

Influence People

WHY?

Verbally

Words are
abstractions

Visually

100% natural \Rightarrow
 \Rightarrow more efficient

Choose Visual

WHAT?

- 1 Table - only when detailed information is required and other techniques doesn't work
- 2 Graph - otherwise (whenever possible)

4 Tasks:

- 1 Comparison
 - line chart
 - bar chart (column chart) is better
 - pie chart (if % of total)
- 2 Relationship
 - 2D: scatter plot
 - 3D: bubble chart or heatmap
- 3 Distribution
 - 1D: histogram
 - 2D: scatter chart
 - 3D: 3D Area Chart
- 4 Composition
 - pie chart (% of total)
 - stacked column chart (if few periods)
 - Area Chart (if many periods)

R-Tools

HOW

- `str()` - gives internal structure
- `head()`, `tail()`
- `summary()` - provides descr. statistics

packages:

Grammar of graphics -
build every graph from same
components: data set, coordinate
system and geoms
Aesthetics - properties of the
geom (size, color...)

geom - is the geometrical object
that a plot uses to represent
data (> 30 geoms exist!)

Visualization with R

ggplot2

Syntax:

• `ggplot(data = df) +`
 `geom_bar(mapping = aes(x = column1, y = column2,`
 `color = ...)) +`
 another geom object +
 `facet_wrap(~ column3, nrow = 2) +` \Rightarrow many plots
 `<coordinate - Function>`

! If `aes()` is in `ggplot()` it will apply settings globally (for all geoms), Possible to override it locally from `geom_*()`

What can you write in `aes()`

- color =
 - size =
 - fill =
 - alpha = (transpar.)
 - shape =
 - linetype =
 - group =
- are not general
depend on geom

Coordinate systems:

Default: Cartesian

- `coord_flip()` $x \leftrightarrow y$
- `coord_polar()` \oplus

1 Graphics:

- `plot()`
- `curve()`
- `hist()`
- `smoothScatter()`
- `pie()`
- `boxplot()`
- `barplot()`
- `polygon()`

SUPPORT:

- `title()`
- `text()`
- `legend()`
- `grid()`
- `abline()`
- `par()`

2 ggplot2 - the most
powerfull w/o interaction

3 Plotly - perfect
choice for websites &
user interaction