

Charting checklist

You can see a few suggestions at <http://designingviz.com/> which may or may not be reasonable.

Communicating successfully

Story

- What am I supposed to take away from the graphic?
- The graphic has a headline
- The graphic explains what the data is
- Typically, headline is editorialized and subhead explains what the data is
- There is a focus to the graphic, for example:
 - Something to obviously pay attention to
 - Something(s) in a highlight color
 - An annotated point on a line
- List the source of your data (usually in small text, bottom)
- Be honest mathematically: use per capita when necessary
- Can your graphic stand alone, outside of the story?

Annotations

- What should someone be interested in? Mark interesting points, tell us a story.
- Don't label every point, no one will pay attention
- But if you have a lot of points or bars or something, you should probably label some of them so people know what to look at
- Highlight background areas to talk about things that happen over time
- Use a single line to talk about something that happened at one point in time
- Do you draw a line to the interesting point? Or an arc? Or just put the text next to it?

Busy-ness

- Clear hierarchy of what to pay attention to (more important = bigger, more colorful)
- Do you have too many labels?
- Do you have too many bars/lines?

- You can combine smaller categories into an 'other' category if necessary
- You don't have to show all of your datapoints, subsets or top/bottom is usually fine
- No one knows what error bars, margin of error, or confidence intervals are. If you're using them, have a good reason
- Matplotlib likes to put boxes around all of your charts. You probably can open them up.

Visual design

Color

- Use nice colors! Steal a scheme from somewhere. Colorbrewer2.org is basic but good.
- Things that aren't important become grey, things that are important become bright/dark
- Only using different colors if the colors mean something
- Are you using the right kind of color scale?
 - Categorical for categories (e.g. different types of crimes)
 - Sequential for ordered numbers or categories (e.g. higher heat is darker red)
 - Diverging for moving away from a middle ground (e.g. voting Republican/Democrat, more/less red/blue)
- Matching colors between text and elements on the page can look nice if they're talking about the same thing
- Legends and keys
 - Instead of using a legend, can you directly label what the points/colors/etc are?
 - Have your color categories be round numbers, not "dark blue is 145.4-156.2"

Axes

- If years, not every year should be marked
 - if pandas is doing it, try converting year to integer before plotting
- Ticks and grid lines at round numbers
- No sideways labels!
- No labels at all, if it can be avoided
- Units attached to first/line number on axis
- Do you really need to label that 0? Do you really need the highest label on the axis?
- If it's money, you'll need a currency sign somewhere
- Do you need that axis line? Maybe, maybe not.
 - Sometimes grid lines are better!
- Don't repeat yourself with labels
- Is the maximum and minimum reasonable?

Text

- Pick nice fonts - search online for font combinations you like

- Only a few sizes of text (e.g. title, subhead, axes, annotations)
- Large enough and readable
- Clear hierarchy between text elements - title > subhead > annotations > axes
- Translate weird phrases or jargon from your dataset into "real people" words
- Don't put background colors on text elements
- Commas in thousands
- Don't repeat yourself with labels

Specific Charts

- Bars/columns
 - Order them by size
 - Should not have grid lines going in same direction as bars
 - Use labels on the bars instead of an axis if there aren't very many
 - No little tick line at the beginning of the bar (matplotlib and Illustrator both love to do this)
- Line charts
 - If you're doing lines + dots on measurements, do you really need the dots?
 - Area charts for "stock" and line charts for "flow". Area means "stuff," basically.
- Maps
 - Only if there's a geographic trend (e.g. east coast looks different than west coast)
 - If it's the USA: Albers projection, not Mercator
- Pie chart
 - Are you sure? Maybe do a single stacked bar instead, they look nicer (you can even do it in Illustrator real easy)
 - Four or fewer slices
 - Start with the biggest slice at twelve o'clock, then go in order
- Small multiples
 - Each multiple is the same size with same axes
 - Each multiple is actually small
 - People can understand the measurements and axes