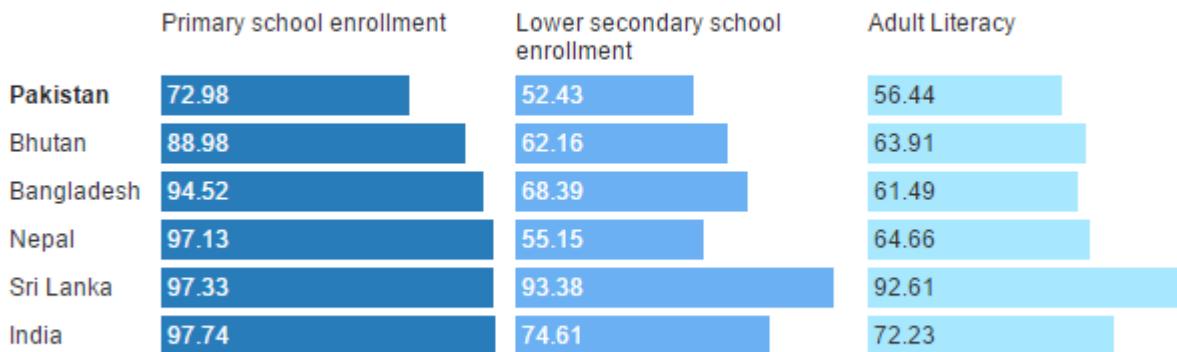
A.

Regional education trends

Source: [World Bank Get the data](#)Created with [Datawrapper](#)

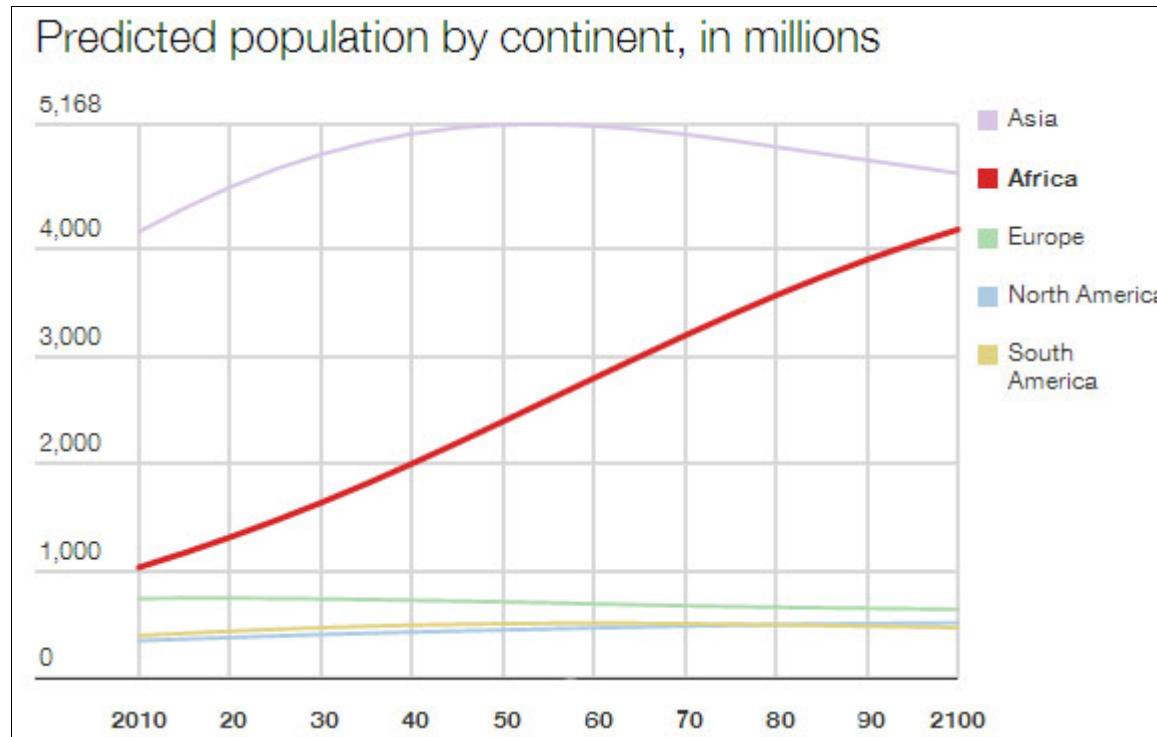
B.

Pakistan lags in school enrollment and literacy in region

Source: [World Bank Get the data](#)Created with [Datawrapper](#)

B.

Interpreting Data Visualizations: Line Graph



Line graphs can be used to compare data over time. In this example¹², predicted population of continents is compared across ten decades.

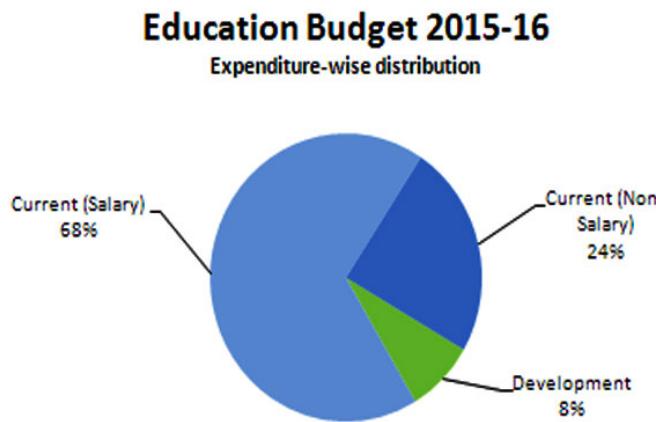
Questions:

- Which continent has the biggest population now?
- Which continent will see the biggest population growth?
- What makes you notice Africa right away?

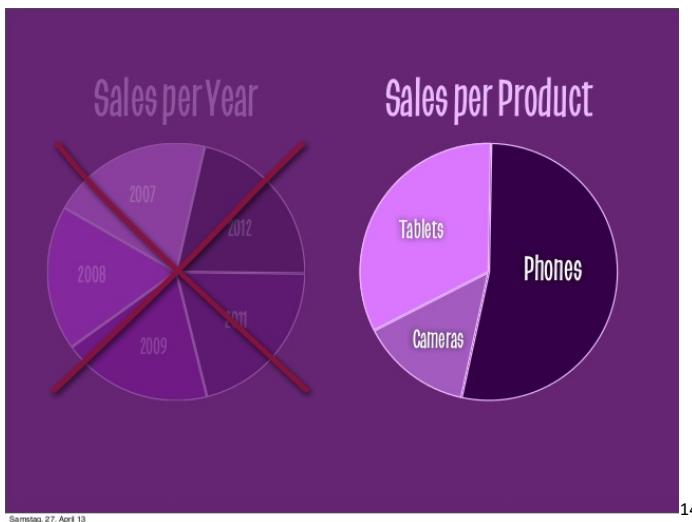
¹² <http://stopwar.org.uk/news/war-drives-global-refugee-figure-past-50m-for-first-time-since-second-world-war>

Interpreting Data Visualizations: Pie Charts

Pie charts are a popular visual form to show parts of a whole, for example, causes of death among young adults. Pie charts always have to add up to 100% (not the top two causes, all the causes). Pie charts should not have more than five slices because if there are more, the sizes are difficult to compare. They should also be different sizes.



13



14

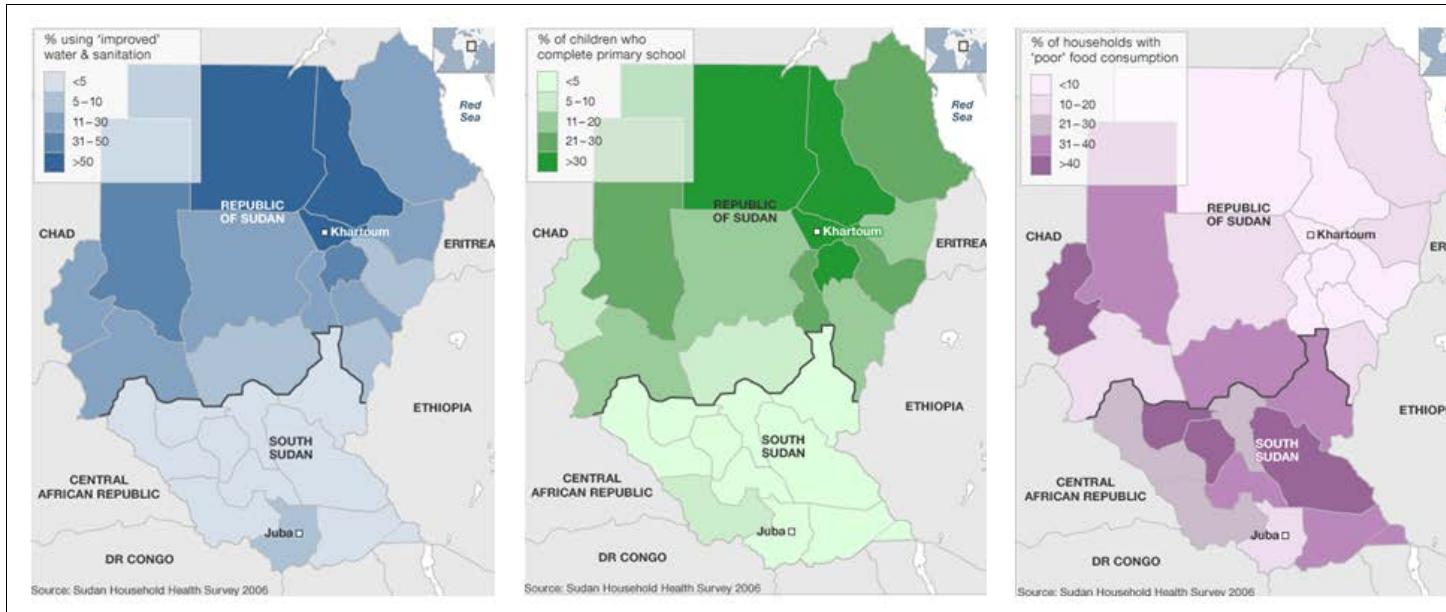
Questions:

- What does the chart on the right measure?
- Which product has had the highest sales?
- What is incorrect about the first chart?

¹³ <http://aaj.tv/2015/06/dissecting-education-budget-in-sindh/>

¹⁴ <http://de.slideshare.net/vis4/making-data-visualizations-a-survival-guide>

Interpreting Data Visualizations: Map



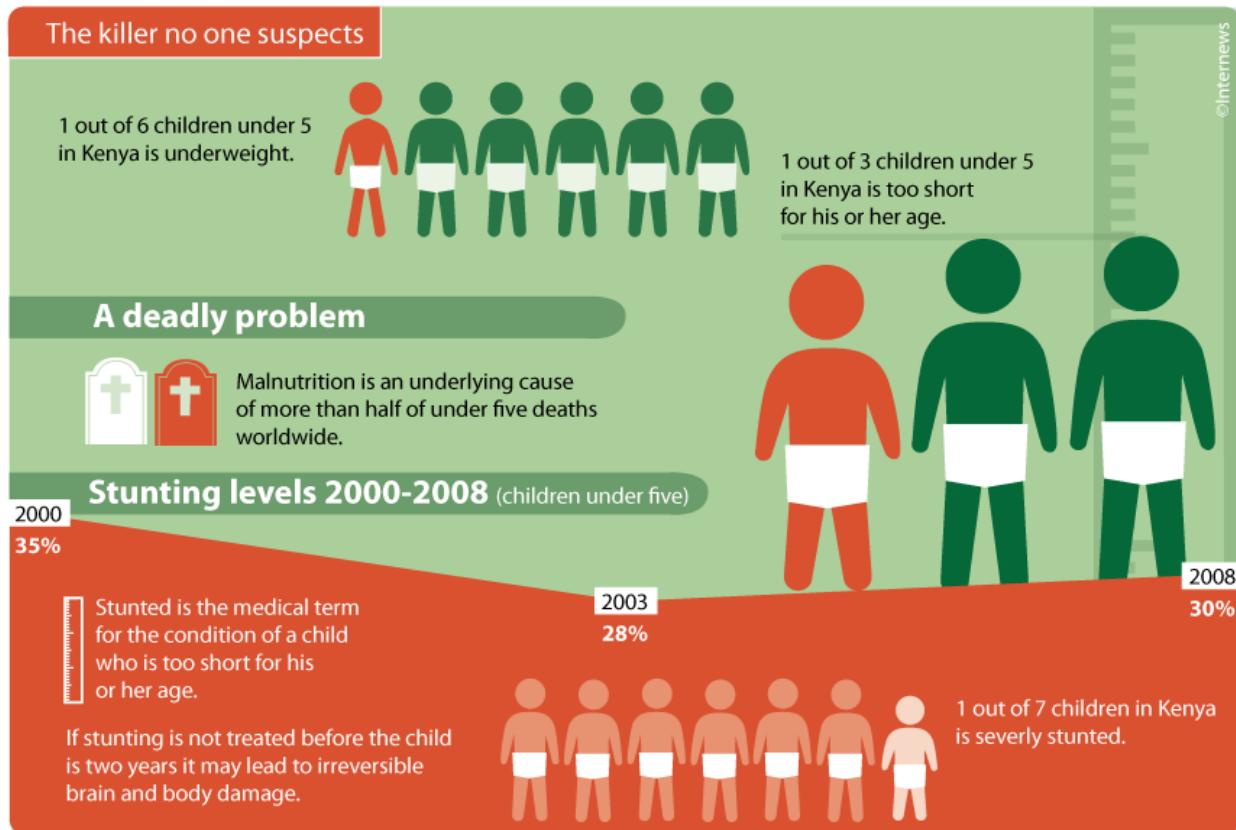
Maps are a familiar type of data visualization – which are important for public interest stories as they let you compare geographies. There are various types of map visualizations; this example shows the visualization type called “Choropleth”. These maps use differences in shades or patterns inside defined areas in a map to indicate the average value of a variable – for instance population density or per-capita income. This example¹⁵ shows three maps that display indicators for Sudan related to water and sanitation, schooling, and food consumption.

Questions:

- What do these different maps tell you?
- Do you see any trends?

¹⁵ <http://www.bbc.co.uk/news/world-africa-17126340>

Interpreting Data Visualizations: Pictogram



Pictograms are data visualizations that present information through pictorial resemblances to humans or other objects. This example highlights the impact of malnutrition on children's health in Kenya.

Questions:

- How many children are too short for their age in Kenya?
- How many children die of causes related to malnutrition?

Exercise: Matching Chart and Data Types

Choose a Chart!



Prevalence of unemployed people in different age groups.

Prevalence of unemployment.

Percentage of female candidates in elections from 1990-2014

Number of cases of tuberculosis in different provinces.

| | | | | |
|--|--|--|--|--|
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| | | | | |
| | | | | |

Indicate with an X in the box which chart type you would use for each of the listed data types.

Lesson 3: Design and Color Basics

Basic Design Concepts



- **Simplicity:** Choose a maximum of three colors and fonts and stick with them consistently
- **Hierarchy:** All visualizations need a focal point to guide them through story
- **Brevity:** Keep text short and to the point
- **Creativity:** Incorporate playful design that related to the topic
- **Clarity:** Label clearly, specify units, use a legend when necessary

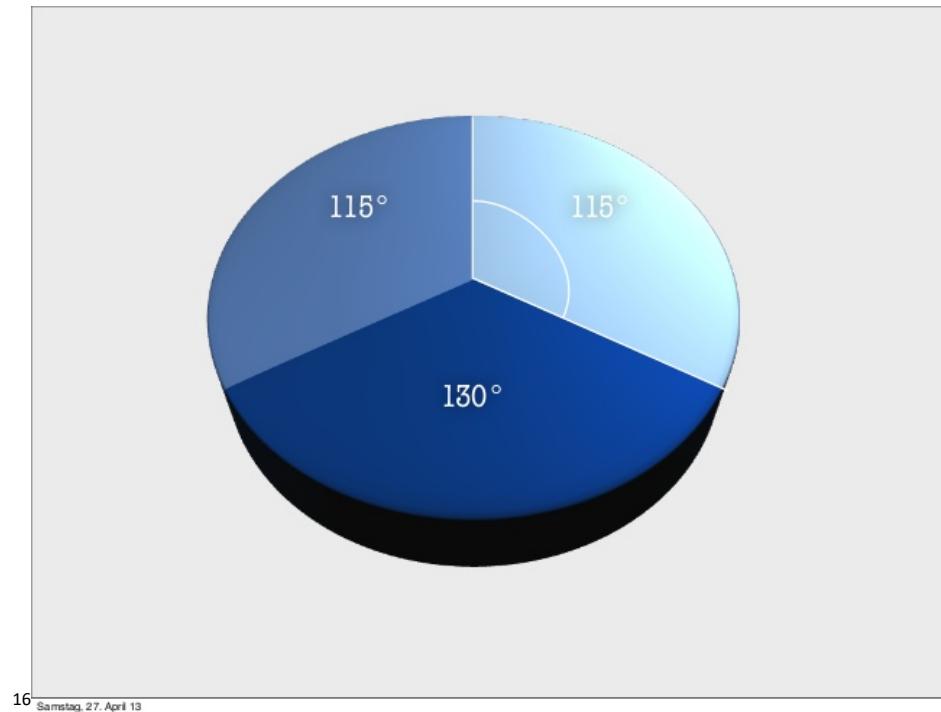
Five Golden Rules

1. No 3D Effects

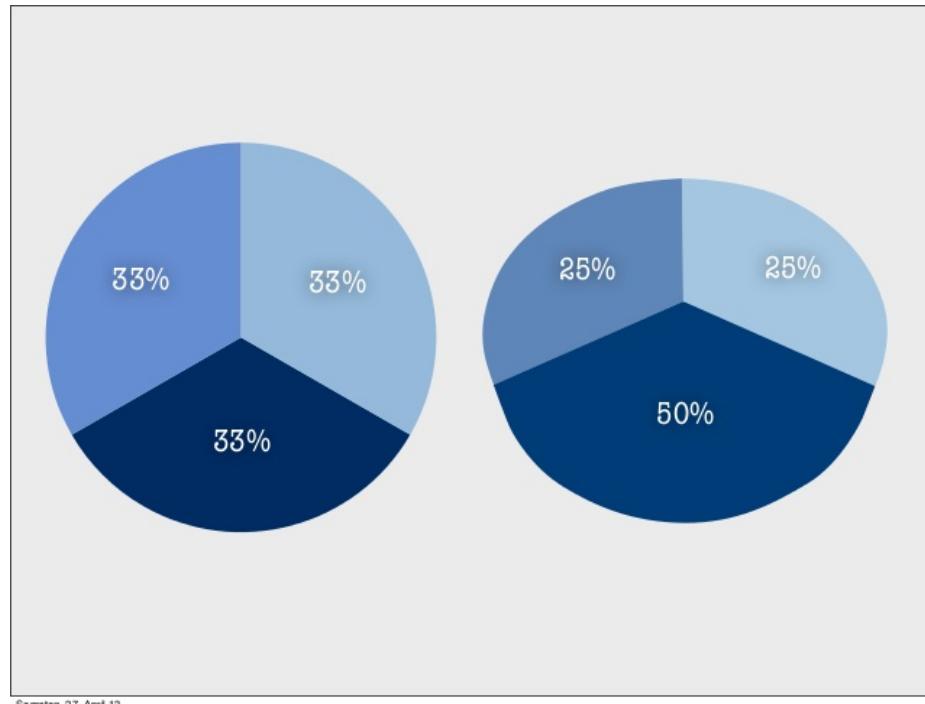
Three dimensional graphics distort the data. Whichever part of the data is closest to the reader is distorted to look larger. In the example below, see how a pie chart that is evenly divided into thirds, when 3-D effect is added, distorts the data to look like the slice closest to the reader is larger.



Samstag, 27. April 13



16 Samstag, 27. April 13

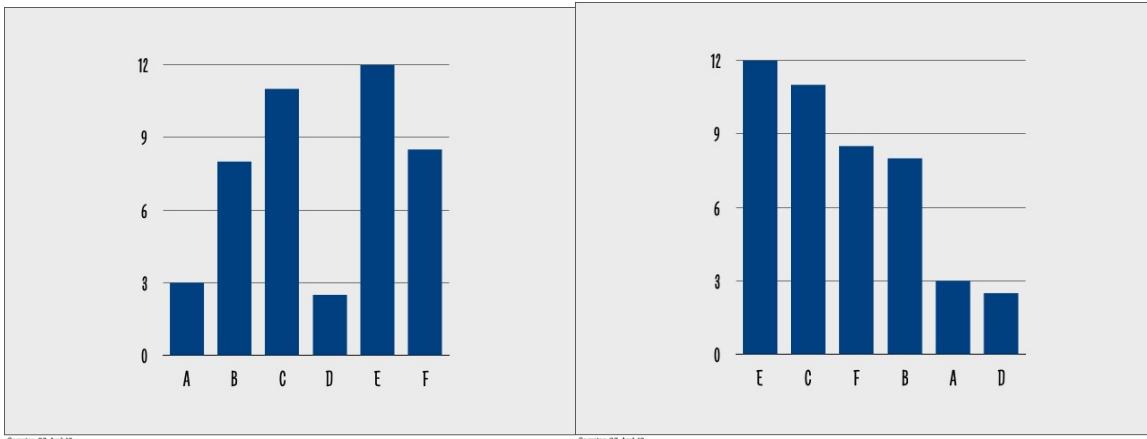


Samstag, 27. April 13

2. Sort data from largest to smallest and start your y axis at zero.

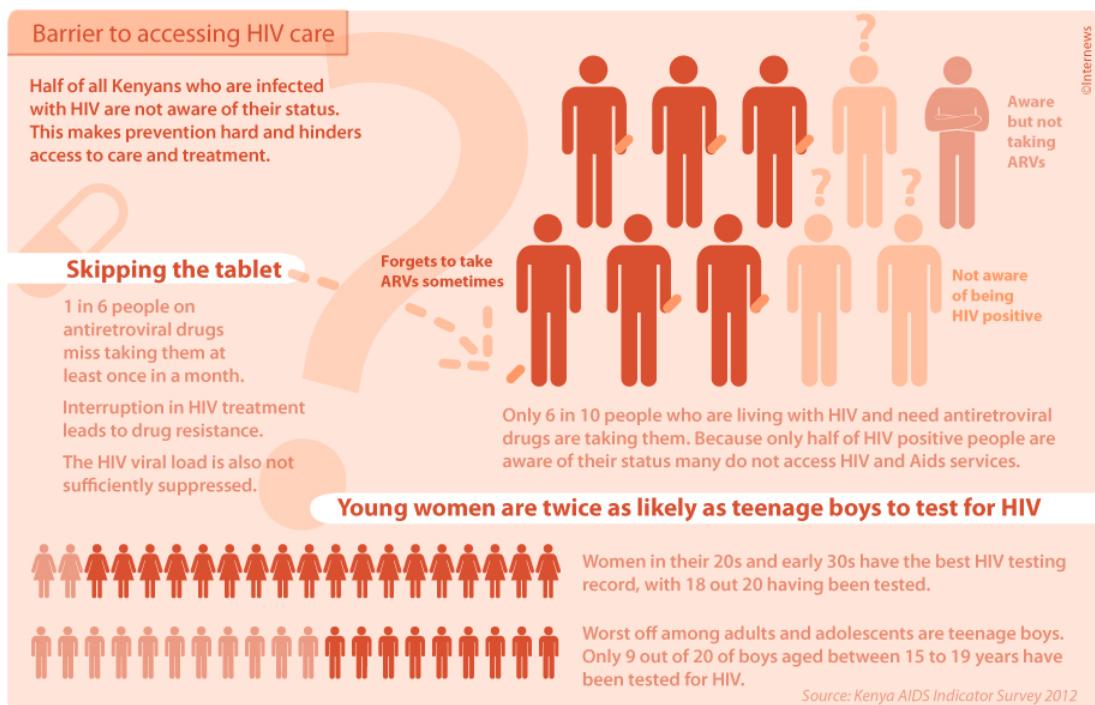
¹⁶ <http://de.slideshare.net/vis4/making-data-visualizations-a-survival-guide>

You want your audience to easily be able to make a visual comparison across categories. To make this easier, sorting your data will order the bars in a bar graph or slices in a pie chart from greatest to least, making the visual comparison much easier.



3. Choose maximum two to three colors or shades of the same color for your graphic.
Stay away from rainbow colors.

Simple colors in the same color range and a consistent font make your visualizations look more professional and credible. Your headlines, labels and text should be clear and explain the visualization to the audience.



4. Your headline should tell the story!

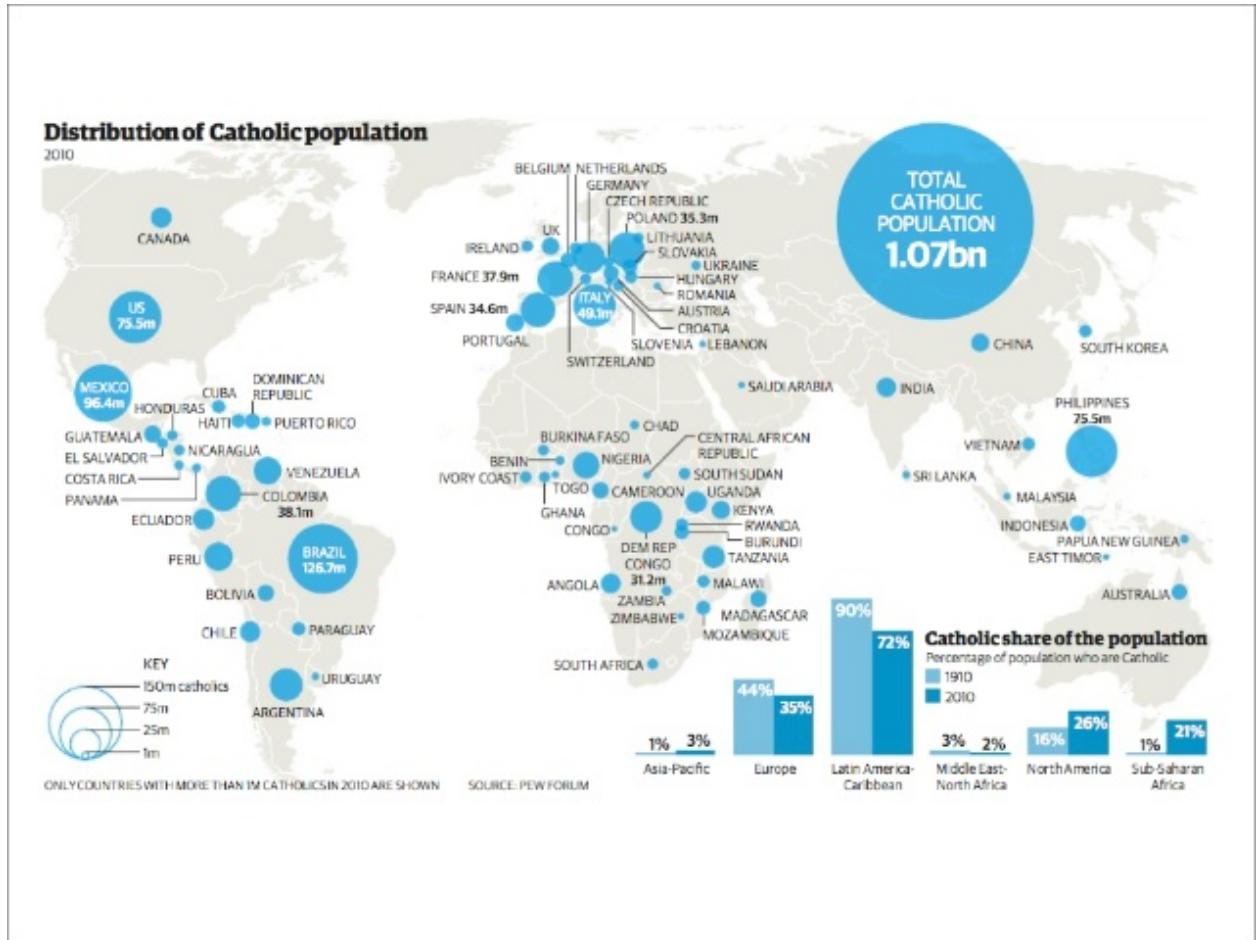
Before you create a data visualization, you should know what the message is. We create drafts in Excel to ensure that we have a clear headline and message before we start. It is important to be able to tell the audience where the data comes from but it's even more important to tell them through a strong headline, what the message of the story is.



Samstag, 27. April 13

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¹⁷ <http://de.slideshare.net/vis4/making-data-visualizations-a-survival-guide>



Samstag, 27. April 13

18

¹⁸ <http://www.theguardian.com/world/interactive/2013/mar/05/world-map-catholic-population>



Samstag, 27. April 13

World Map of Catholic Population

The Catholic Church Has Shifted Southwards over the Past Century

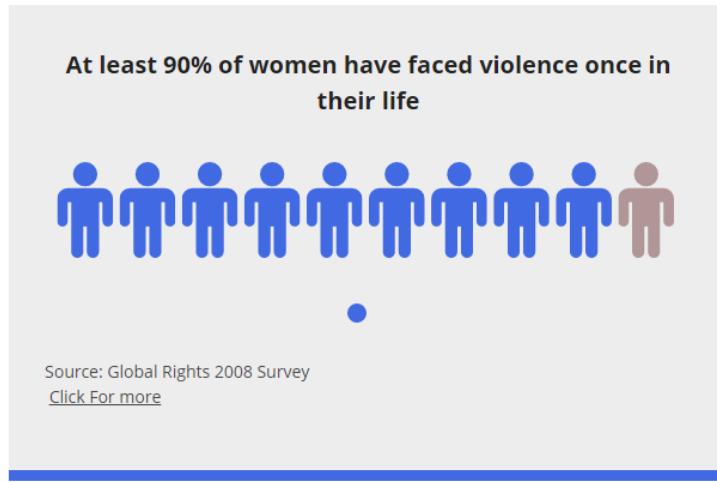
Samstag, 27. April 13

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Examples:

Bad headline: **Rates of Domestic Violence in Afghanistan**

Good Headline:

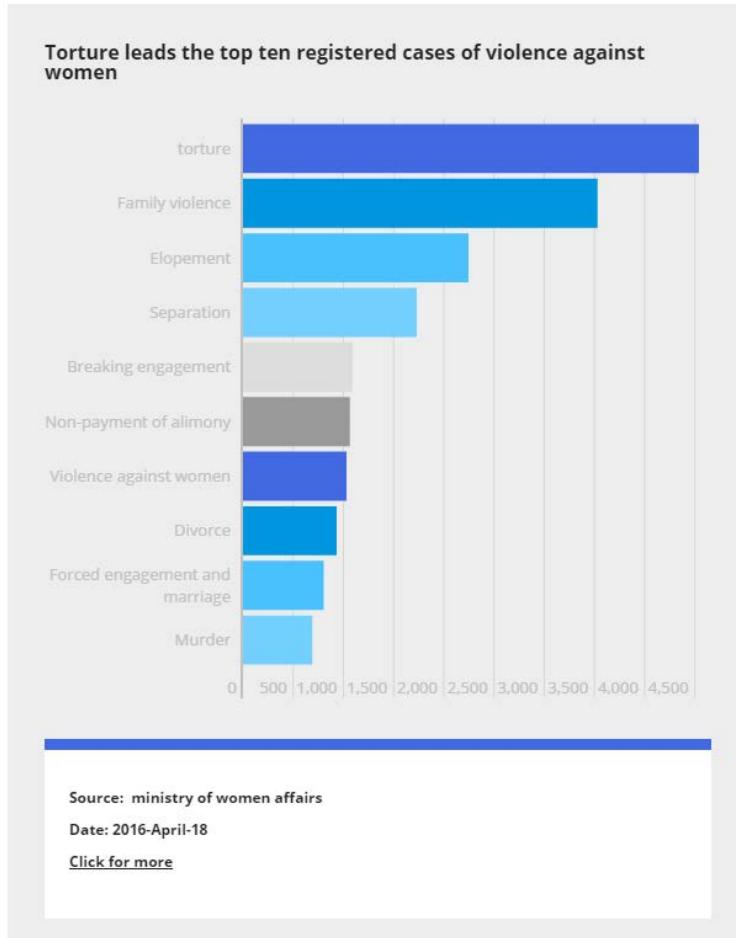


20

¹⁹ <http://de.slideshare.net/vis4/making-data-visualizations-a-survival-guide>

Bad Headline: **Top 10 Types of Registered Domestic Violence Cases**

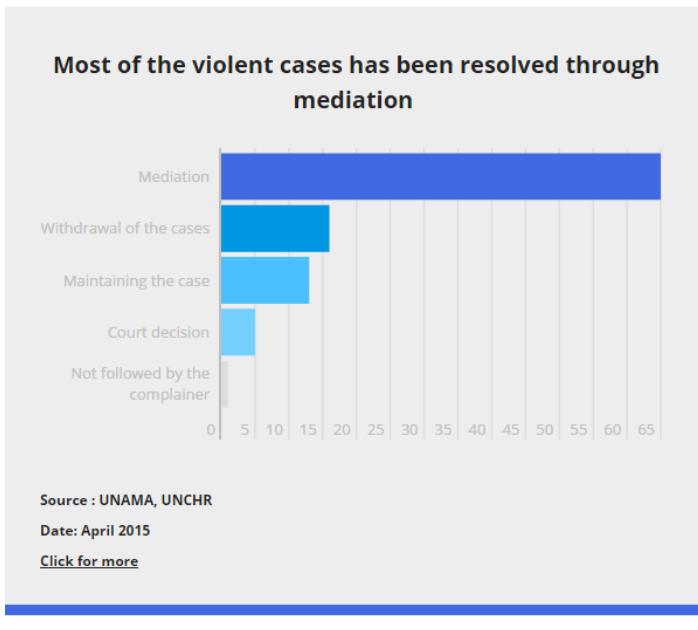
Good Headline:



Bad Headline: **Resolution Methods for Domestic Violence in Afghanistan**

Good Headline:

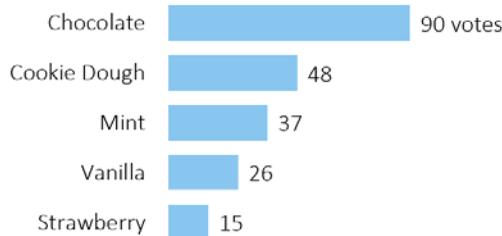
²⁰ <http://www.pajhwok.com/en/2016/05/11/cases-violence-against-women-mediation-best-option>



Share

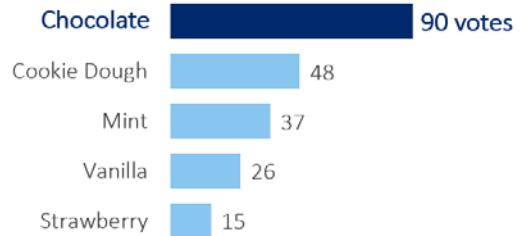
Choose the best headline:

Ice cream flavor preferences based on 2014 survey of elementary school students (n=216)



or

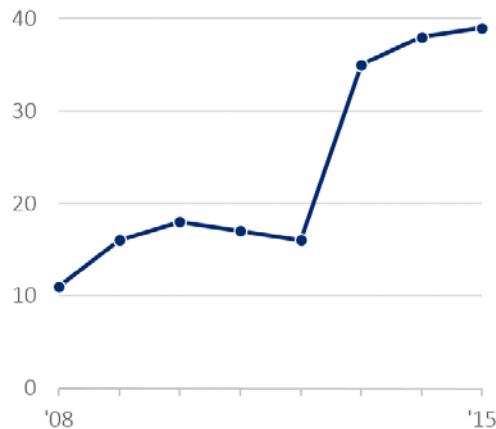
Chocolate was most popular flavor among elementary students surveyed



Source: 2014 survey of elementary school students (n=216)

²¹ <http://annkemery.com/four-storytelling-strategies/>

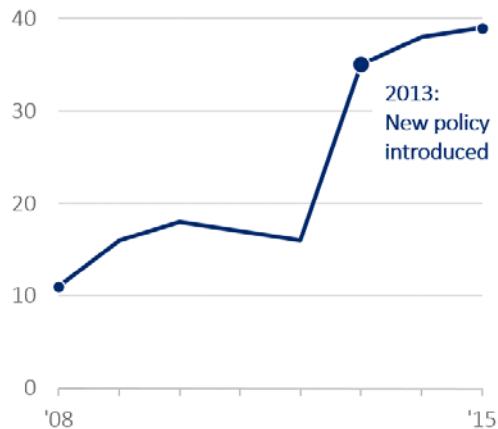
Number of studies funded each year



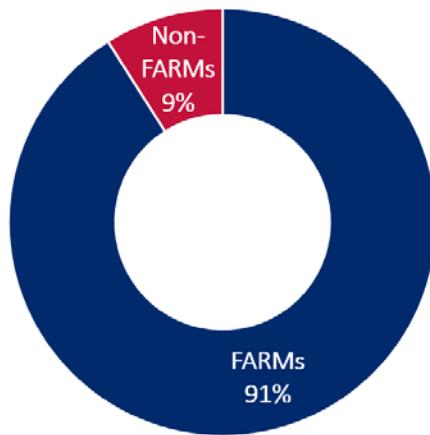
or

We're funding more studies each year

Beginning in 2013, we set aside new funding to measure the effectiveness of our initiatives – and we evaluated 39 of our programs in 2015 alone.



Percentage of students who qualify for Free and Reduced Meals (FARMs)

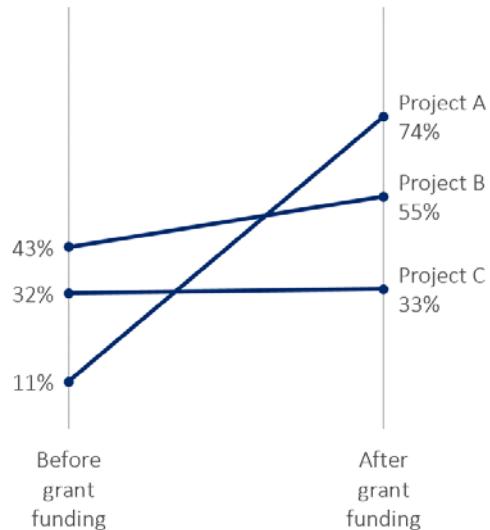


or

91% of students qualify for Free and Reduced Meals

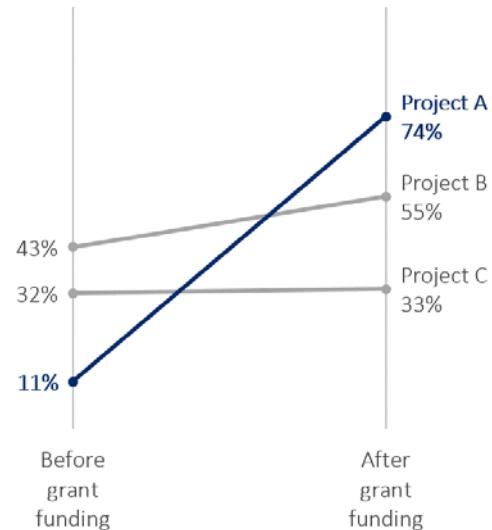


Project results before and after implementation of grant

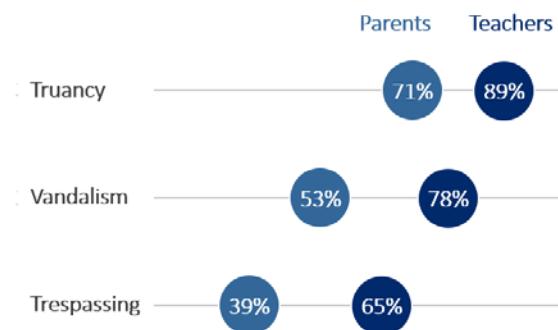


or

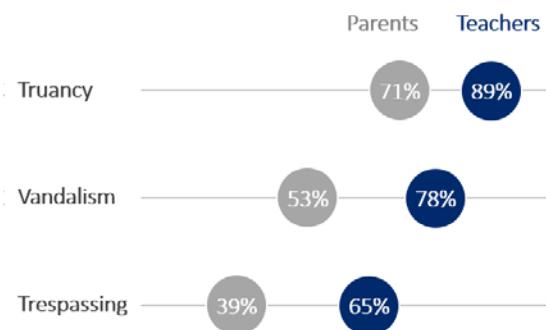
Project A had the greatest gains after the four-year grant funding



2014-15 school safety survey results
% of parents and teachers indicating that each factor is a “pressing need” that should be addressed

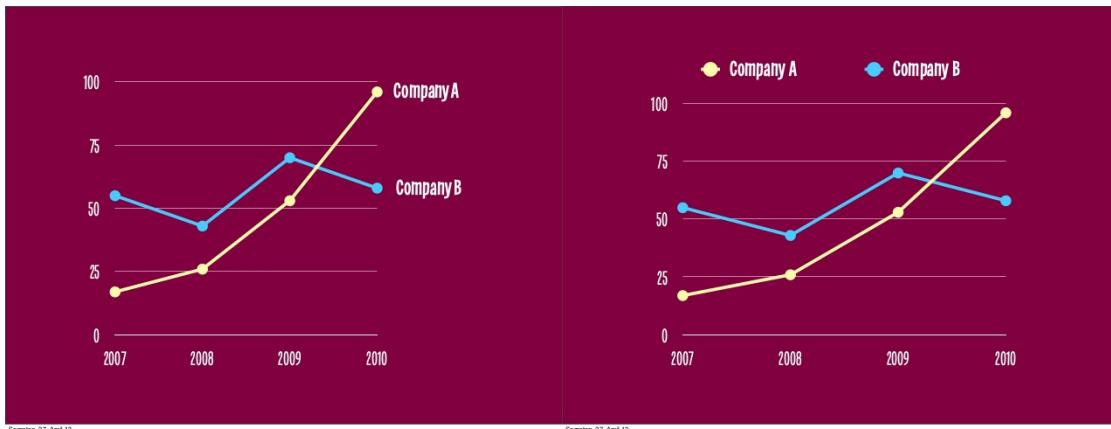


2014-15 school safety survey results
Teachers were more likely than parents to indicate that truancy, vandalism, and trespassing are “pressing needs” that should be addressed.



5. Use Direct Labeling

Having to jump back and forth between a key and a graph is difficult for readers. Whenever possible, use direct labeling on visualizations.



Exercise: Writing Headlines

Redesign

List five changes you would make to:

<http://www.datastories.pk/departed-too-soon-an-insight-into-under-five-child-mortality-in-pakistan/>

1.

2.

3.

4.

5.

Exercise: Writing Headlines

What have the Millennium Development Goals (MDGs) achieved? The following set of visualizations explores the progress that has been made towards achieving the MDGs, which had a target date of 2015. From this broad overview of data²², we can identify the most interesting and relevant findings to our audience and write headlines that draw attention to progress, or the lack thereof.

Millennium Development Goals

Using the skills learned in the last lesson, write a one-sentence headline for each of the following MDG graphs.

²² http://www.theguardian.com/global-development/datablog/2015/jul/06/what-millennium-development-goals-achieved-mdgs?CMP=share_btn_tw

1. To eradicate extreme poverty and hunger

MDG 1

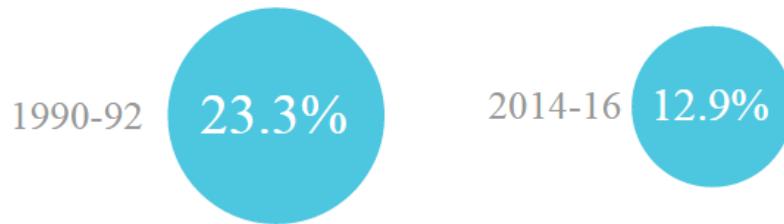
People living on less than \$1.25 a day



Global number of extreme poor (million)

| | |
|------|-------|
| 1990 | 1,926 |
| 1999 | 1,751 |
| 2015 | 836 |

Proportion of undernourished people



One sentence headline:

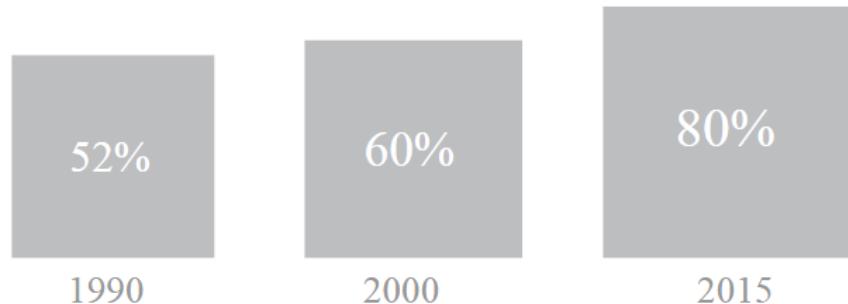
2. To achieve universal primary education

MDG 2

Global out-of-school children of primary school age



Primary school net enrolment rate
in sub-Saharan Africa

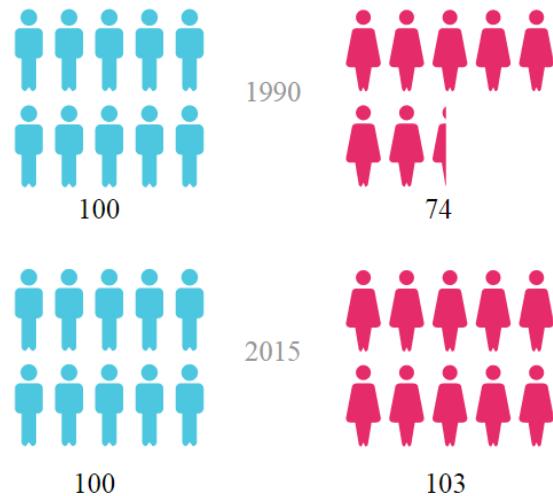


One sentence headline:

3. To promote gender equality

MDG 3

Primary school enrolment ratio in southern Asia



90% of countries have more women in parliament since 1995

One sentence headline:

4. To reduce child mortality

MDG 4

Global number of deaths of children under five
(million)

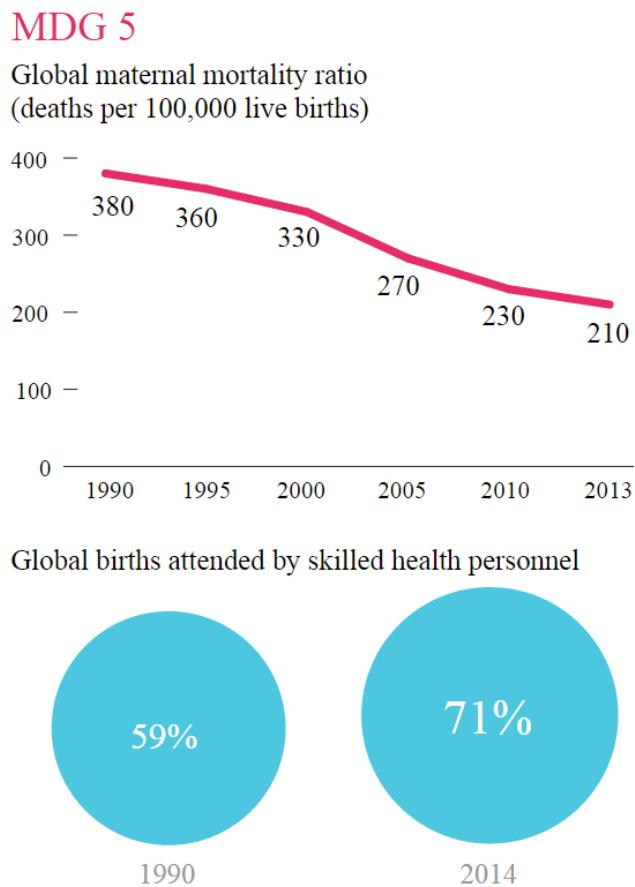


Global measles vaccine coverage



One sentence headline:

5. To improve maternal health

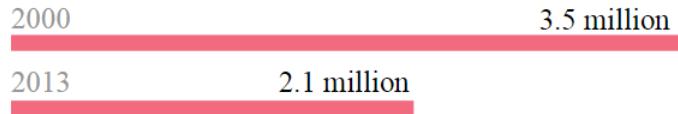


One sentence headline:

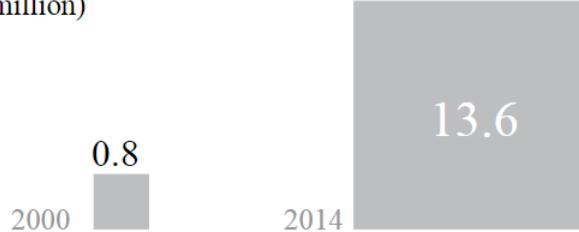
6. To combat HIV/AIDS, malaria, and other diseases

MDG 6

New HIV infections



Global antiretroviral therapy treatment
(million)



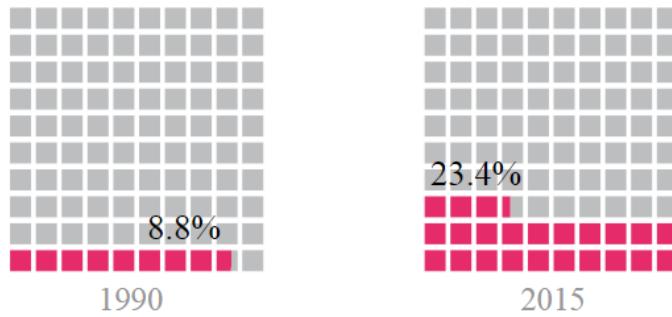
One sentence headline:

7. To ensure environmental sustainability**MDG 7**

Access to piped drinking water since 1990
(billion)



Terrestrial and marine protected areas in Latin America and the Caribbean



One sentence headline:

8. To develop a global partnership for development

MDG 8

Official development assistance



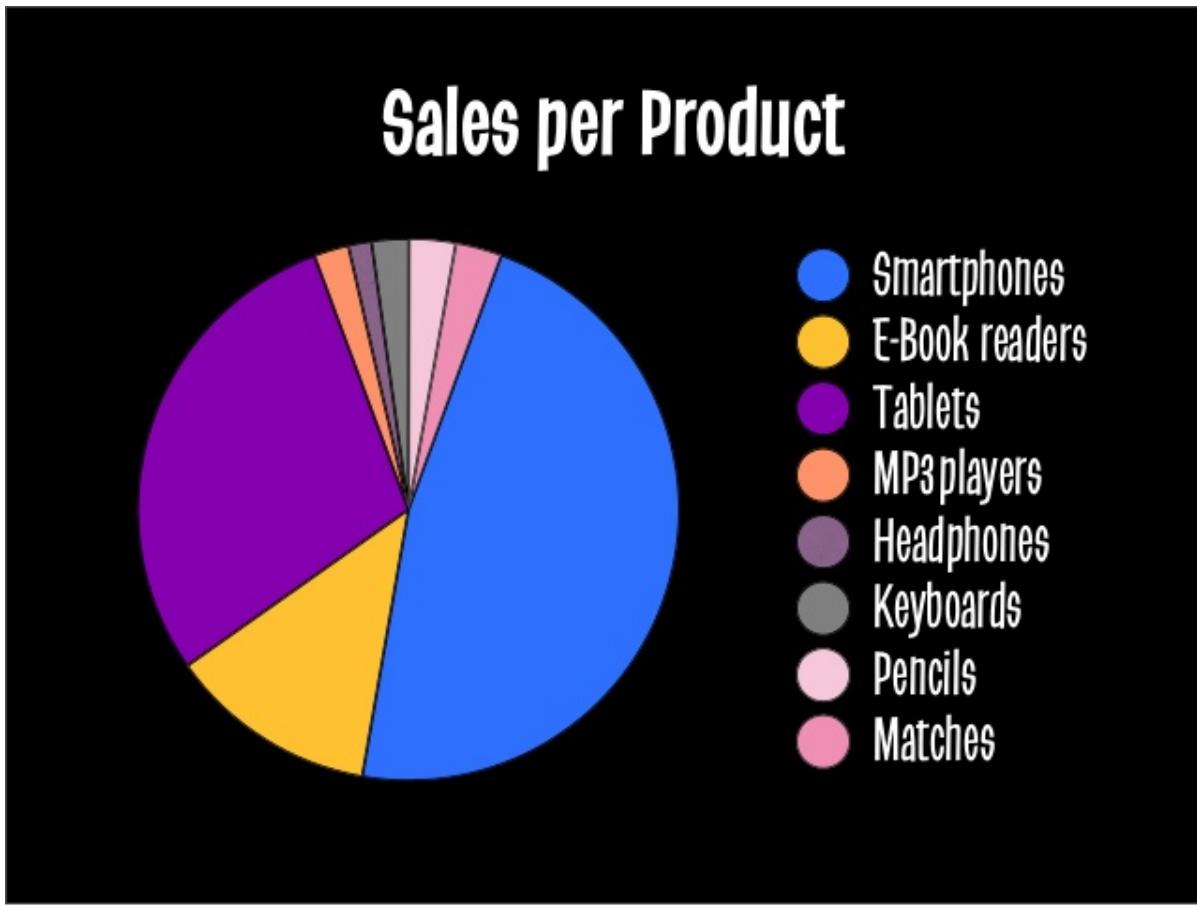
Global internet penetration



One sentence headline:

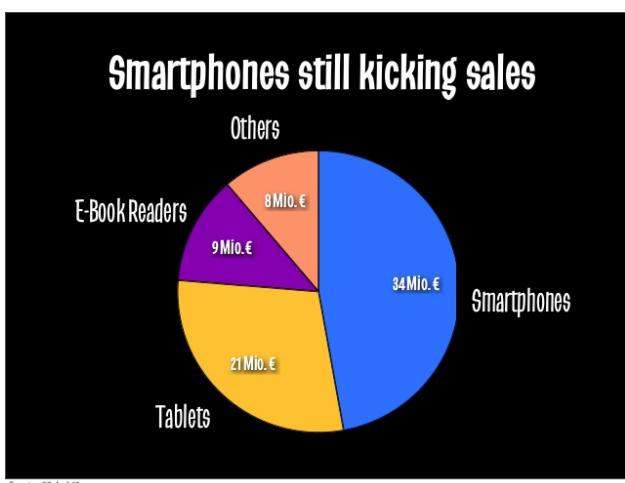
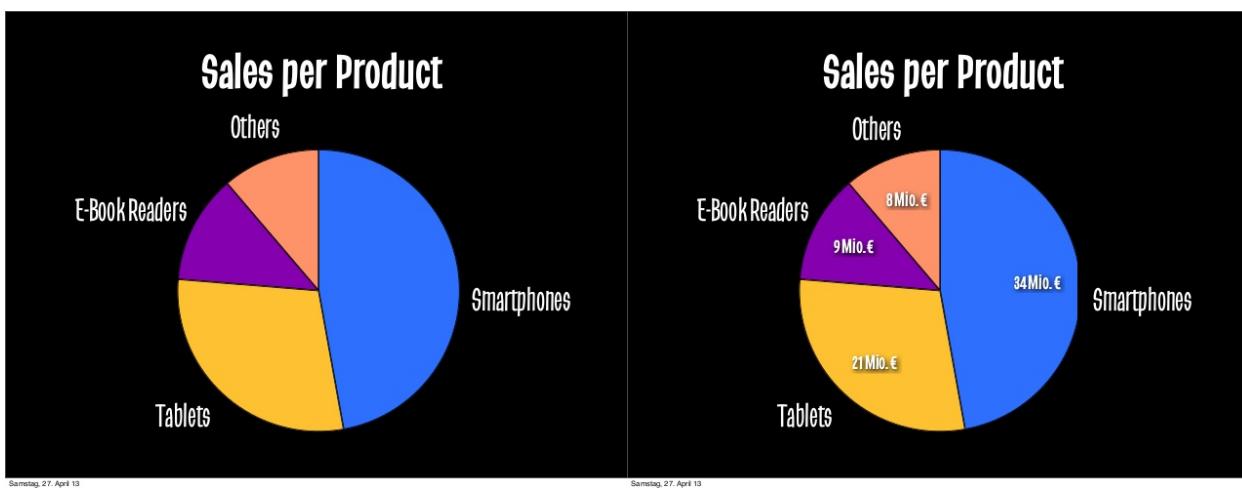
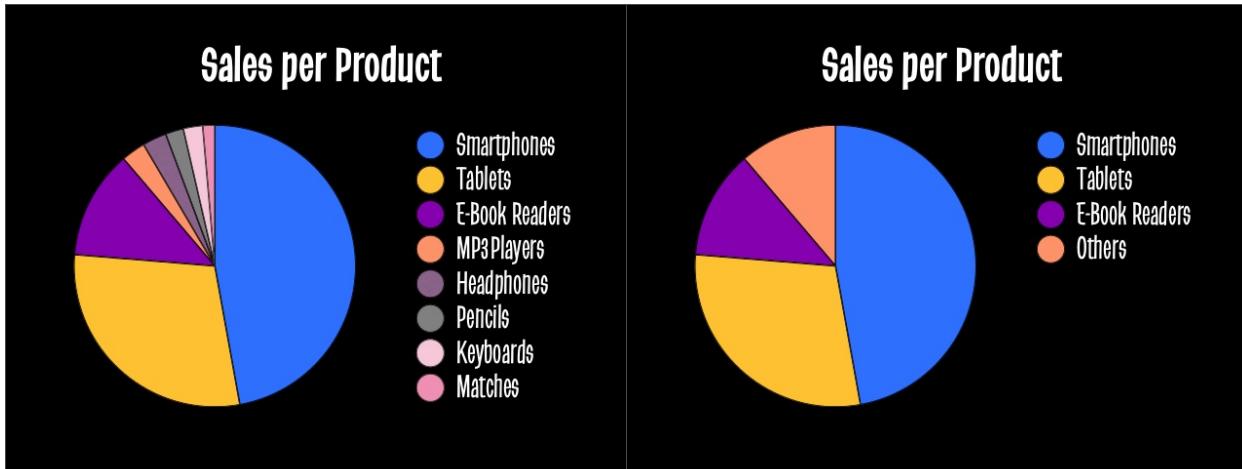
Exercise: Redesign a Data Visualization

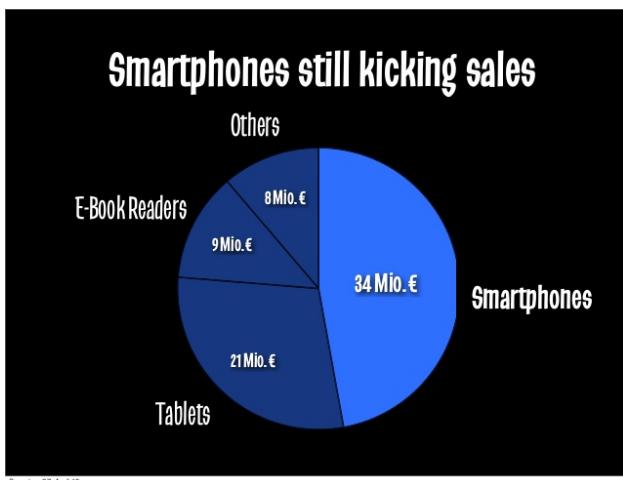
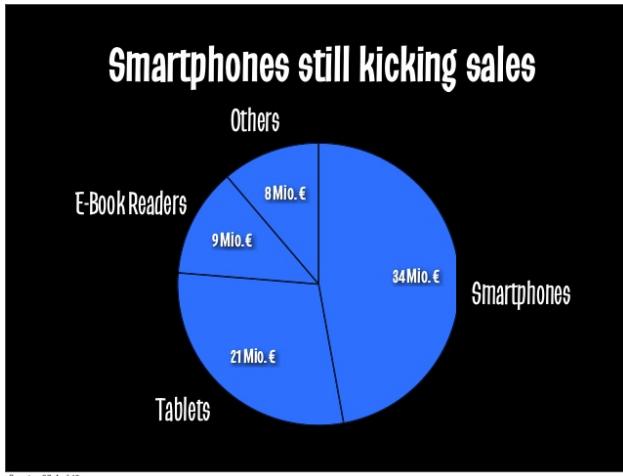
Examine the below visualizations and make a list of at least five changes you would make.



1. _____
2. _____
3. _____
4. _____
5. _____

²³ <http://de.slideshare.net/vis4/making-data-visualizations-a-survival-guide>

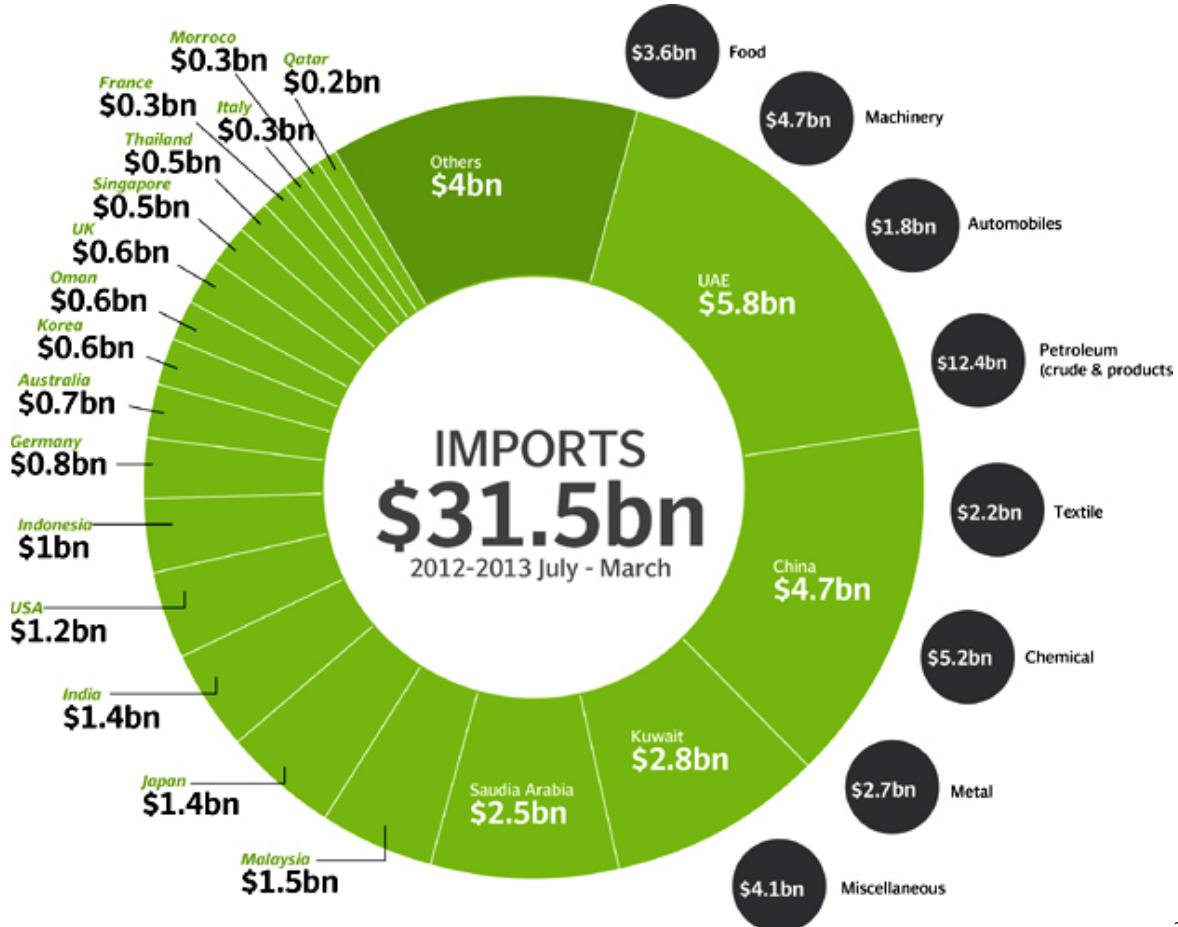




Read: <http://qz.com/580859/the-most-misleading-charts-of-2015-fixed/>

Find a graphic in your local media and redesign it based on these principles.

Example:



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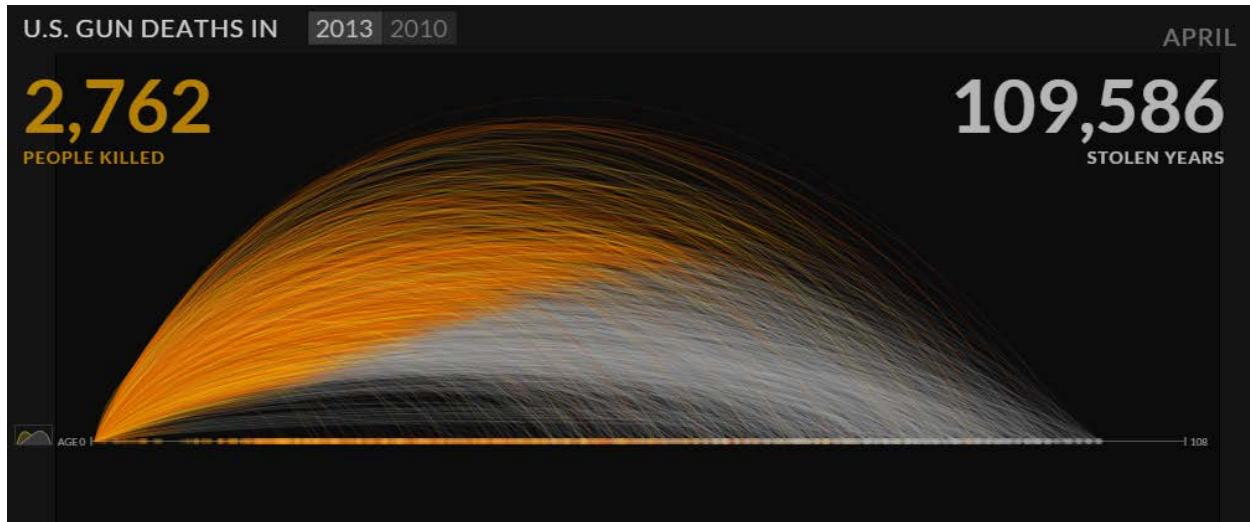
²⁴ <http://tribune.com.pk/story/579954/feeling-the-pinch-as-trade-liberalises-large-players-look-forward-while-small-players-unsure/>

Lesson 4: Ethics of Data Visualization

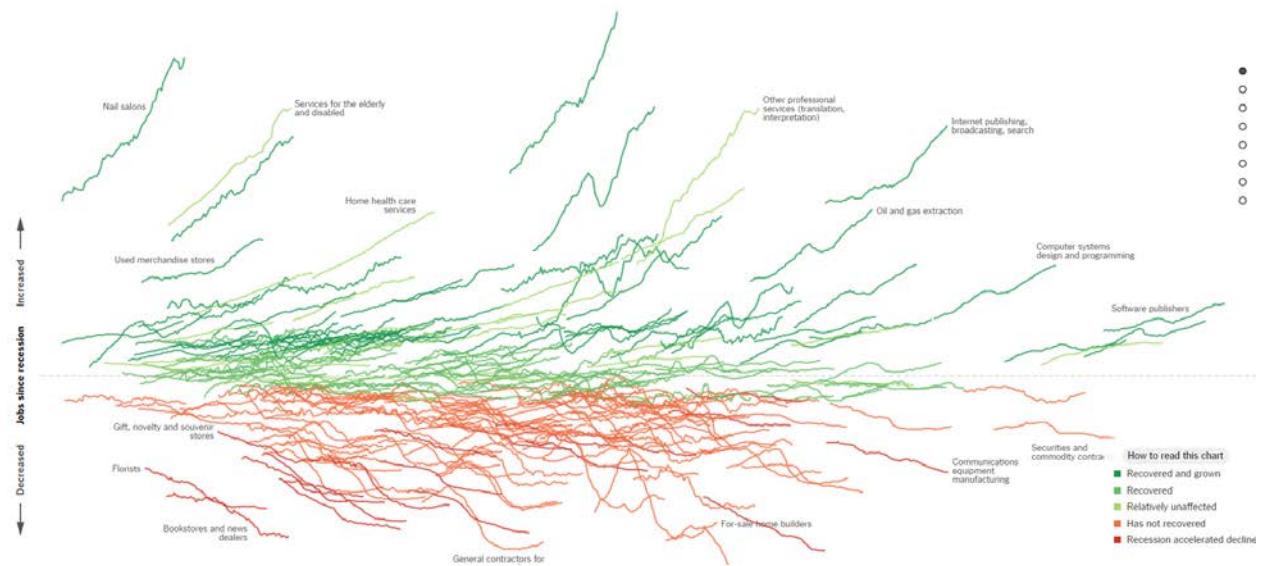
Look vs. Function

Take a look at the following three visualization examples, and answer the following questions.

Example 1: Gun violence in America²⁵



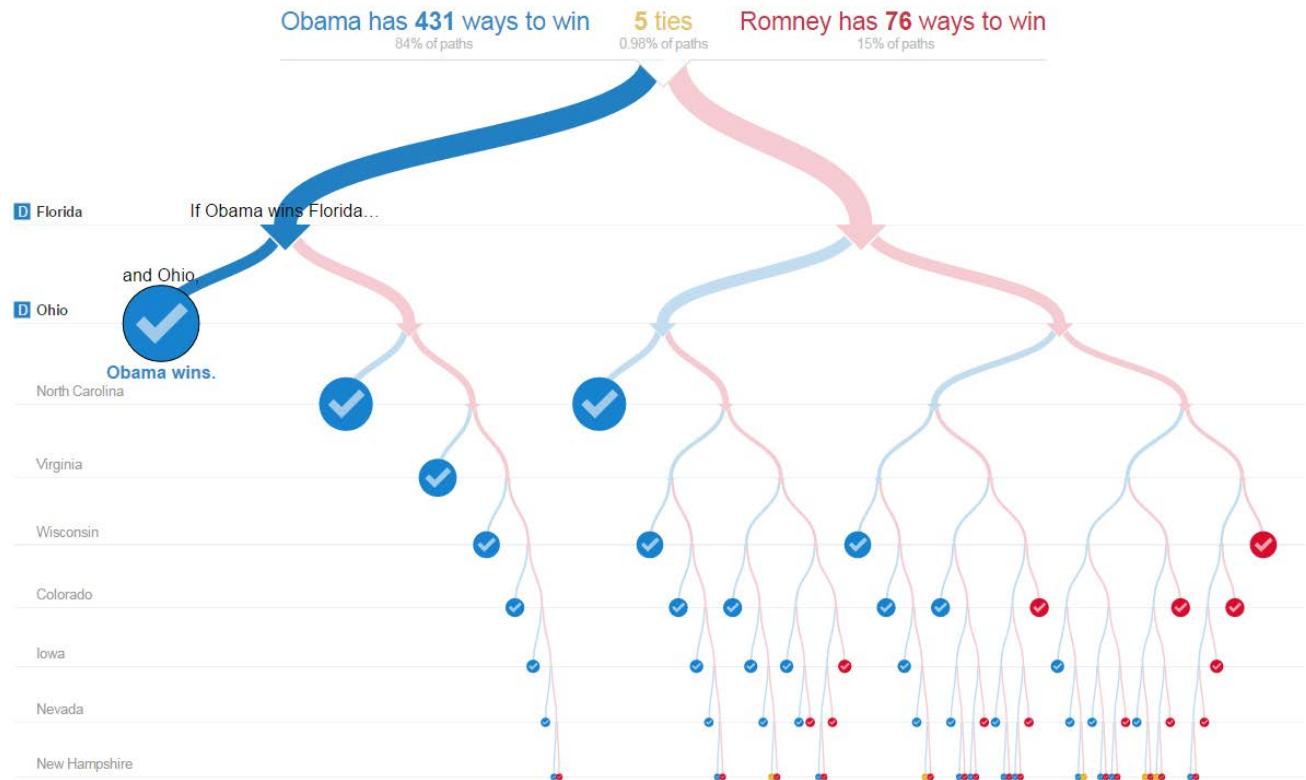
Example: How recession shaped the Economy?²⁶



²⁵ <http://www.theguardian.com/news/datablog/interactive/2013/feb/04/us-gun-violence-deaths-years-lost-perisopic>

²⁶ http://www.nytimes.com/interactive/2014/06/05/upshot/how-the-recession-reshaped-the-economy-in-255-charts.html?_r=0

Example 3: Paths to White House²⁷



Questions

- What story does the data visualization tell?
- What big picture does the visualization provide?
- What details do you understand from the visualization?
- Is there text to help you understand?

Ethics of Data Visualization

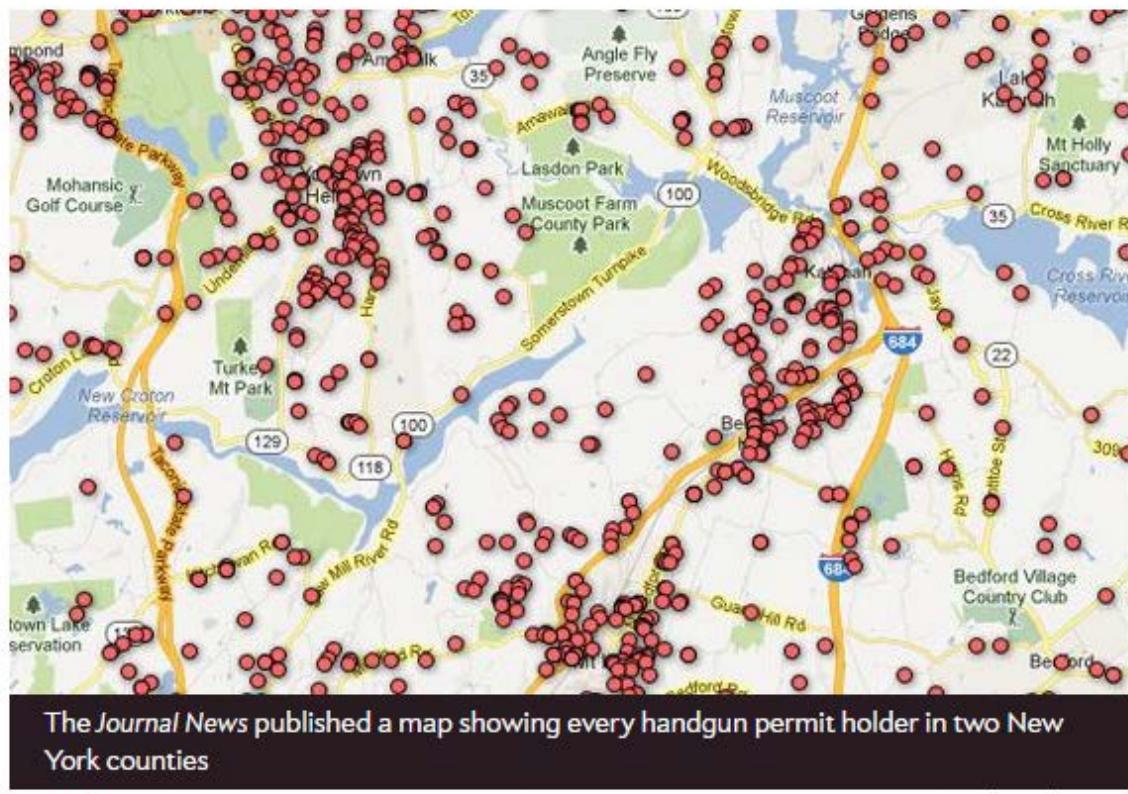
Just as with any other type of source material, just because you have access to detailed data, does not mean that you necessarily want to include all of it in your story. You have to weigh the pros and cons of

²⁷ http://www.nytimes.com/interactive/2012/11/02/us/politics/paths-to-the-white-house.html?_r=0

different levels of aggregation and always return to asking yourself what is the news value of the data and what is the best way to present the data so that citizens can make better decisions.

Privacy

Example: Gun Registration



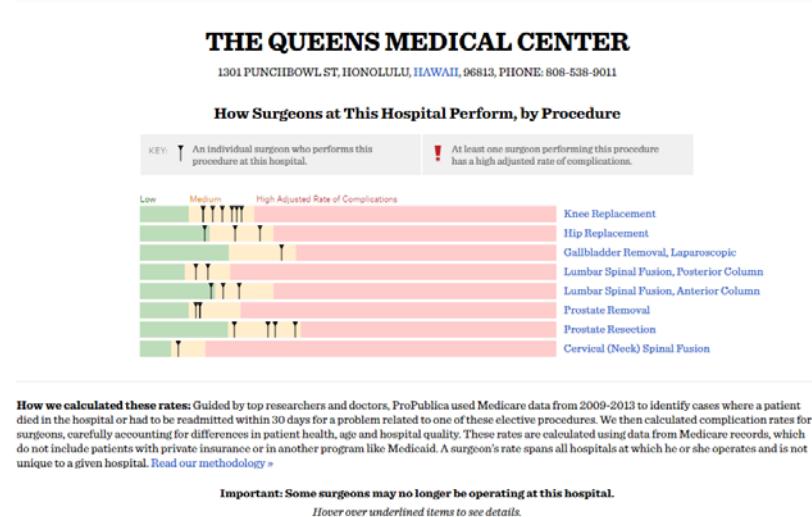
This map²⁸ was created by a journalist who through an access to information request, obtained the name and address for every US citizen in his area who has a gun license. He put this data onto a dot map. When a reader clicks on a point on the map, the name and address of the person with the gun license appears on the map. This sparked a debate on privacy vs public safety in the media.

²⁸

http://www.slate.com/articles/news_and_politics/jurisprudence/2013/01/the_journal_news_gun_map_the_first_amendment_and_state_law_gave_the_new.html

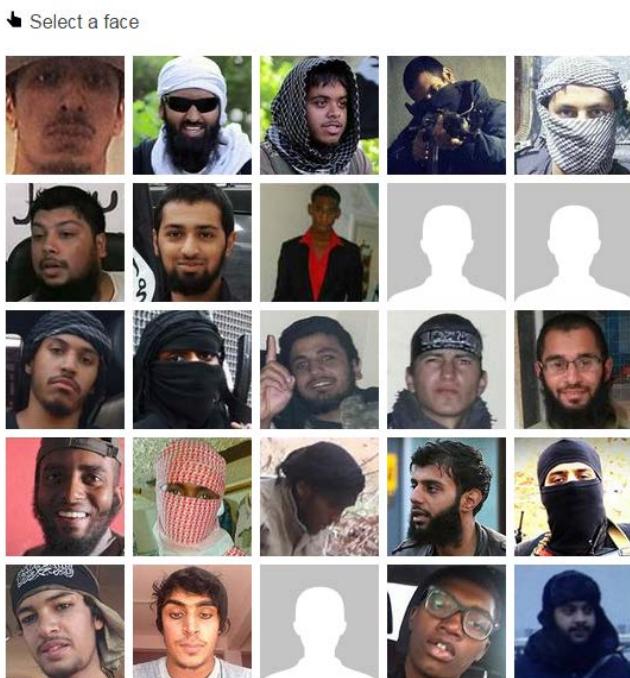
Ethics: Example

Surgeon Score Card



This interactive news app by ProPublica allows you to search for doctors, hospitals and specific procedures to find out the success rate of specific surgeries. What are the reasons for and against publishing this kind of tool for public use?

Ethics: Example



At least 700 people from the UK have travelled to support or fight for jihadist organizations in Syria and Iraq, British police say. About half have since returned to Britain. Most of those who went to the conflict zone are thought to have joined the militant group that calls itself Islamic State.

This BBC News database²⁹ details the stories of over 100 people who have died, been convicted of offences relating to the conflict or are still in the region. The information on these pages has been compiled from open sources and BBC research.

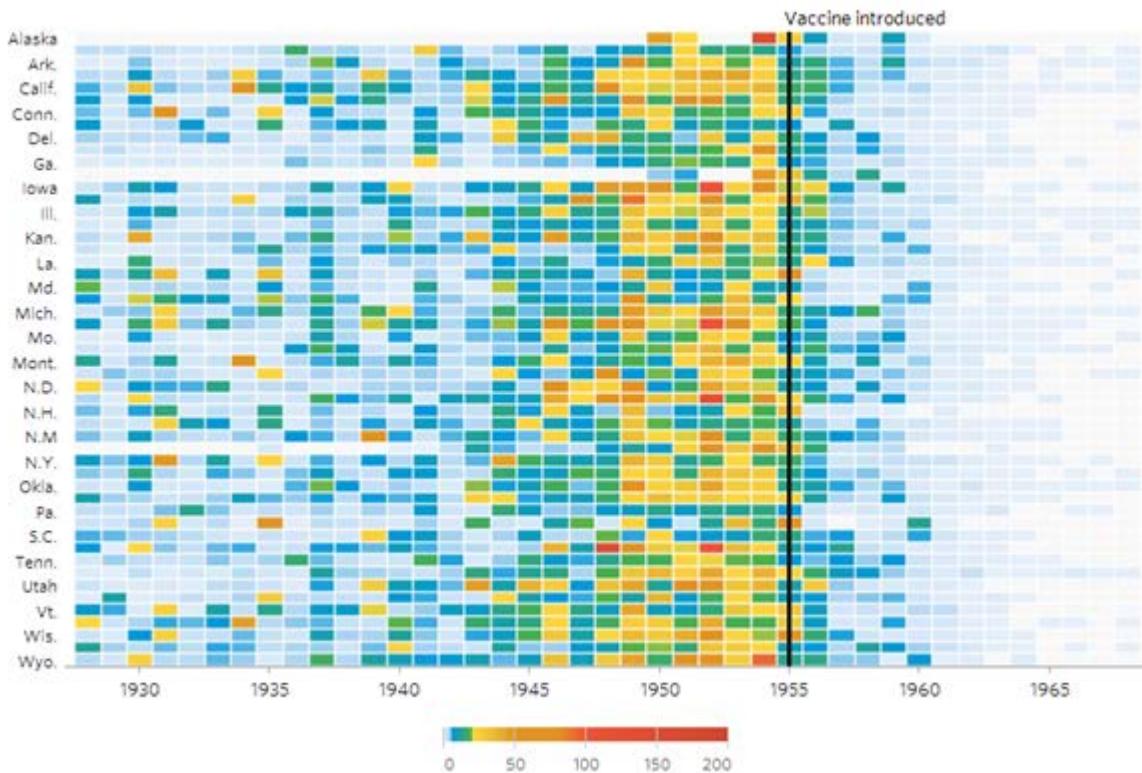
Questions:

- What is the news value of publishing personal details in each case?
- What does the story gain by the personal data?
- What would the story lose if the personal data was removed?
- How could individuals in this story be impacted by the release of their personal details?

²⁹ <http://www.bbc.com/news/uk-32026985>

Lesson 5: Visual Storytelling

Polio



One of the biggest global achievements for global health over the last century has been the widespread introduction of vaccines to save lives. In the United States, a group of vaccine deniers are putting public health at risk. Through this visualization³⁰ - which has as a few basic components: years from left to right, a black vertical line representing the introduction of the vaccine, states from top to bottom, and colored squares indicating the number of people who have died from that disease - a viewer can understand at a glance that with the introduction of vaccines, millions of lives have been saved across the country. The visualization is a simple fact-checking exercise to quell public hysteria about a proven scientific fact.

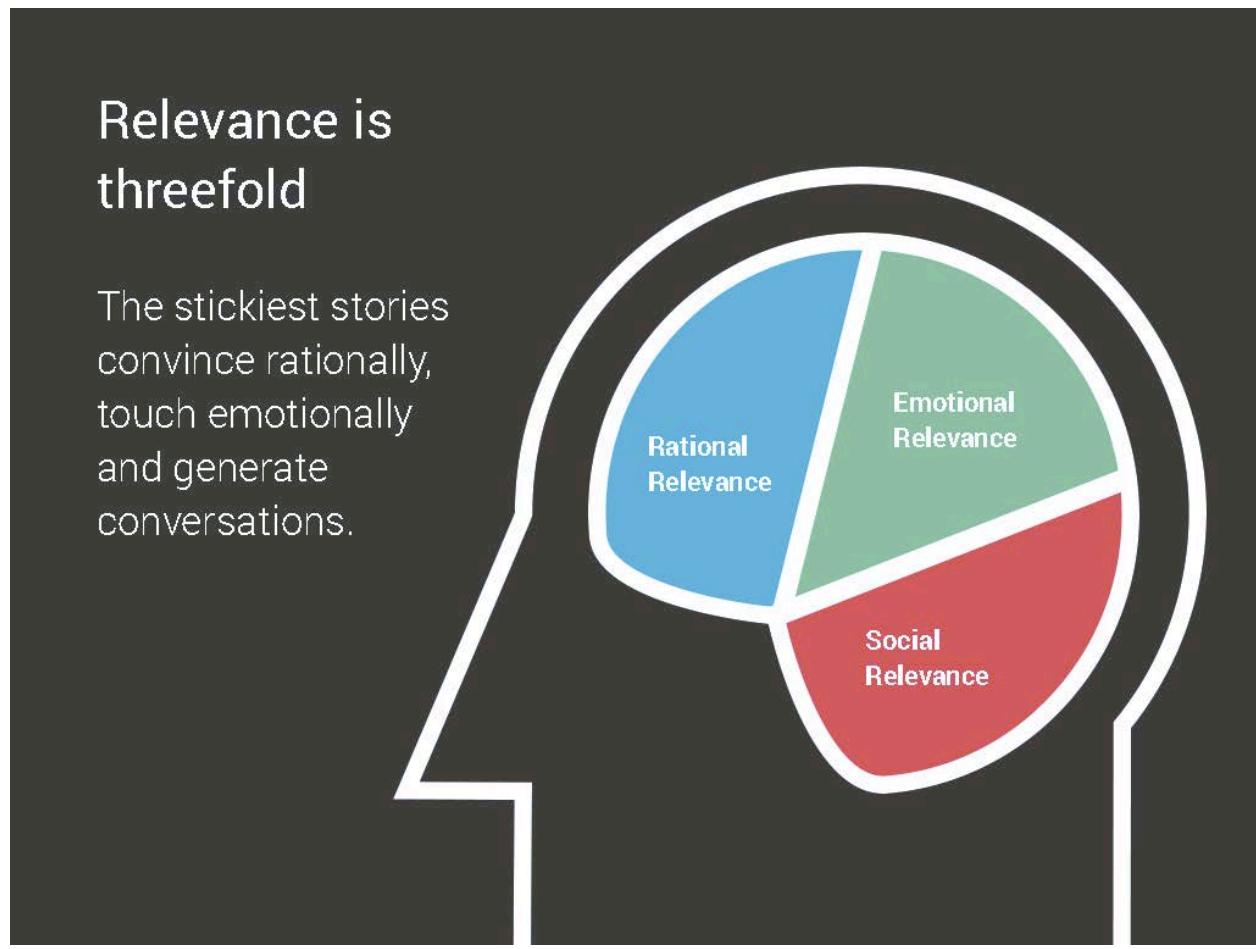
What issues in your community could be addressed with data? How can that data be put into a form that people will relate to, that will help them understand how the data can improve their quality of life? Telling an effective story is key to transforming data into insight and action.

In this lesson, we will look at the objectives of data-driven storytelling and different visual forms that can enhance your story as well as how to arrange visual elements to create a coherent narrative.

³⁰ <http://graphics.wsj.com/infectious-diseases-and-vaccines/>

Objectives of Data Stories

- Collect information that we can use strategically
- Influence policy
- Inform public debate
- Expose wrong-doing
- Create awareness and understanding of complex issues
- Explore options for solving problems using data



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The form a data story takes depends a bit on the audience and your purpose. The audience may be a policy maker who you would like to make a specific decision based on that data, a general public that you are trying to help understand the complexities of an issue, a group of researchers who are weighing factors before developing recommendations. In general, data stories fall into a few general categories:

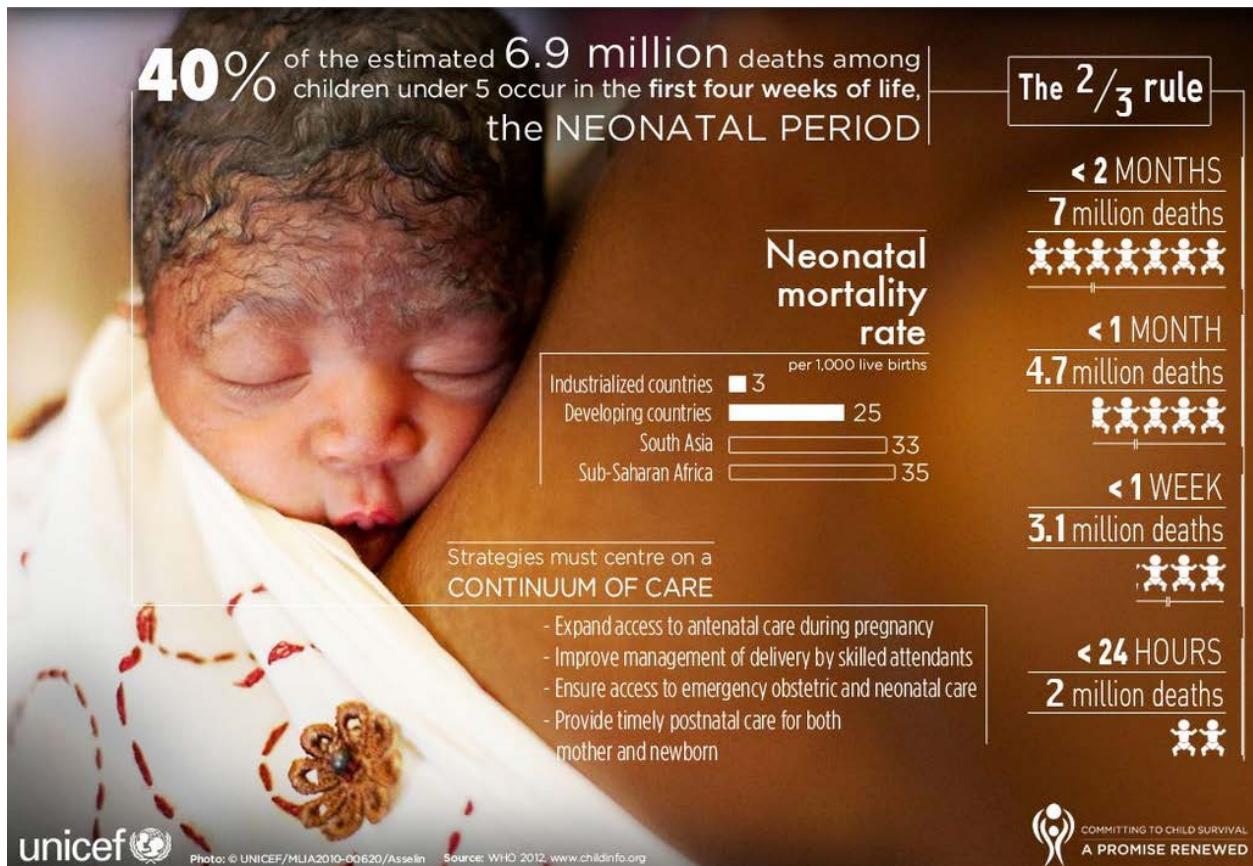
- Collect information that we can use strategically
- Influence policy
- Inform public debate
- Expose wrong-doing
- Create awareness and understanding of complex issues
- Explore options for solving problems using data

³¹ <https://tutorials.infogr.am/>

Let's look a few common types of data stories and discuss the following aspects: audience, information retention, emotional impact, and call to action.

Interactive visualizations are not always (and usually aren't) the answer! The more you have to click, read, memorize and compare, the more difficult it is to retain information. Read [here](#) about why the New York Times decided to swap interactives for static graphics.

Infographics: Example 1



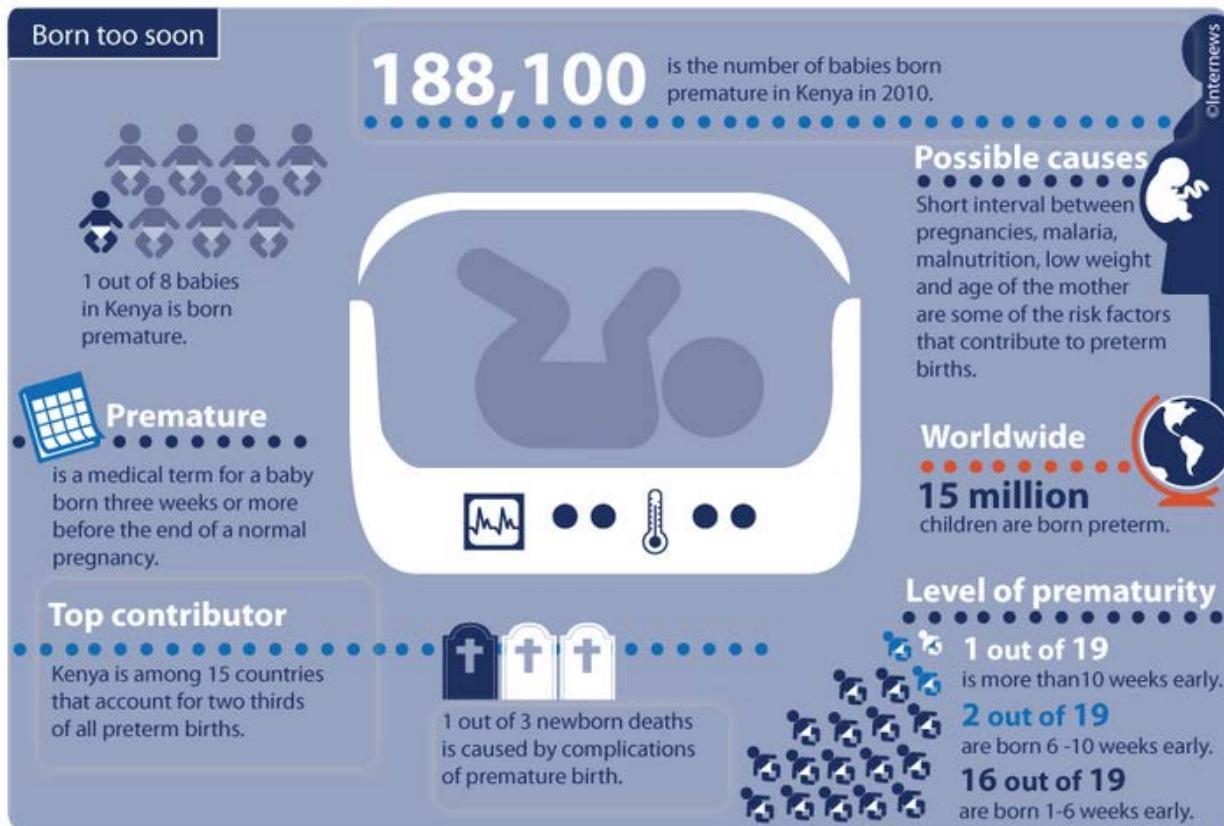
Infographics are graphic visual representations of information, data or knowledge intended to present information quickly and clearly to illustrate patterns or trends. They enable you to package different kinds of information together to deliver an accessible message about a topic.

Take a look at this infographic³² from UNICEF, and try to answer these questions:

- Who is the audience?
- What information are they supposed to retain?
- What creates an emotional impact?
- What should they do after seeing this?

³² <http://visual.ly/born-world-neonatal-mortality>

Infographics: Example 2



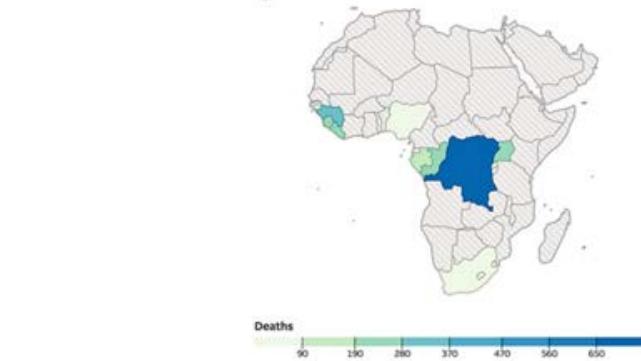
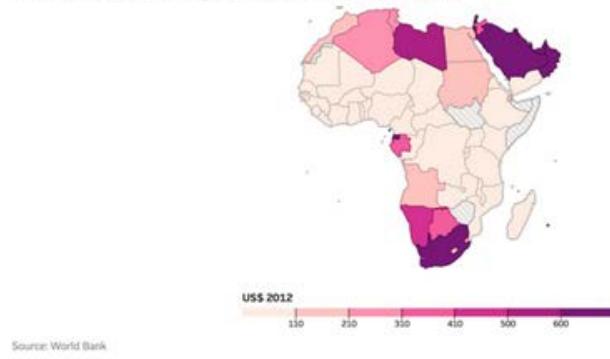
Here is another example of an infographic about child health in Kenya from Internews:

<http://www.internewskenya.org/dataportal/data/52>

Questions:

- Who is the audience?
- What information are they supposed to retain?
- What creates an emotional impact?
- What should they do after seeing this?

'X' Issues in 'X' Charts: Example 1

Ebola deaths 1976-present**Health spending per person in Africa**

Often, the objective of data stories is to explain the different factors affecting an issue. This lends itself well to explaining an issue in a series of simple charts that add complexity to the audiences' understanding of the topic. This could include a variety of bar, line and pie charts or maps that each add a layer of meaning to the topic.

Take a look at this news story that uses various charts and maps to investigate the Ebola crisis:

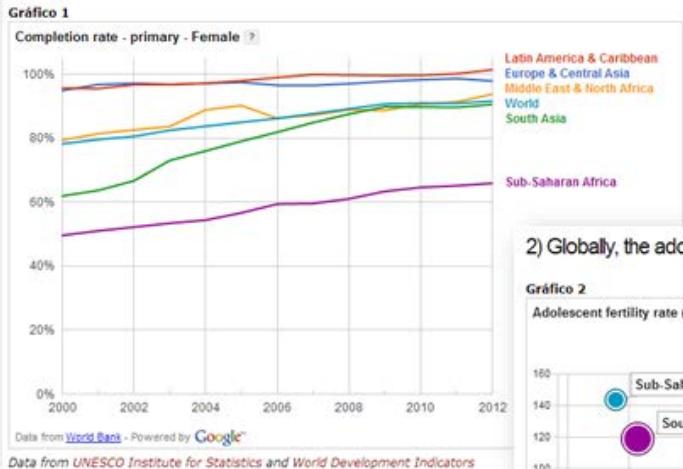
<http://www.vox.com/2014/8/4/5963751/the-real-cause-of-the-ebola-outbreak-its-not-what-you-think>

Questions:

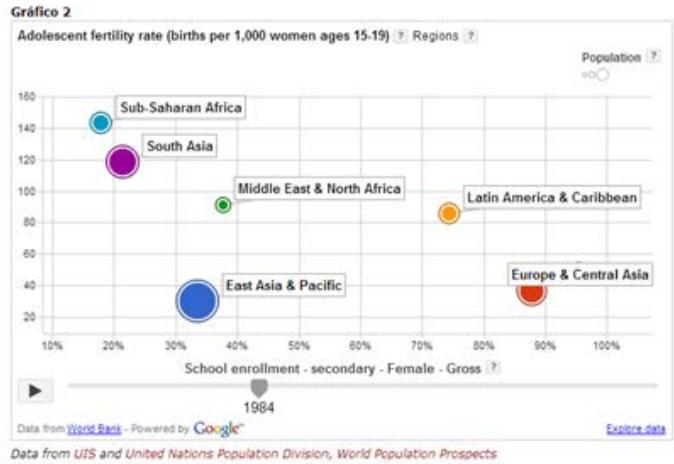
- Who is the audience?
- What information are they supposed to retain?
- What creates an emotional impact?
- What should they do after seeing this?

'X' issues in 'X' Charts: Example 2

1) 91% of the world's girls completed primary school



2) Globally, the adolescent fertility rate fell 40% between 1970 and 2012



Here's is another example from the World Bank, where data from various sources is presented in a series of seven charts to summarize the global state of gender:

<http://blogs.worldbank.org/opendata/global-state-gender-7-charts>

Questions:

- Who is the audience?
- What information are they supposed to retain?
- What creates an emotional impact?
- What should they do after seeing this?

News Apps: Example 1

In an effort to personalize data, more CSOs and media outlets are creating online applications that allow users to explore the data themselves. So, for example, a site may allow you to enter your height and weight and provide a personal recommendation for the number of calories you should consume a day. This allows people to personalize the data experience to their own lives.

Here's an example, open this data-driven news application from the BBC:

<http://www.bbc.com/news/world-34808717>

How equal are you?

© 19 November 2015 | World

 Share

Type your country into the search box to find out how it ranks for gender equality. The figures are based on the World Economic Forum (WEF)'s annual **Global Gender Gap report**, which measures countries according to where women are more likely to be able to participate fully in political and economic life and enjoy the most equal access to education and healthcare.



Your Country?

Can't find your country? [Browse the full list](#)

Are you...

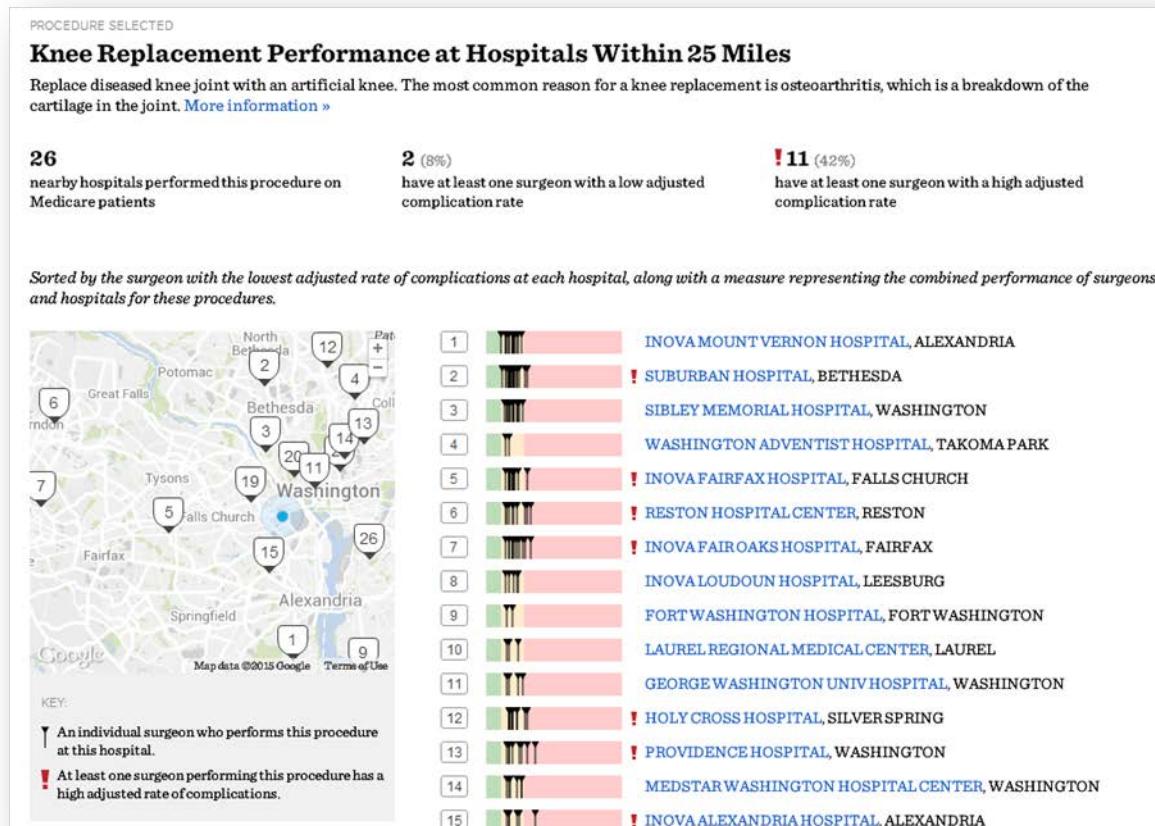
Female Male

[How equal am I?](#)

Questions:

- Who is the audience?
- What information are they supposed to retain?
- What creates an emotional impact?
- What should they do after seeing this?

News Apps: Example 2



Take a look at this online news application that helps a user interact with data from their perspective. ProPublica created this application using data about death and complication rates for surgeons in the USA: <https://projects.propublica.org/surgeons/>

Questions

- Who is the audience?
- What information are they supposed to retain?
- What should they do after seeing this?

Exercise: Evaluating Visual Storytelling

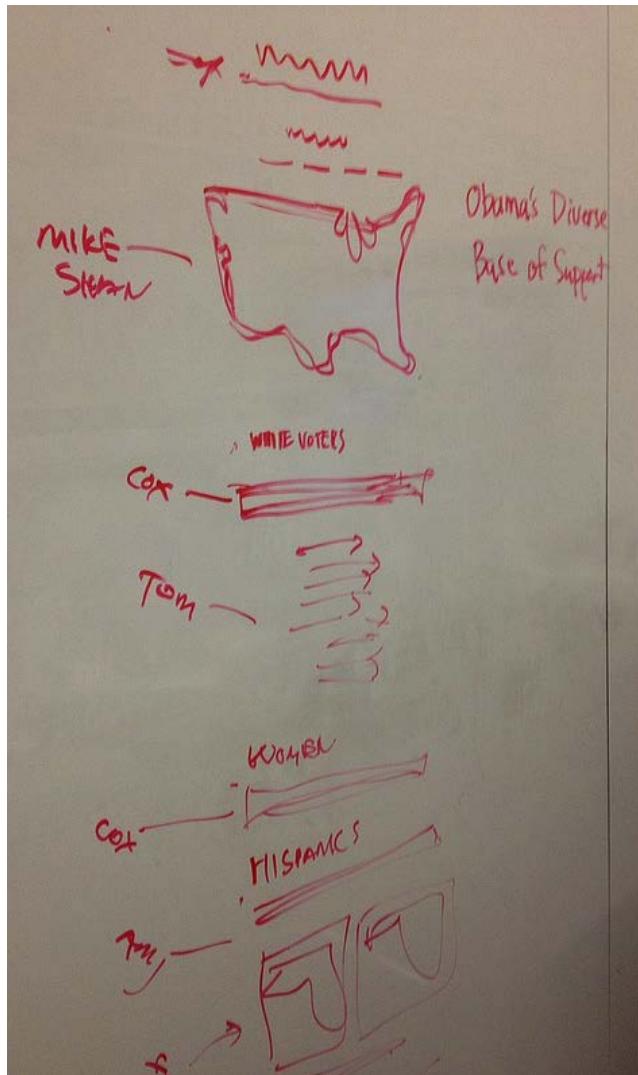
Choose a Data Visualization or News App example from

<http://www.globaleditorsnetwork.org/programmes/data-journalism-awards/dja-2016-shortlist/>

Questions

- Who is the audience?
- What information are they supposed to retain?
- What should they do after seeing this?

Designing for Impact



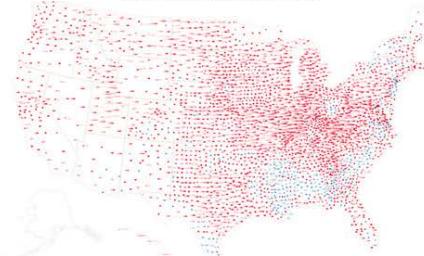
How Obama Won Re-election

Whites Were Outvoted Women Hispanics Youth

Romney's Shift Wasn't Enough

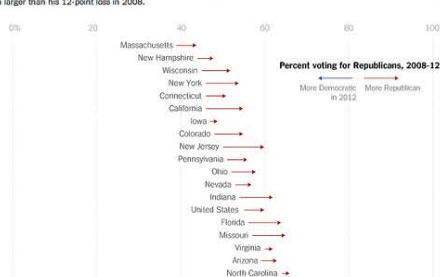
2008 2012

Most of the nation shifted to the right in Tuesday's vote, but not far enough to secure a win for Mitt Romney.



Republican Gains Among Whites Yield Few Battleground State Victories

Mr. Obama won despite losing the support of white voters by wide margins. Overall, he lost this group by 19 percentage points, even larger than his 12-point loss in 2008.

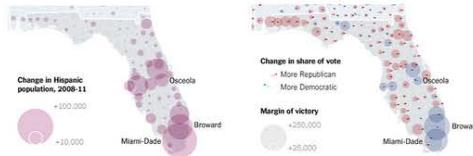


Women Voters Hold Steady

Mr. Obama maintained his support among women: 55 percent voted for him, about the same percentage as in 2008.

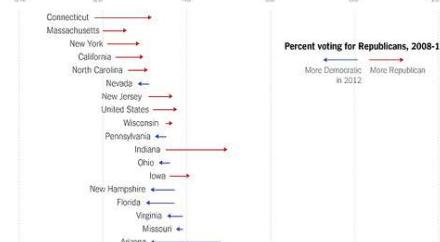
Hispanic Voters Increase Support

President Obama won the Hispanic vote by 44 percentage points, 8 percentage points more than in 2008. Among the swing states, the president made the biggest gains in Colorado, taking 74 percent of the Hispanic vote, up from 61 percent in 2008. In Florida, President Obama's gains among Hispanic voters helped him take the state. He won 60 percent of the Hispanic vote, up from 57 percent in 2008 and 44 percent for John Kerry in 2004.



Young Voters Turn Out Where It Mattered

Young voters favored President Obama, but less so than in 2008. However, he managed to improve his share of the youth vote in swing states like Ohio, Florida and Virginia where his campaign most actively targeted voters.



³³ <http://chartsnthings.tumblr.com/post/35245630453/sketches-for-how-obama-won-re-election>

What to do?

1. Learn about statistics and research methods
2. Learn about cognitive biases and shortcomings
3. Be honest about what lies beyond your knowledge
4. Whenever it is possible, partner with other people with different specializations. Infographics is, today, the product of teamwork

Main steps on any infographics project

1. Define the focus, the story, the goals
2. Do some preliminary research
3. Choose graphic forms according to 1.
4. Sketches and storyboards; structure the information
5. Complete the research and write the copy
6. Create the graphics, maps and diagrams
7. Put it all together

--Alberto Cairo, *The Functional Art*

Exercise

1. Choose one of the following reports:

[Education for All 2015 National Review](#)

[Baluchistan Province Report: Nutrition Political Economy, Pakistan](#)

[Pakistan Gender Overview](#)