Module 3 Visualization
Reporting through Visualization

• Data visualization involves the creation and study of the visual representation of data or metrics.

• Visualization technics include:
  – Basic charts
  – Time series charts
  – Scatter plots
  – Bubble charts
  – Maps
Basic Charts

- X Axis: Metrics titles
- Y Axis: Metrics values
- Line, bar, area or column charts are interchangeable.
Stacking

- Stacking can be used when we need to add (calculate the sum of) the metrics.
- Stacking saves space, but is less clear.
Time Series

- Time series are a type of column or line chart.
- Time series charts can include trend lines.
Time Series

2016 in Charts. (And Can Trump Deliver in 2017?)

nytimes.com/2017/01/03/opi

Here Illegally: 900,000 Fewer

The total number of unauthorized immigrants peaked in 2007.

- Total: 11.3 million
- Change from 2007 to 2014: -7.4%
- From Mexico: 5.6
- -19.4%
Scatter Plots

• Scatterplots are 2 dimensional graphs, representing 2 metrics.
• Each dot represents a record.
• Scatter plots are useful for correlations, but may be difficult to use otherwise.
Bubble Charts

![Bubble Chart](chart.png)

- **Profit vs Cost vs Probability of Success**
- **Legend**:
  - Project Andromeda
  - Project Aquarius
  - Project Centaurus
  - Project Cetus
  - Project Columbia
  - Project Pegasus
  - Project Perseus
  - Project Sagittarius
  - Project Sculptor
  - Project Taurus

- **Legend Note**: Bubble Area is proportional to Probability of Success (%)
Bubble Charts

• Bubble charts are extremely useful for comparing the relationships between data in 3 data dimensions: the X-axis data, the Y-axis data and data represented by the bubble size.

• Bubble charts are like XY scatter graphs, except that each point on the scatter graph has an additional data value associated with it that is represented by the size of a “bubble” centered around the XY point.
Maps

- Maps are powerful representations, if the data is geo-referenced.
Misinterpretation

IF BUSH TAX CUTS EXPIRE

TOP TAX RATE

NOW: 35%
JAN. 1, 2013: 39.6%

42%
40
38
36
34
Misinterpretation

Percent Who Agreed With Court

- Democrats: 64%
- Republicans: 54%
- Independents: 52%

Political Party
Misinterpretation

2012 PRESIDENTIAL RUN
GOP CANDIDATES

- BACK PALIN: 70%
- BACK HUCKABEE: 63%
- BACK ROMNEY: 60%

SOURCE: OPINIONS
DYNAMIC
Misinterpretation

Job and Health Insurance Losses Accelerating
14,000 People Becoming Uninsured Every Day

The Wonk Room
Misinterpretation

Graph (a):
- Y-axis: 130 to 210
- X-axis: 1999 to 2003

Graph (b):
- Y-axis: 100 to 250
- X-axis: 1999 to 2003
A Few Rules

• Do not use color as the only mean to encode a value (7% of the population is colour blind).
• Always provide a legend.
• Each graph, by itself, should provide all relevant information.
• Use only one unit per graph. Avoid multiple vertical axes.
• Always start your graph at 0.
• Avoid 3D graphics.
• Simple bar charts are easier to interpret than pie charts.
THANK YOU