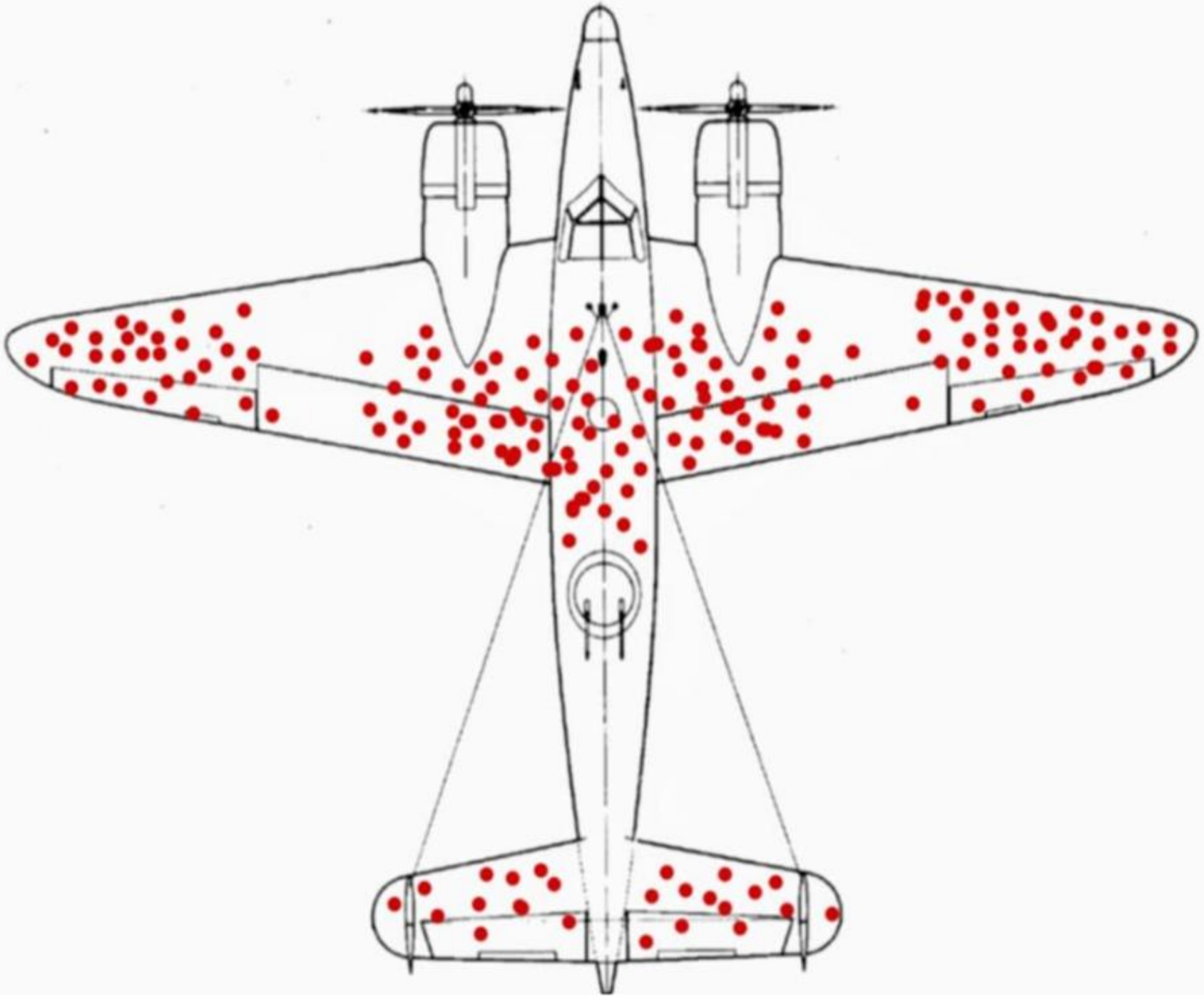
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ
UNIVERSITY OF PIRAEUS

Business Analytics

Graphs

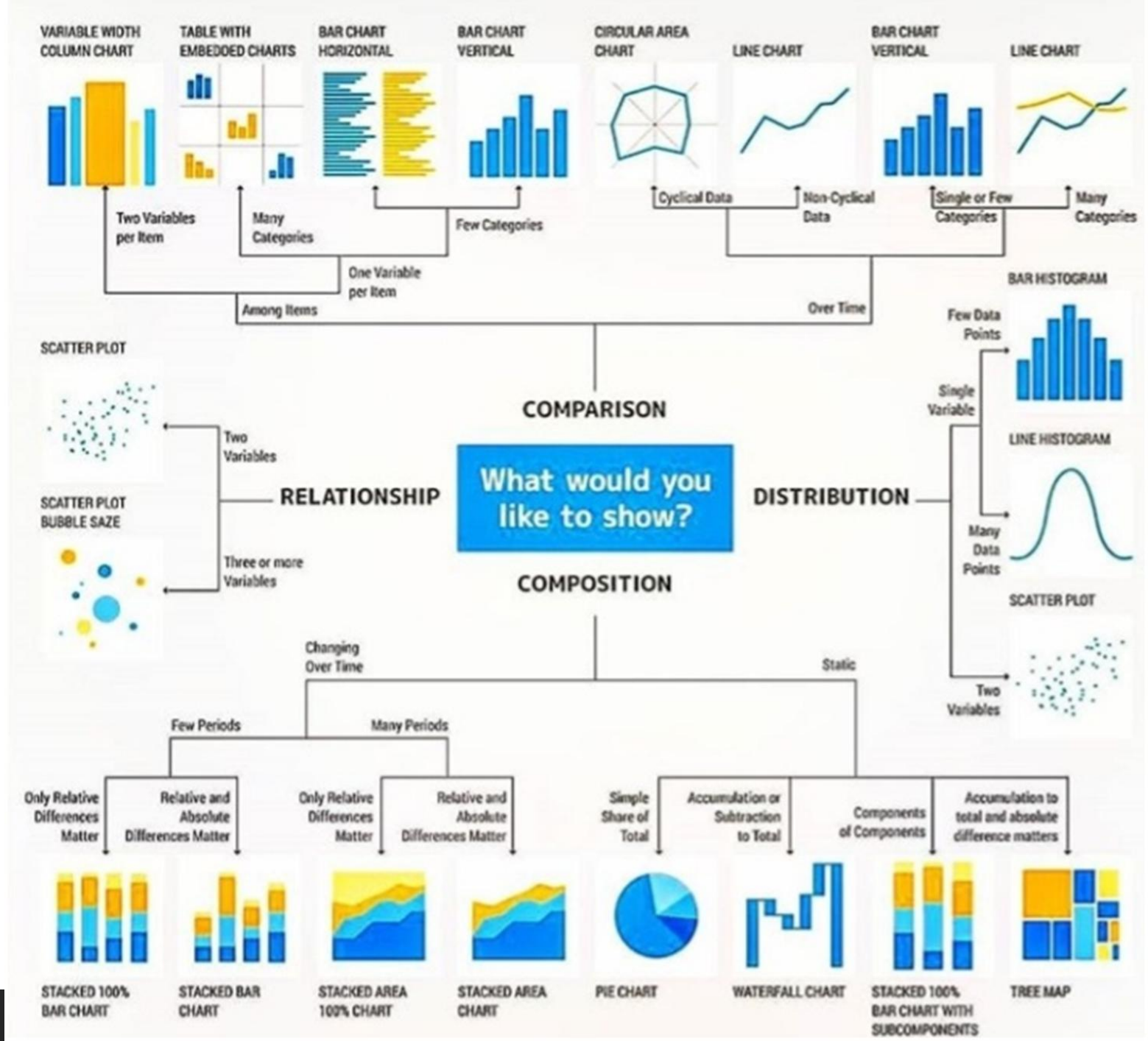
Διαγράμματα και Επικοινωνία Δεδομένων

- Είδη Διαγραμμάτων
- Παραπλανητικά Διαγράμματα



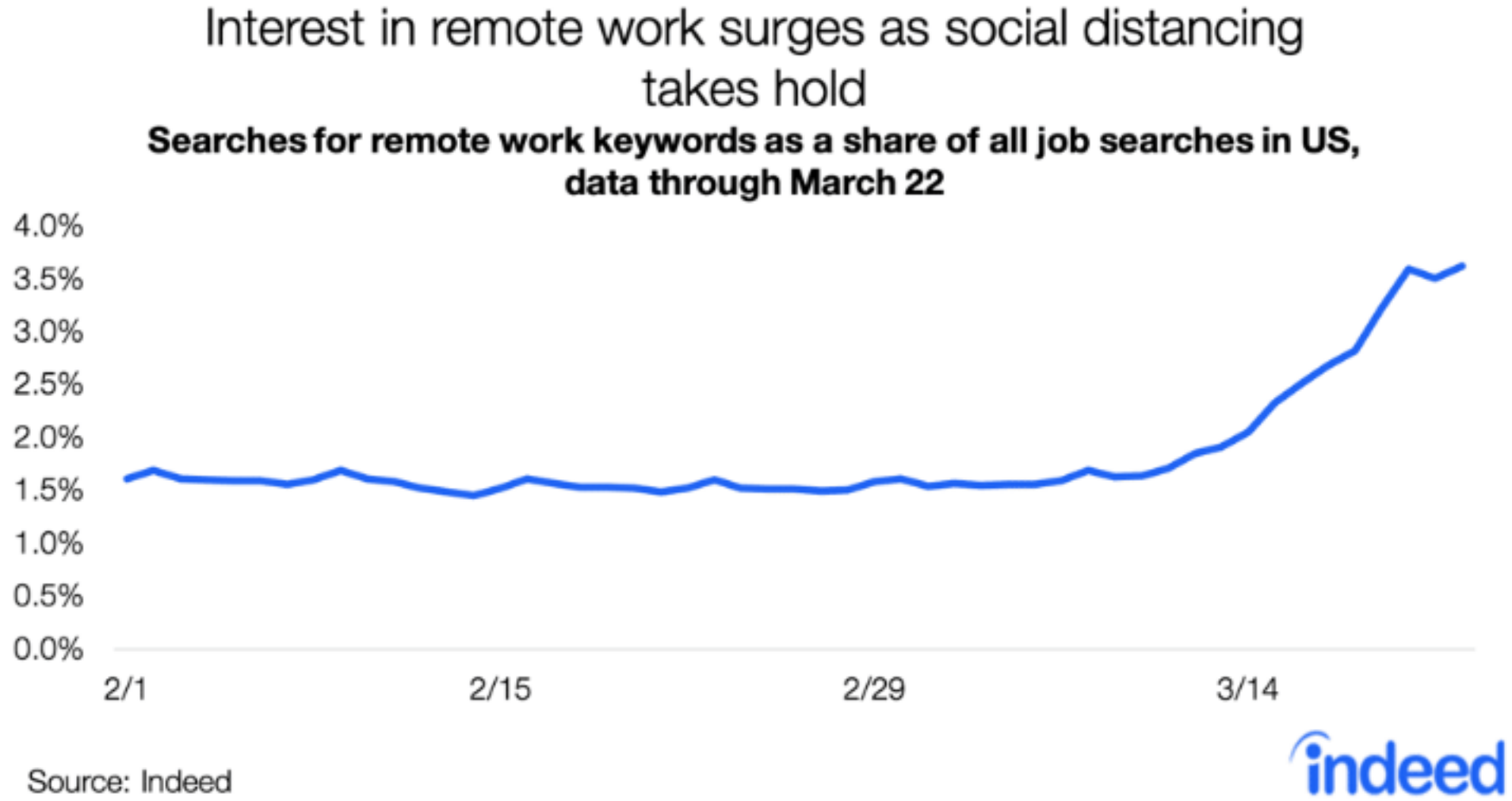
WW-II analysis on planes that had been shot up and came back.

What places should be up-armoured?

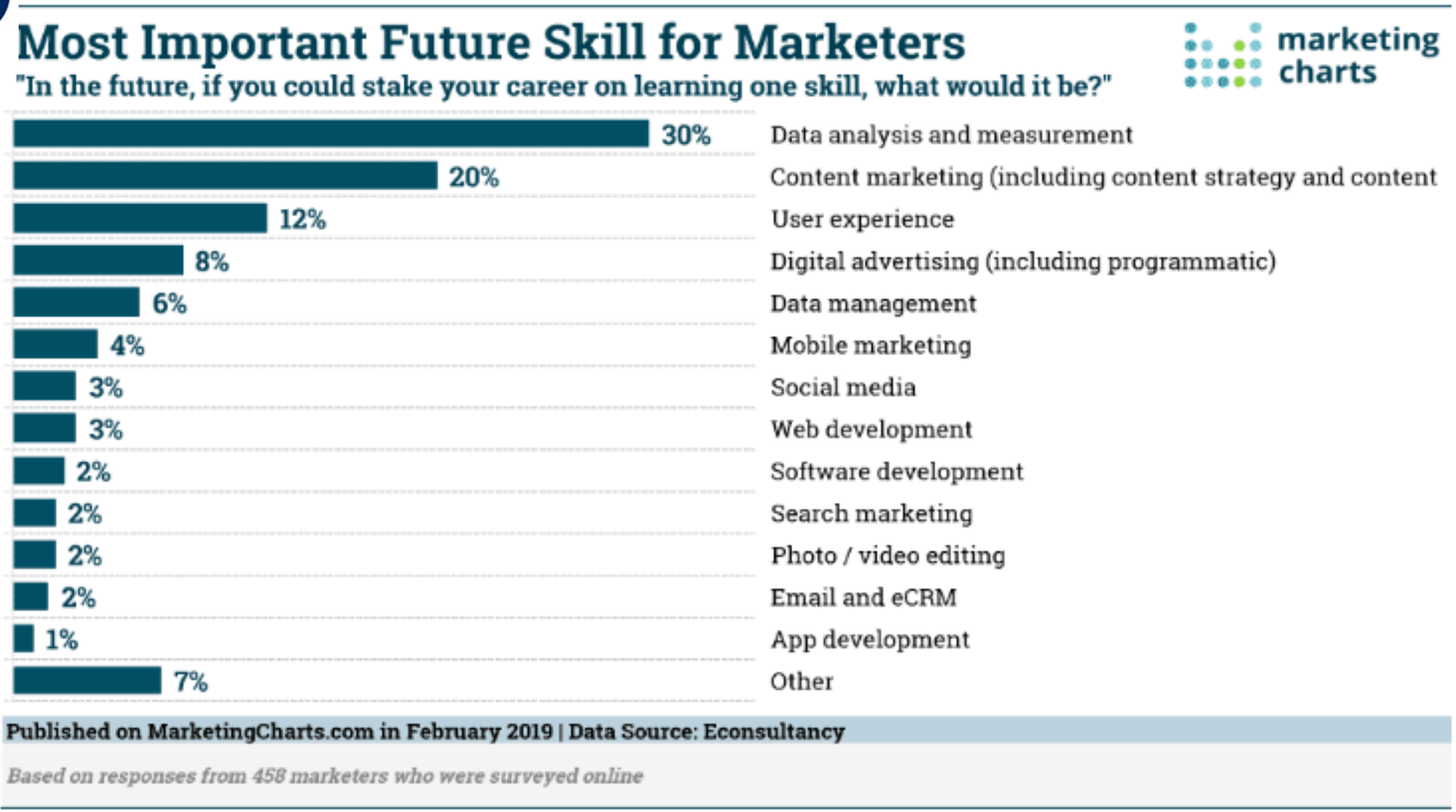

What would you like to show?
COMPARISON
RELATIONSHIP
DISTRIBUTION
COMPOSITION
VARIABLE WIDTH COLUMN CHART
TABLE WITH EMBEDDED CHARTS
BAR CHART HORIZONTAL
BAR CHART VERTICAL
CIRCULAR AREA CHART
LINE CHART
BAR CHART VERTICAL
LINE CHART
Two Variables per Item
Many Categories
Few Categories
Cyclical Data
Non-Cyclical Data
Single or Few Categories
Many Categories
One Variable per Item
Among Items
Over Time
BAR HISTOGRAM
Few Data Points
Single Variable
LINE HISTOGRAM
Many Data Points
SCATTER PLOT
Two Variables
SCATTER PLOT
Two Variables
SCATTER PLOT BUBBLE SAZE
Three or more Variables
Changing Over Time
Static
Few Periods
Many Periods
Only Relative Differences Matter
Relative and Absolute Differences Matter
Only Relative Differences Matter
Relative and Absolute Differences Matter
Simple Share of Total
Accumulation or Subtraction to Total
Components of Components
Accumulation to total and absolute difference matters
STACKED 100% BAR CHART
STACKED BAR CHART
STACKED AREA 100% CHART
STACKED AREA CHART
PIE CHART
WATERFALL CHART
STACKED 100% BAR CHART WITH SUBCOMPONENTS
TREE MAP


BAR CHART
SURPLUS
DIVERGING CHART
HEATMAP
PICTORISL FRACTION CHART
CONTOUR MAP
BOXPLOT
SCATTRPLOT
POPULATION PYRAMID
PROPORTION FILTERS
PROGRESS
FRACTION CHART
RADAR
CANDLESTICK
AREA CHART
PYRAMID CHART
TIMELINE
COMBINATION CHART
FAN CHART
WATERFALL CHART
NETWORK SCHEME
TRACKING
CIRCULAR BAR CHART
PROCESS CIRCLE
PYRAMID CHART
GROUPED BAR CHART
POLAR CHART
DONAT BAR CHART
CURCULAR BAR CHART
CIRCULAR PROGRESS
SCATTERPLOT
BUBBLE CORRELATION
SPLINE GRAPH
FLOW MAP
VENN

Line Chart


Interest in remote work surges as social distancing takes hold
Searches for remote work keywords as a share of all job searches in US, data through March 22
4.0%
3.5%
3.0%
2.5%
2.0%
1.5%
1.0%
0.5%
0.0%
2/1
2/15
2/29
3/14
Source: Indeed
indeed

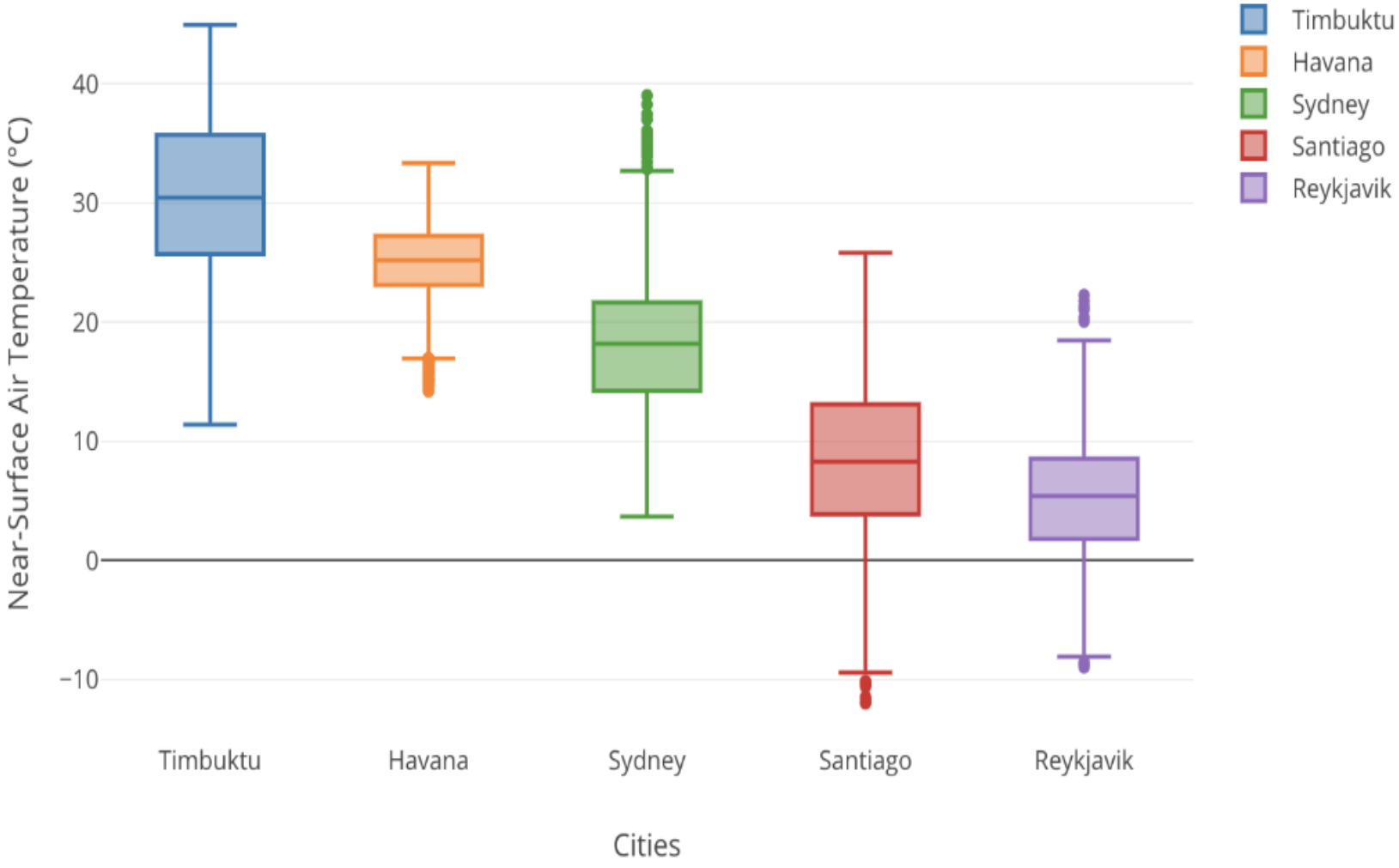
Bar Chart

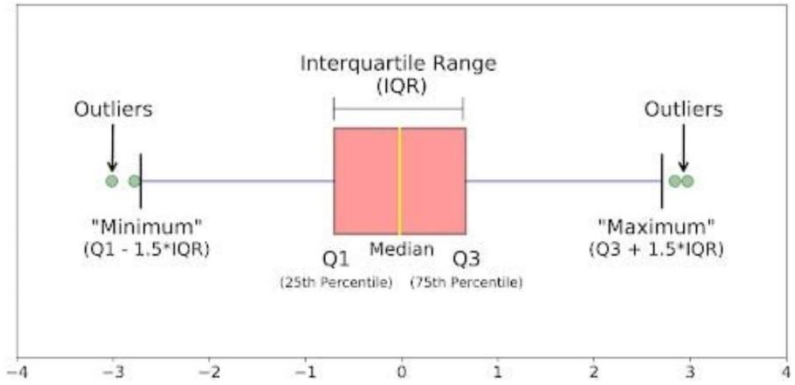

Most Important Future Skill for Marketers
"In the future, if you could stake your career on learning one skill, what would it be?"
marketing charts
30% Data analysis and measurement
20% Content marketing (including content strategy and content
12% User experience
8% Digital advertising (including programmatic)
6% Data management
4% Mobile marketing
3% Social media
3% Web development
2% Software development
2% Search marketing
2% Photo / video editing
2% Email and eCRM
1% App development
7% Other
Published on MarketingCharts.com in February 2019 | Data Source: Econsultancy
Based on responses from 458 marketers who were surveyed online

Bar Chart

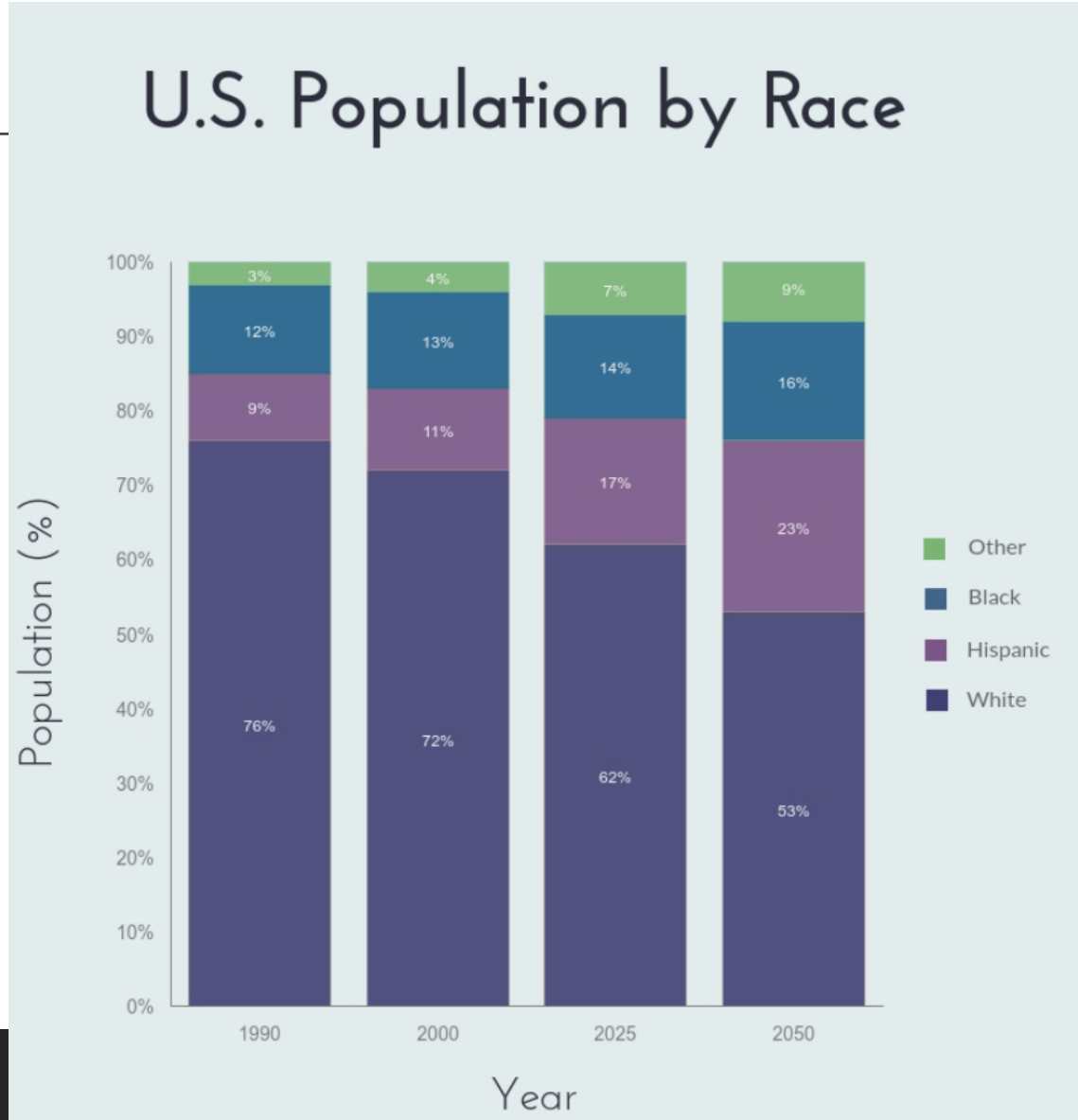

EAST ASIA SALES
QTR 1
QTR 2
QTR 3
QTR 4
East Asia Sales 2009
East Asia Sales 2010

Boxplot

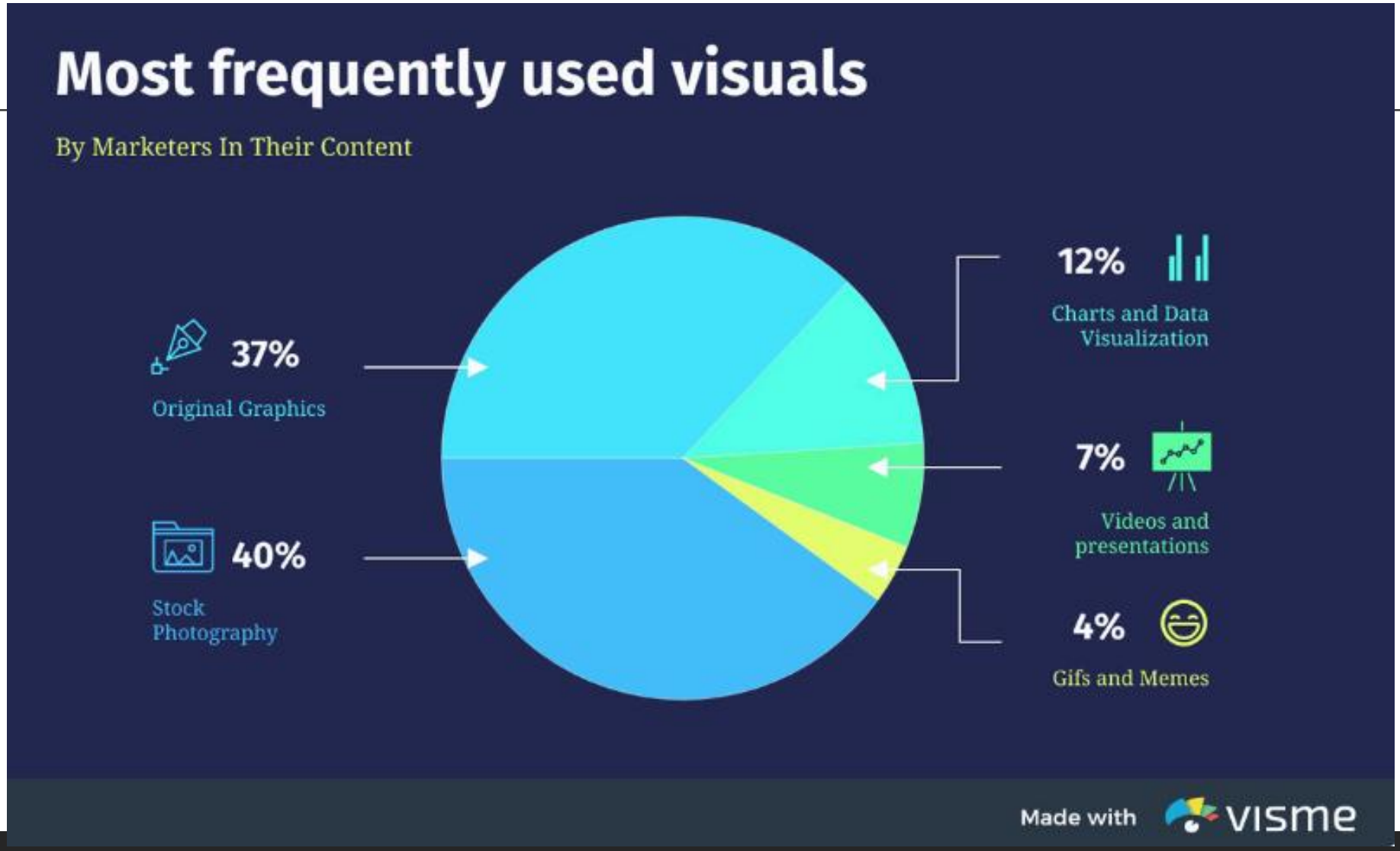

Timbuktu
Havana
Sydney
Santiago
Reykjavik
Near-Surface Air Temperature (°C)
40
30
20
10
0
−10
Timbuktu
Havana
Sydney
Santiago
Reykjavik
Cities


Interquartile Range
(IQR)
Outliers
Outliers
"Minimum"
(Q1 - 1.5*IQR)
Q1
Median
Q3
(25th Percentile)
(75th Percentile)
"Maximum"
(Q3 + 1.5*IQR)
−4
−3
−2
−1
0
1
2
3
4

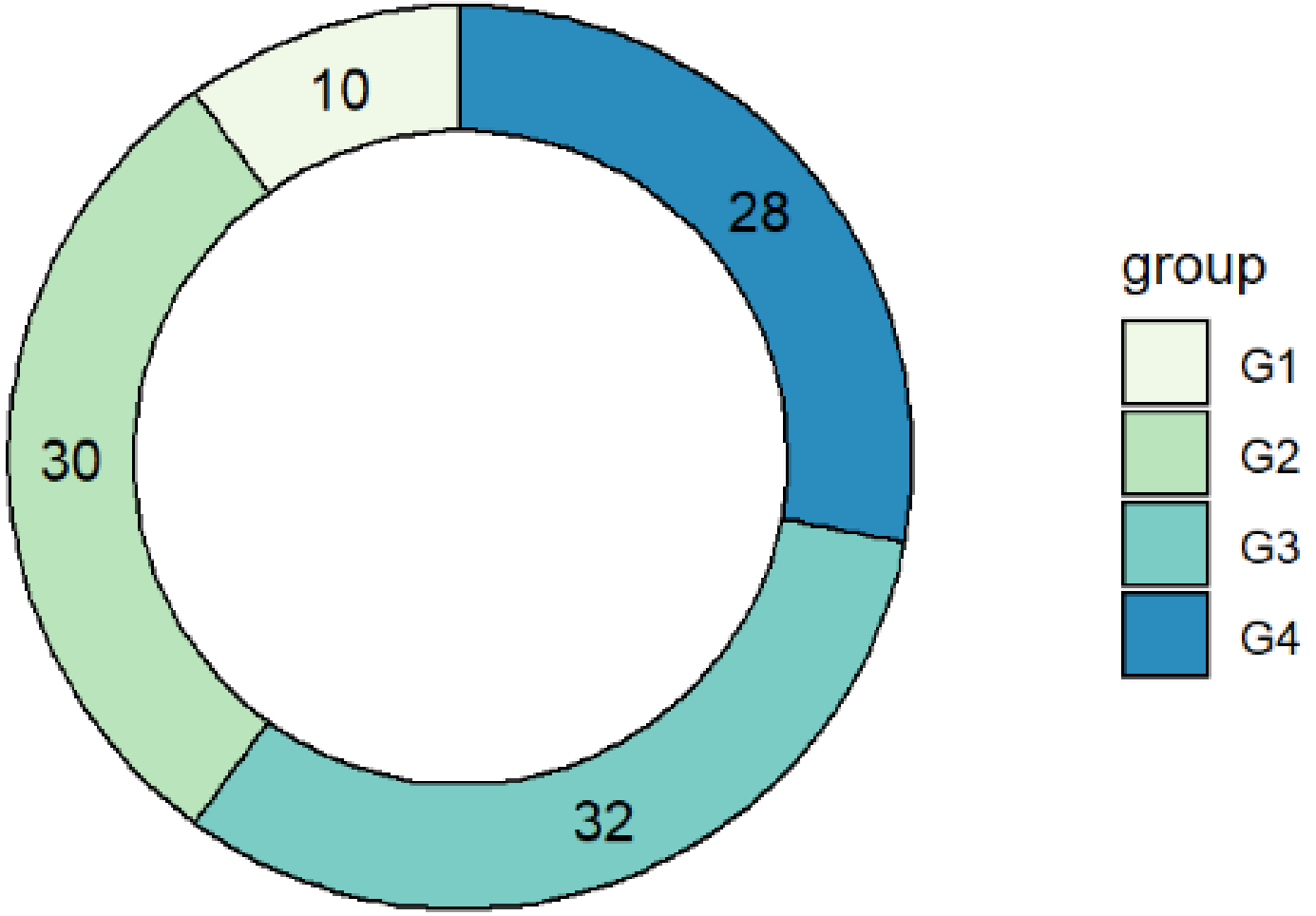
Stacked Bar Graphs



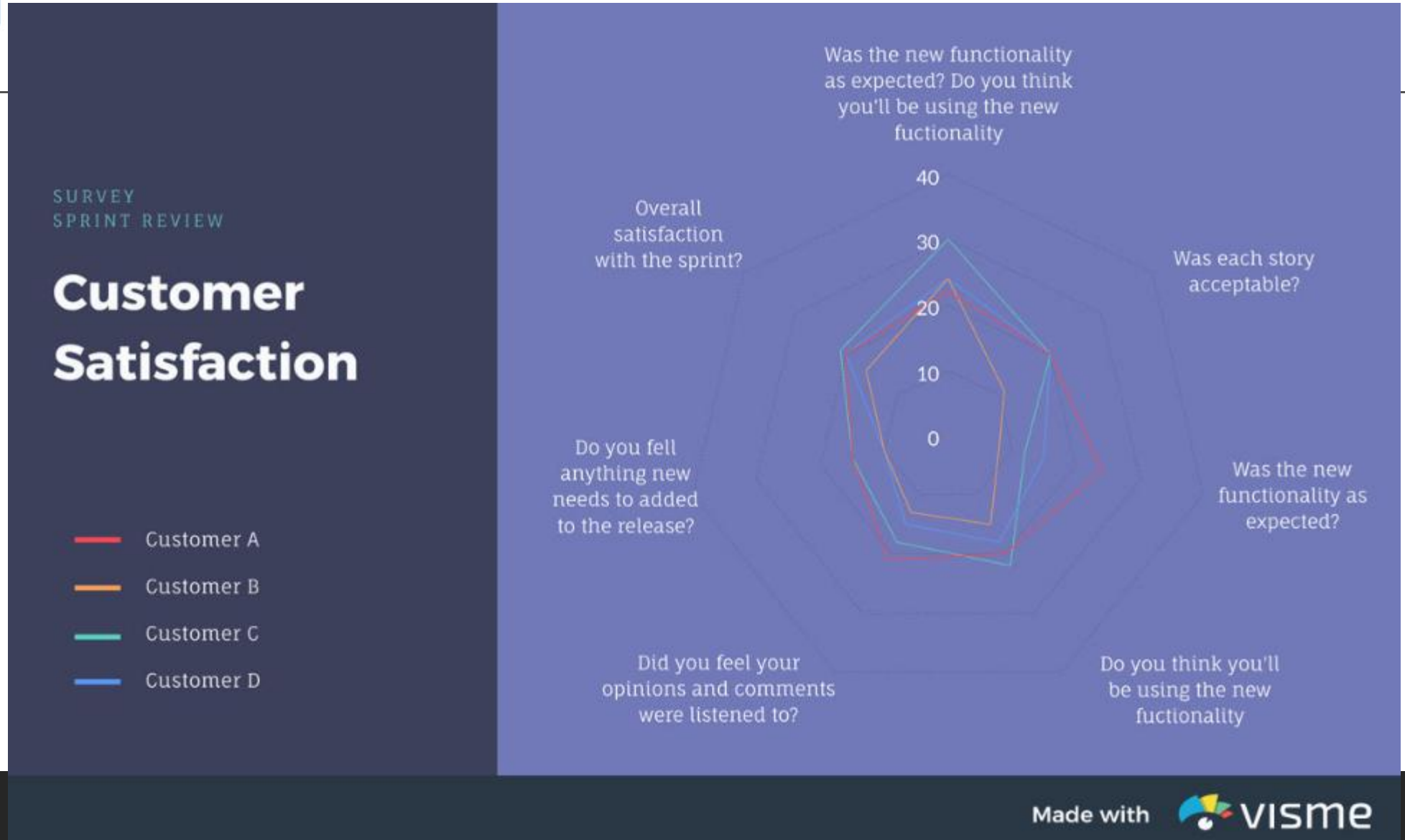
Pie Chart


Most frequently used visuals
By Marketers In Their Content
37%
Original Graphics
40%
Stock Photography
12%
Charts and Data Visualization
7%
Videos and presentations
4%
Gifs and Memes
Made with visme

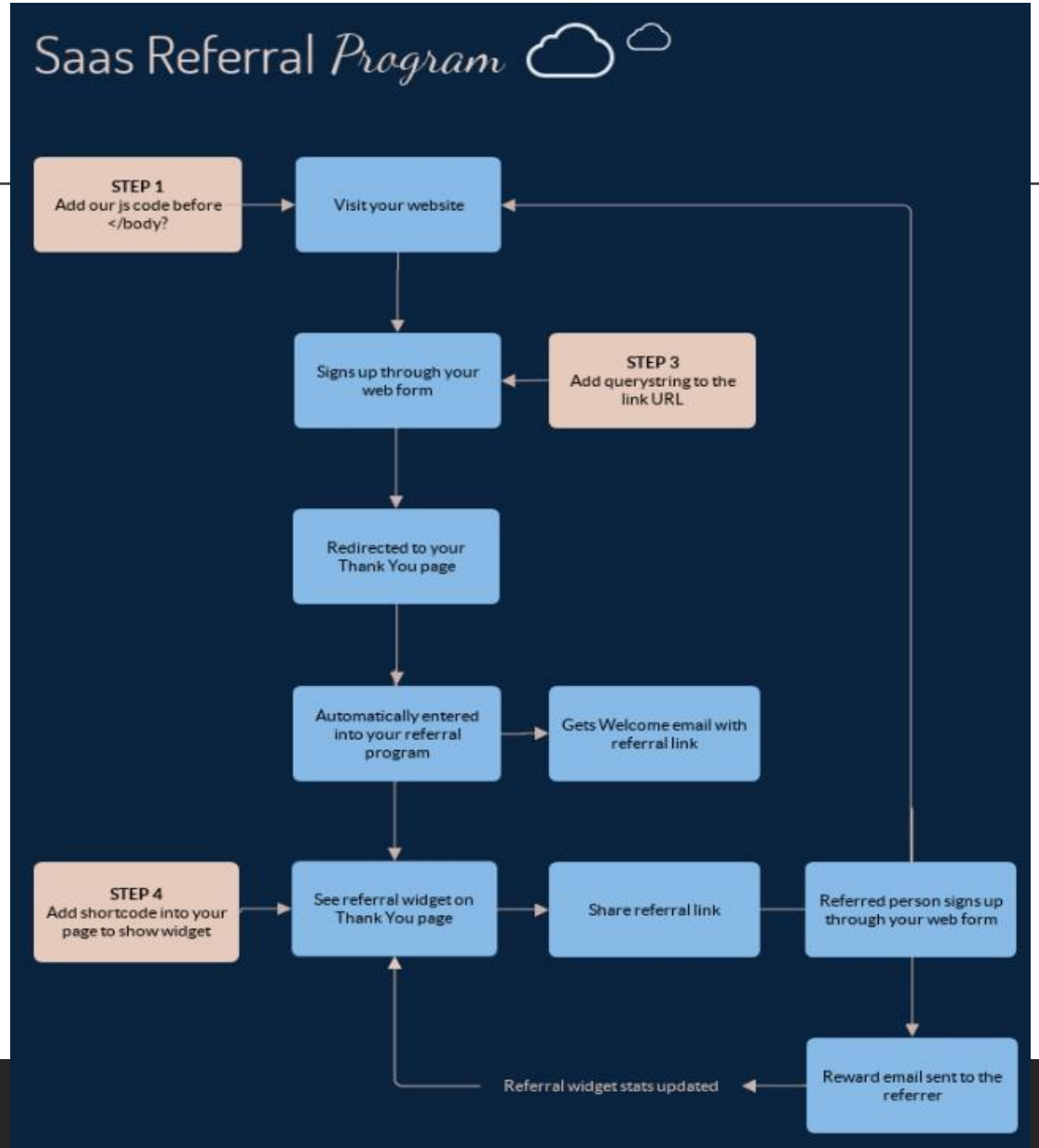
Donut Chart



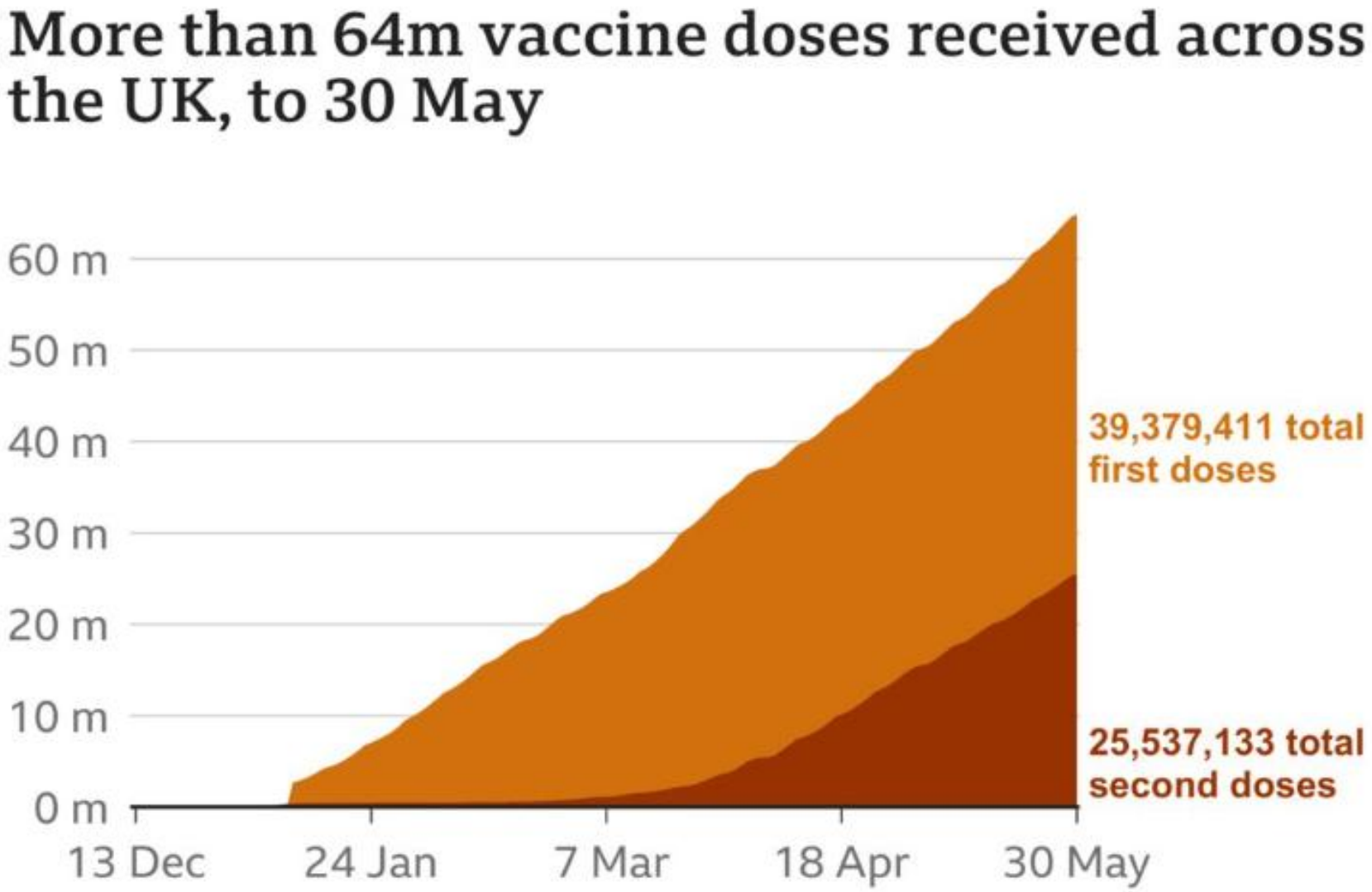
Spider Chart



Flow Chart

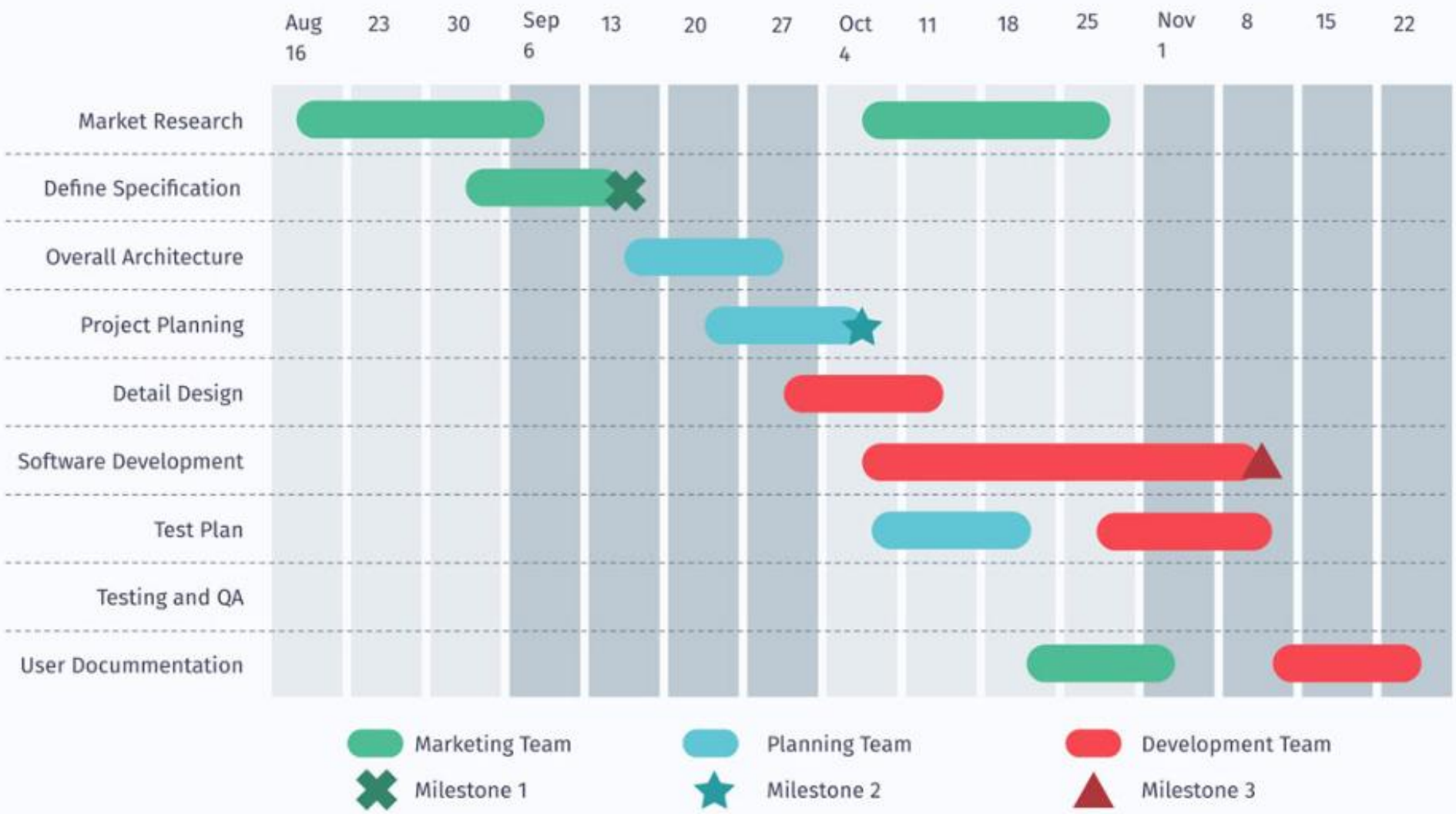

Saas Referral Program
STEP 1
Add our js code before </body?
Visit your website
Signs up through your web form
STEP 3
Add querystring to the link URL
Redirected to your Thank You page
Automatically entered into your referral program
Gets Welcome email with referral link
STEP 4
Add shortcode into your page to show widget
See referral widget on Thank You page
Share referral link
Referred person signs up through your web form
Reward email sent to the referrer
Referral widget stats updated

Area graph

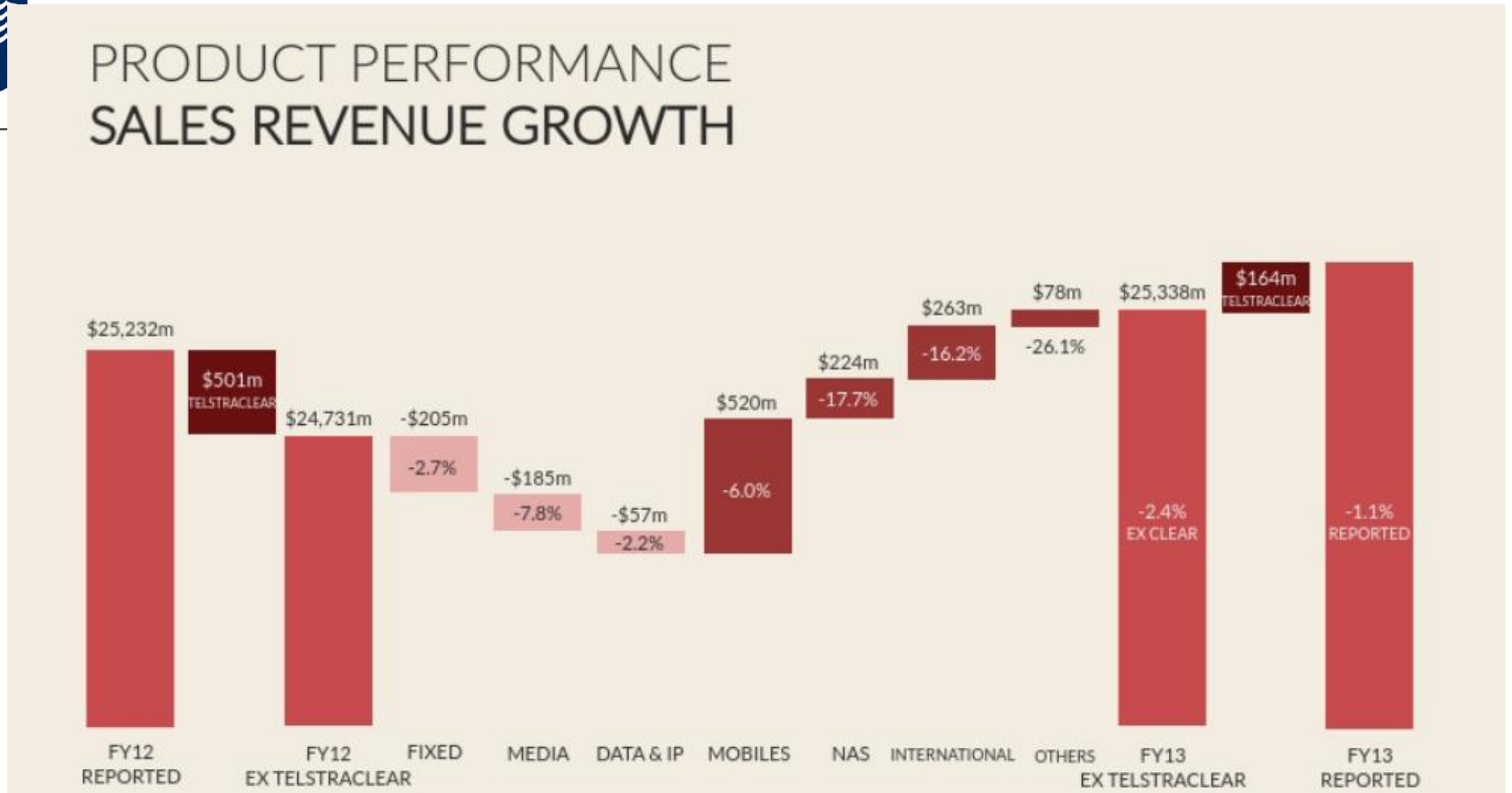

More than 64m vaccine doses received across the UK, to 30 May
60 m
50 m
40 m
30 m
20 m
10 m
0 m
13 Dec
24 Jan
7 Mar
18 Apr
30 May
39,379,411 total first doses
25,537,133 total second doses

Gantt Chart

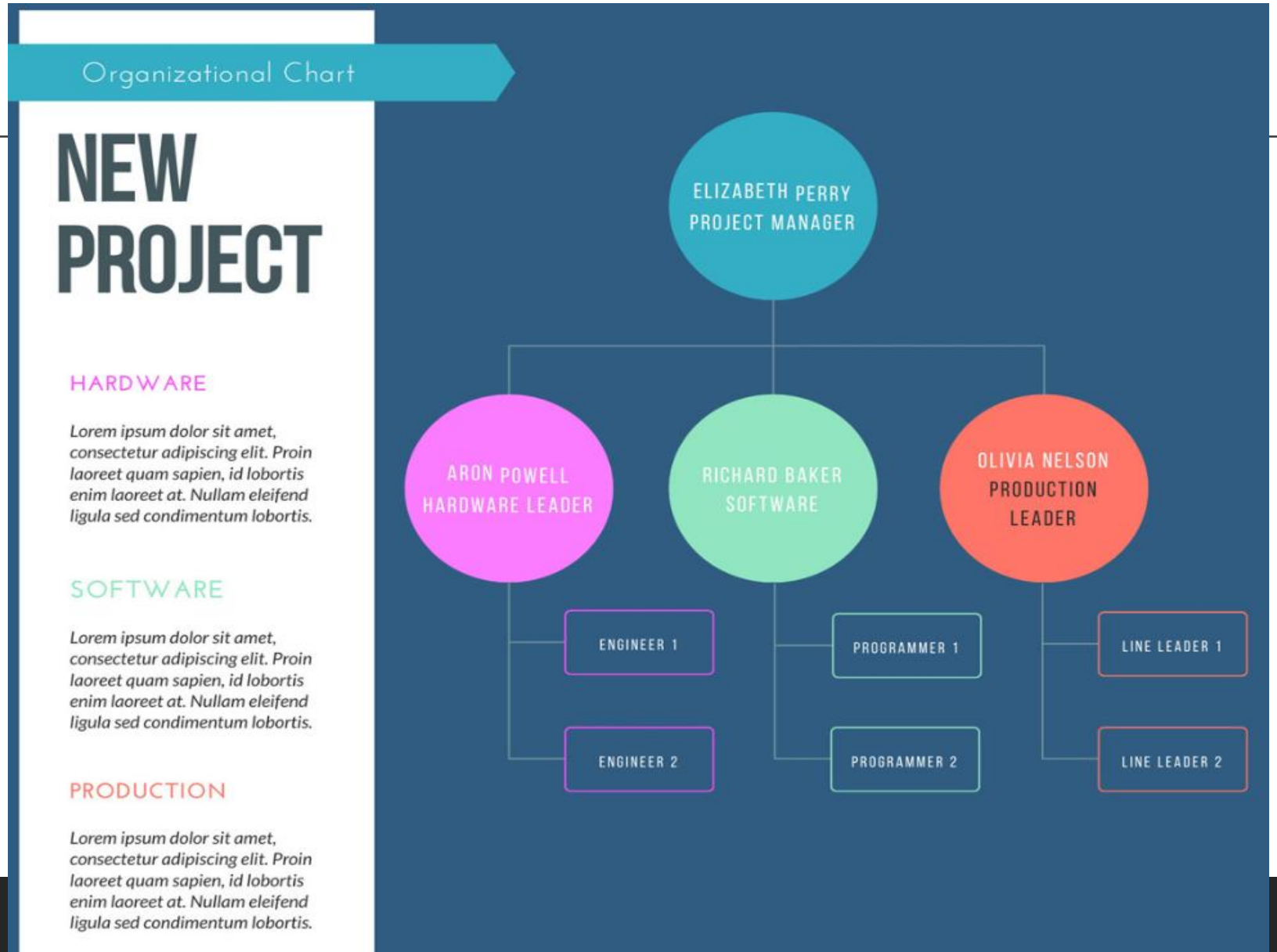
GANTT CHARTS



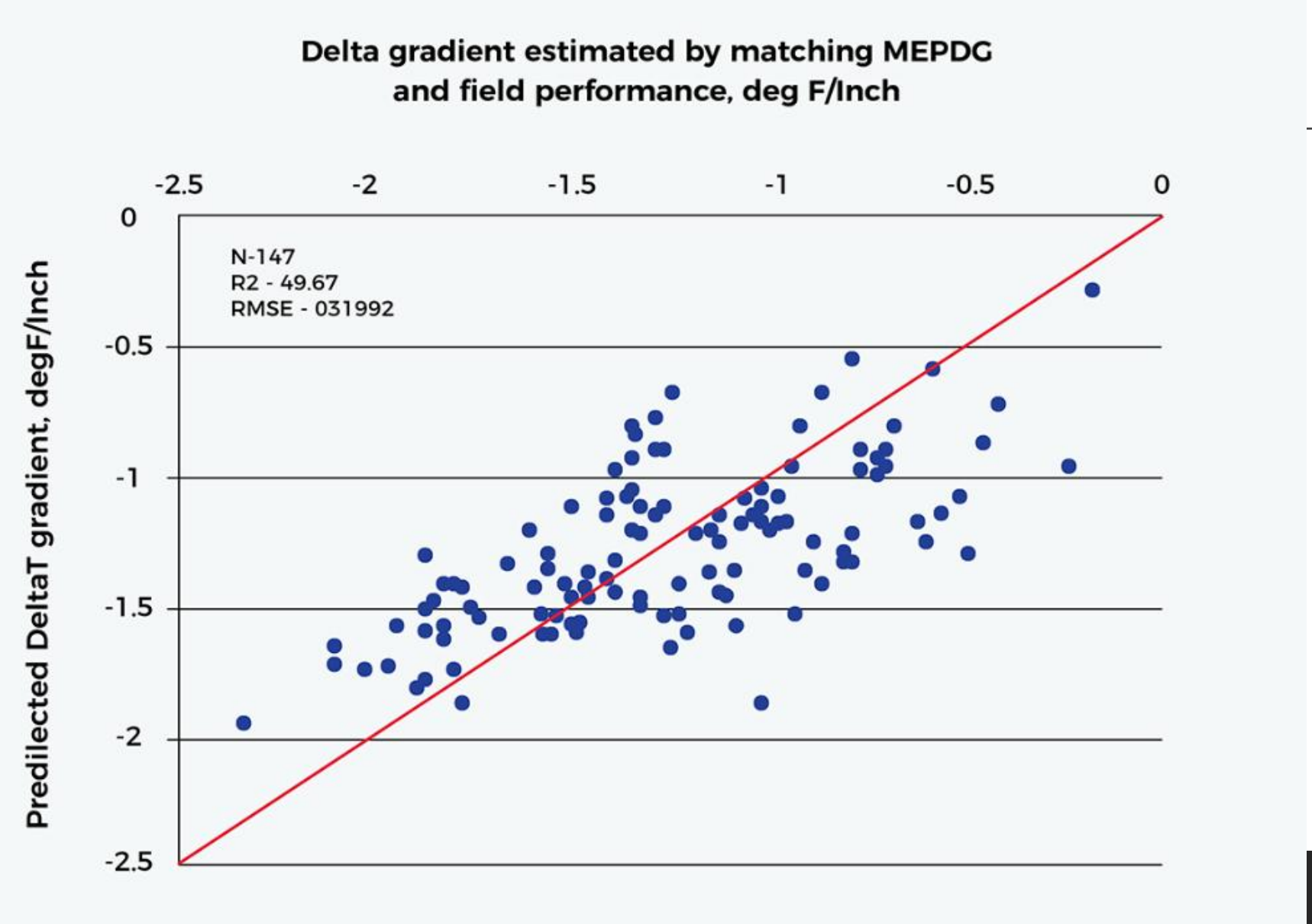
Waterfall Chart



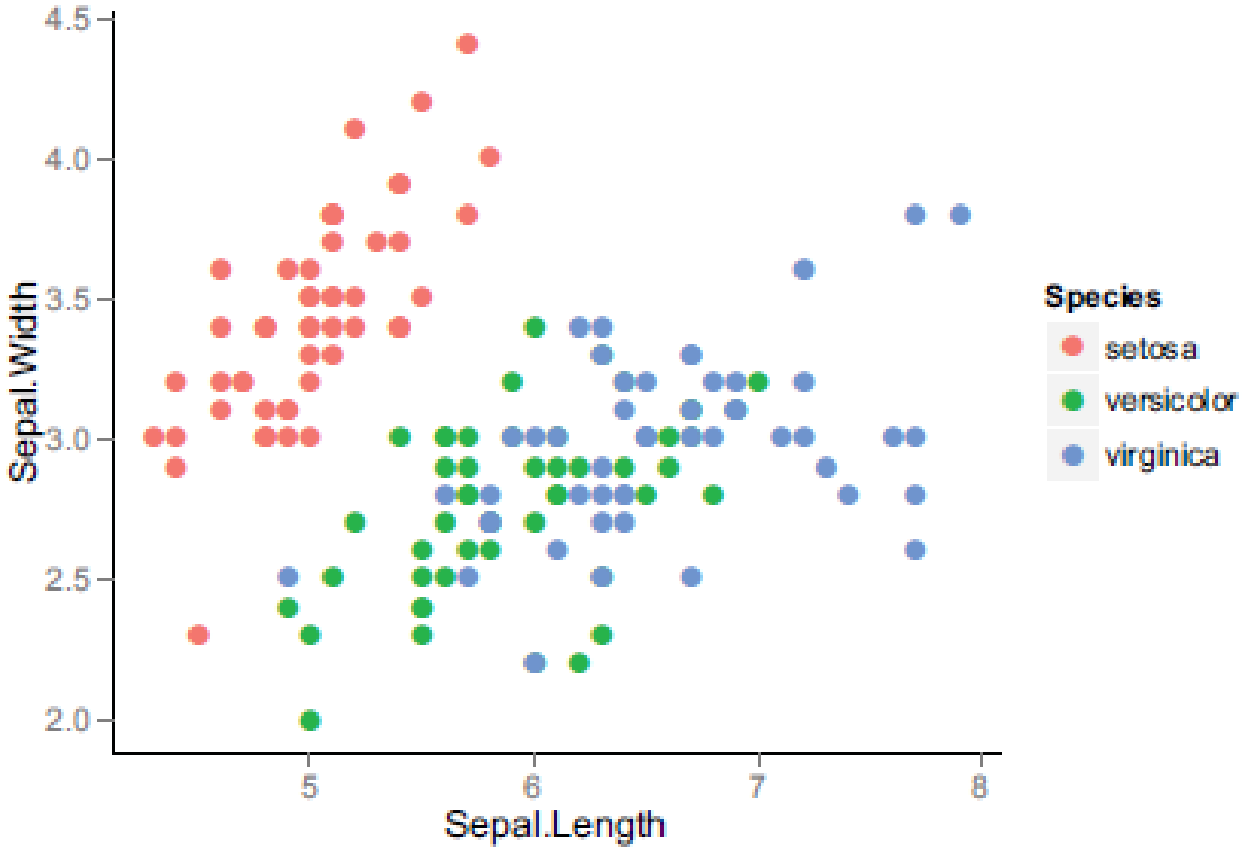
Hierarchy Diagram

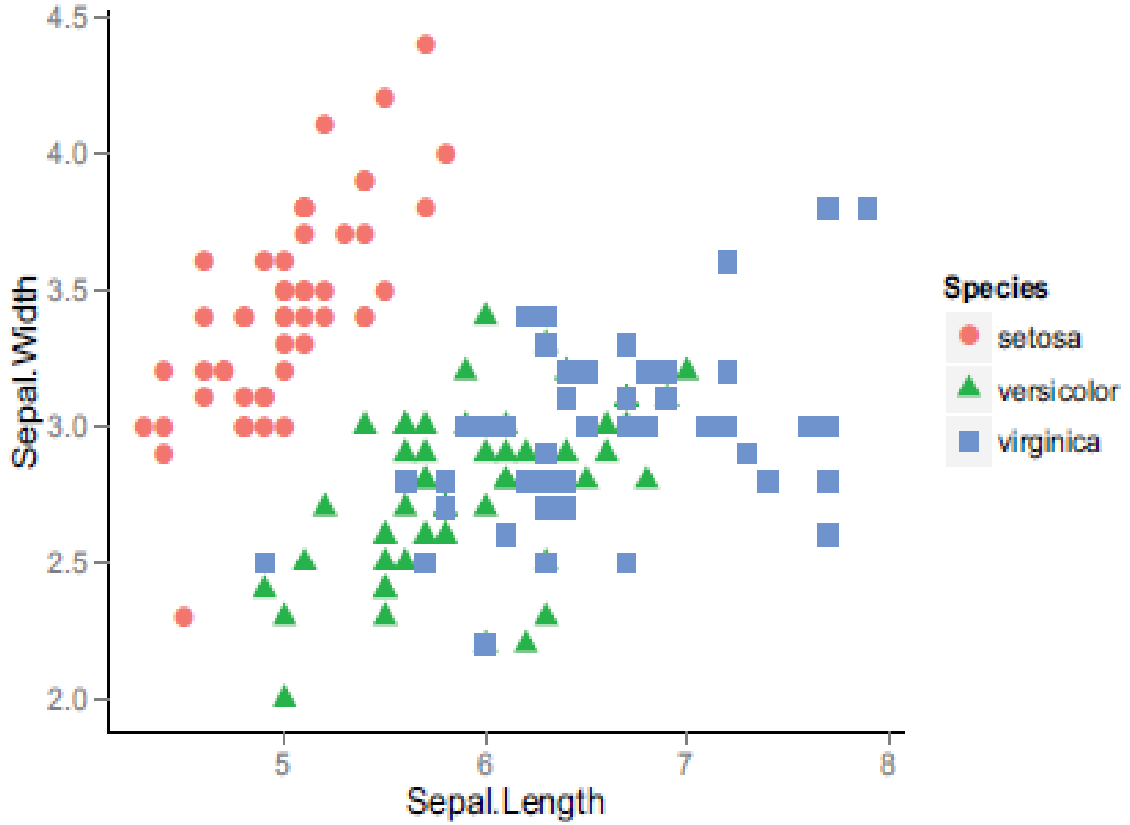


Scatter Plot

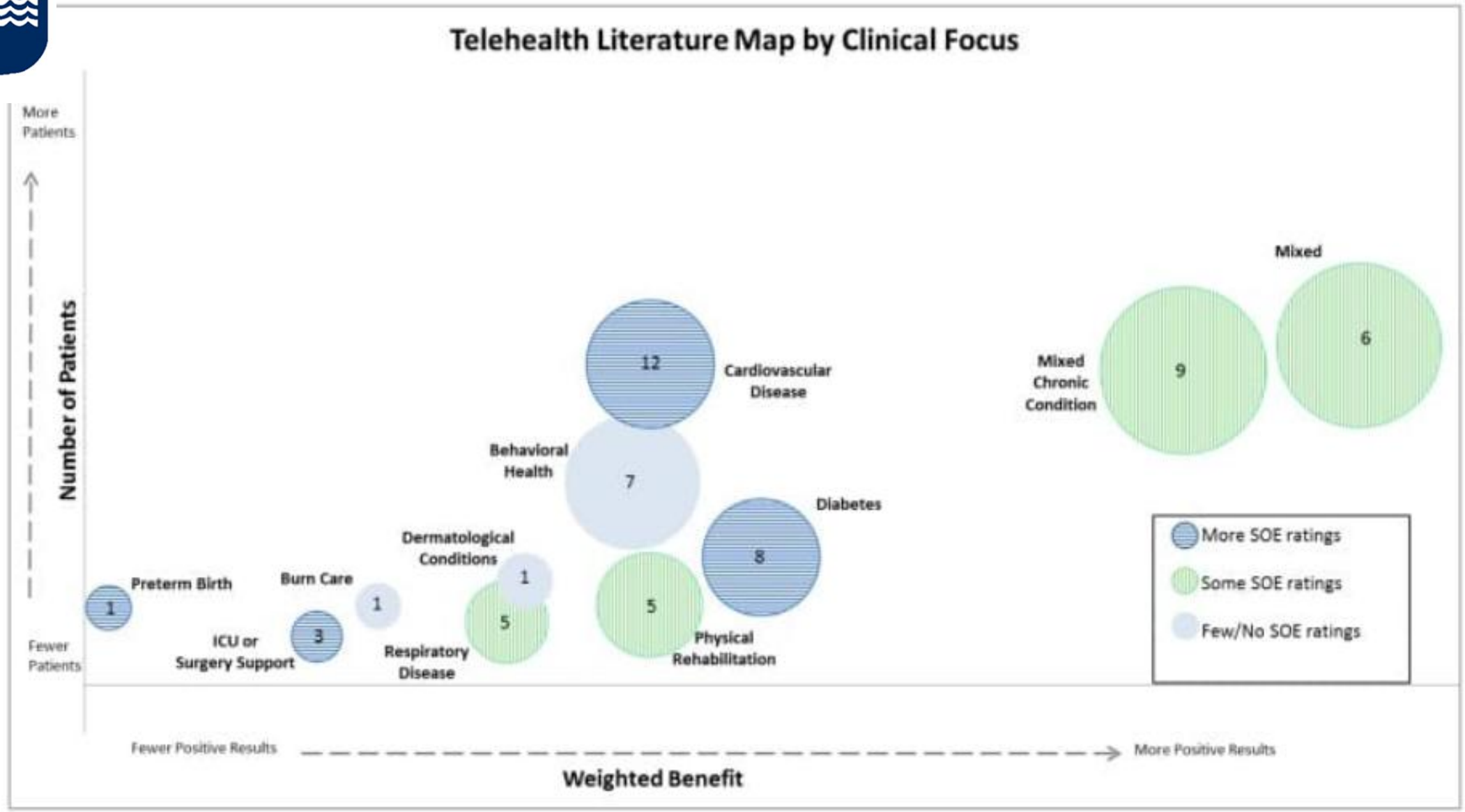


Scatter Plot

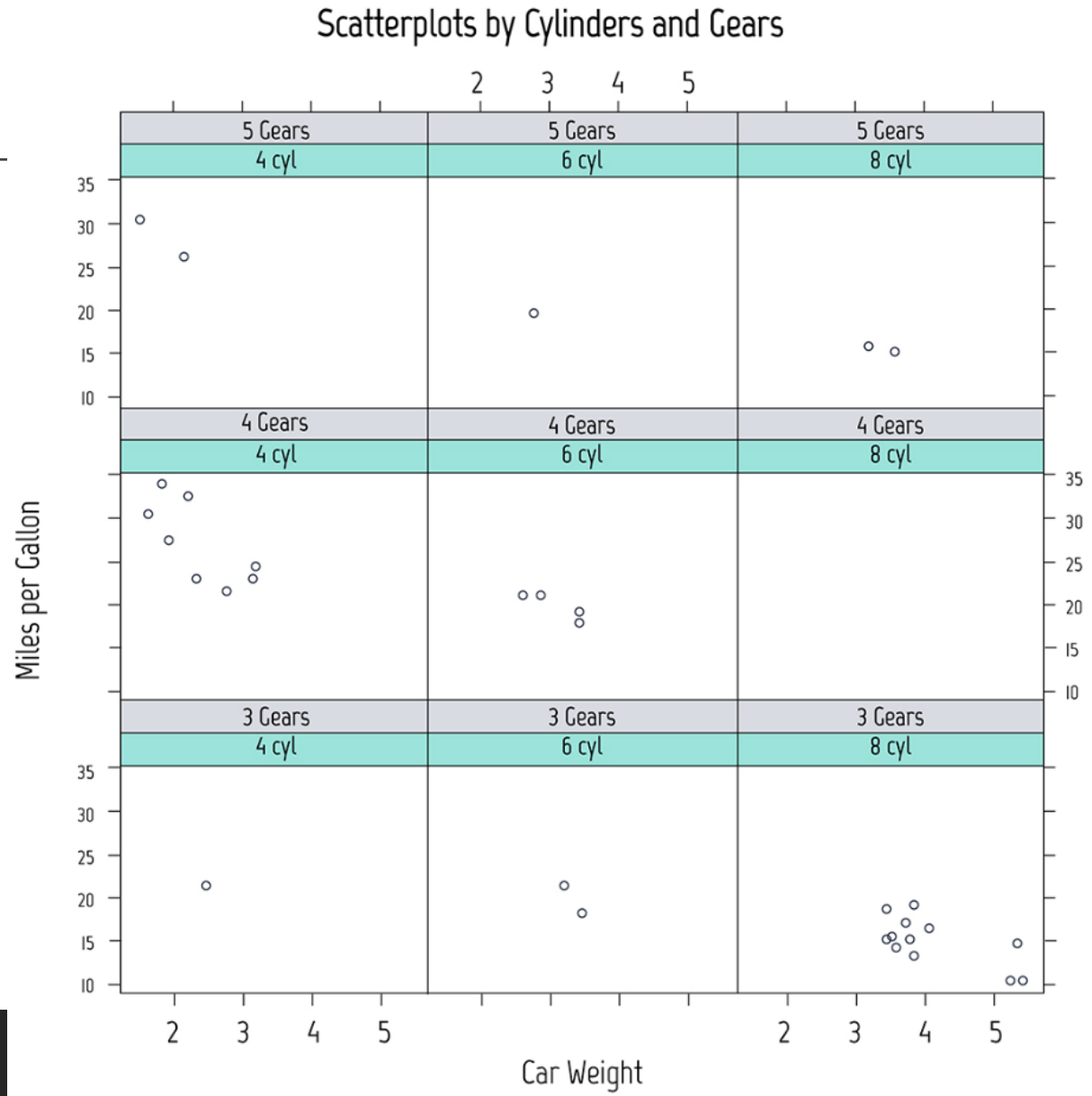




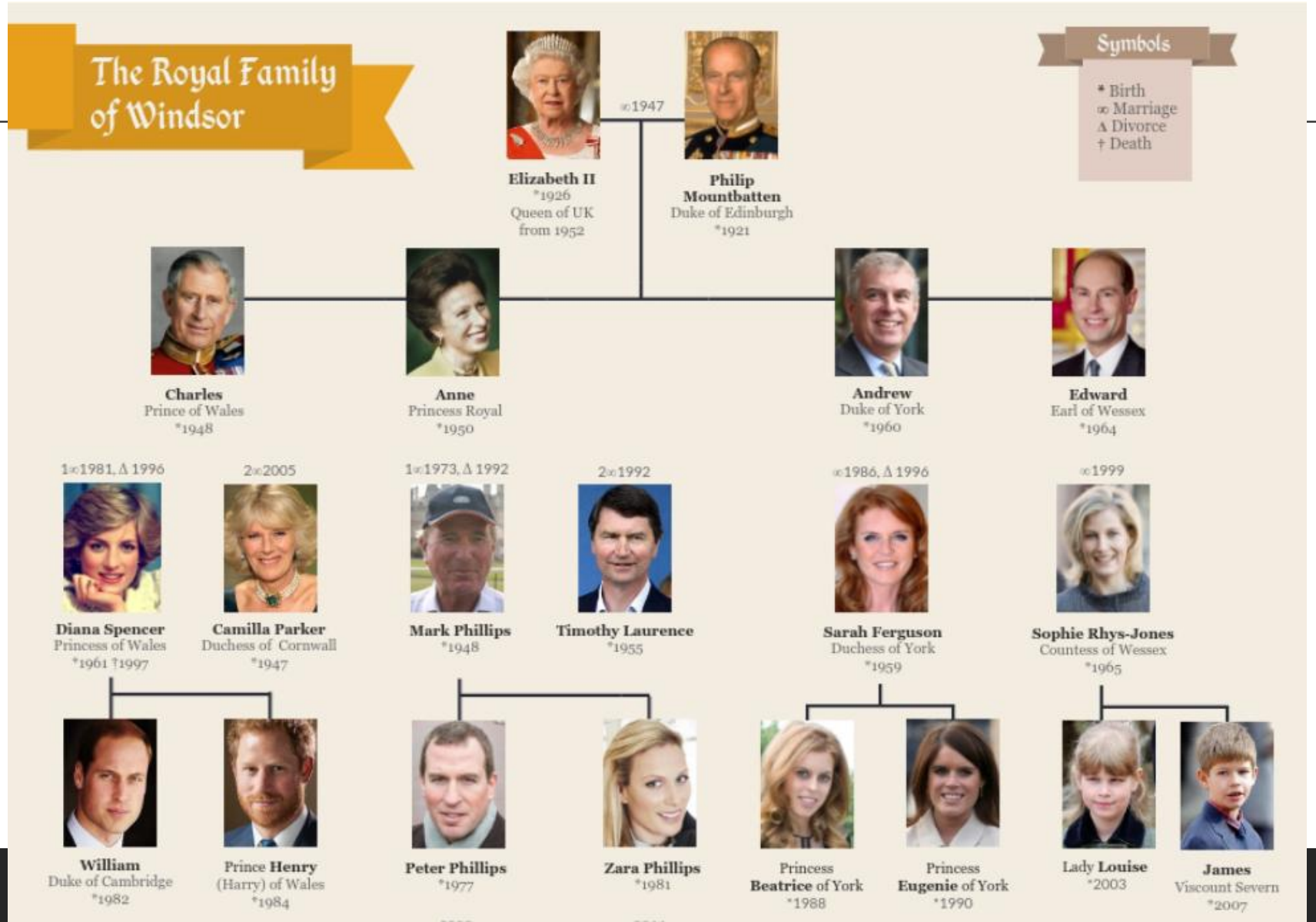
Bubble Chart



Trellis Plot

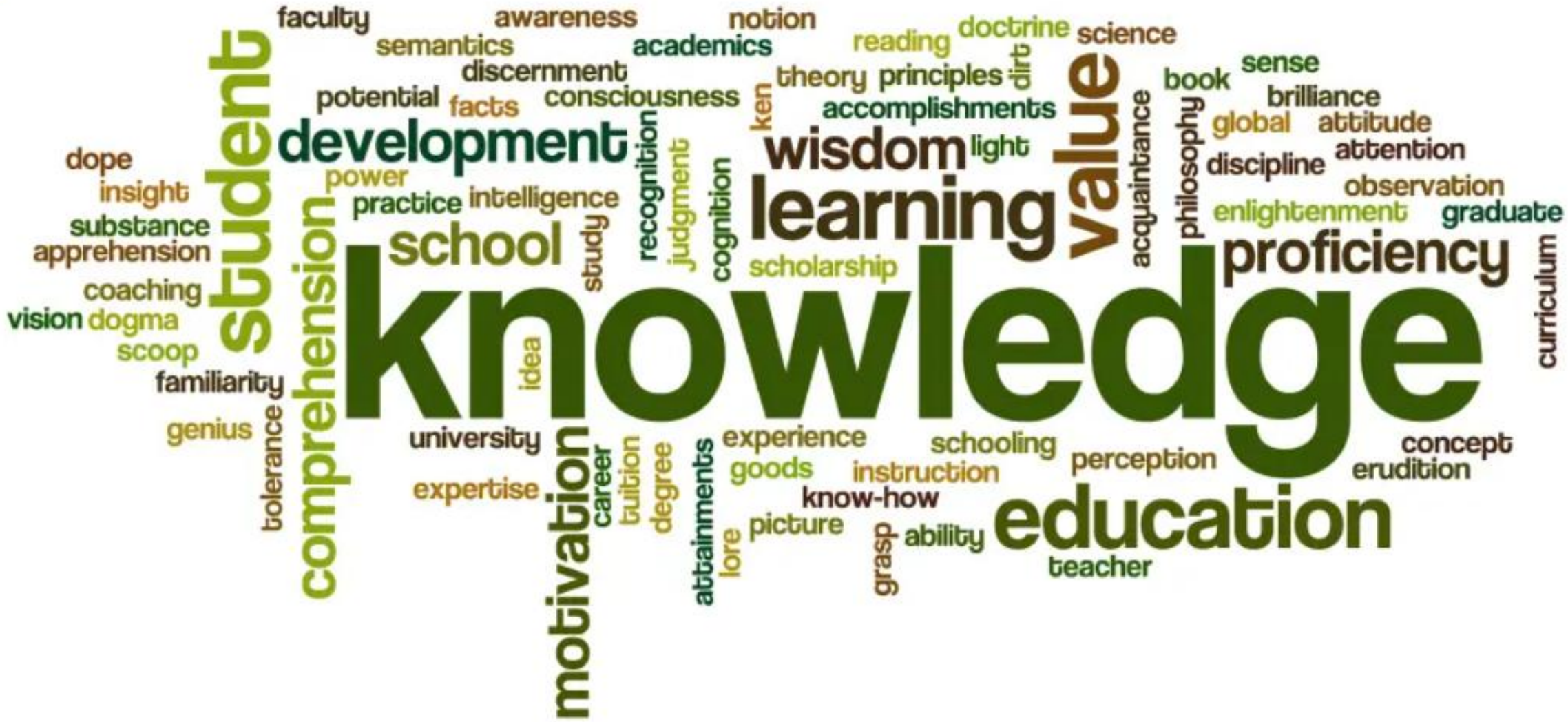


Tree Diagrams

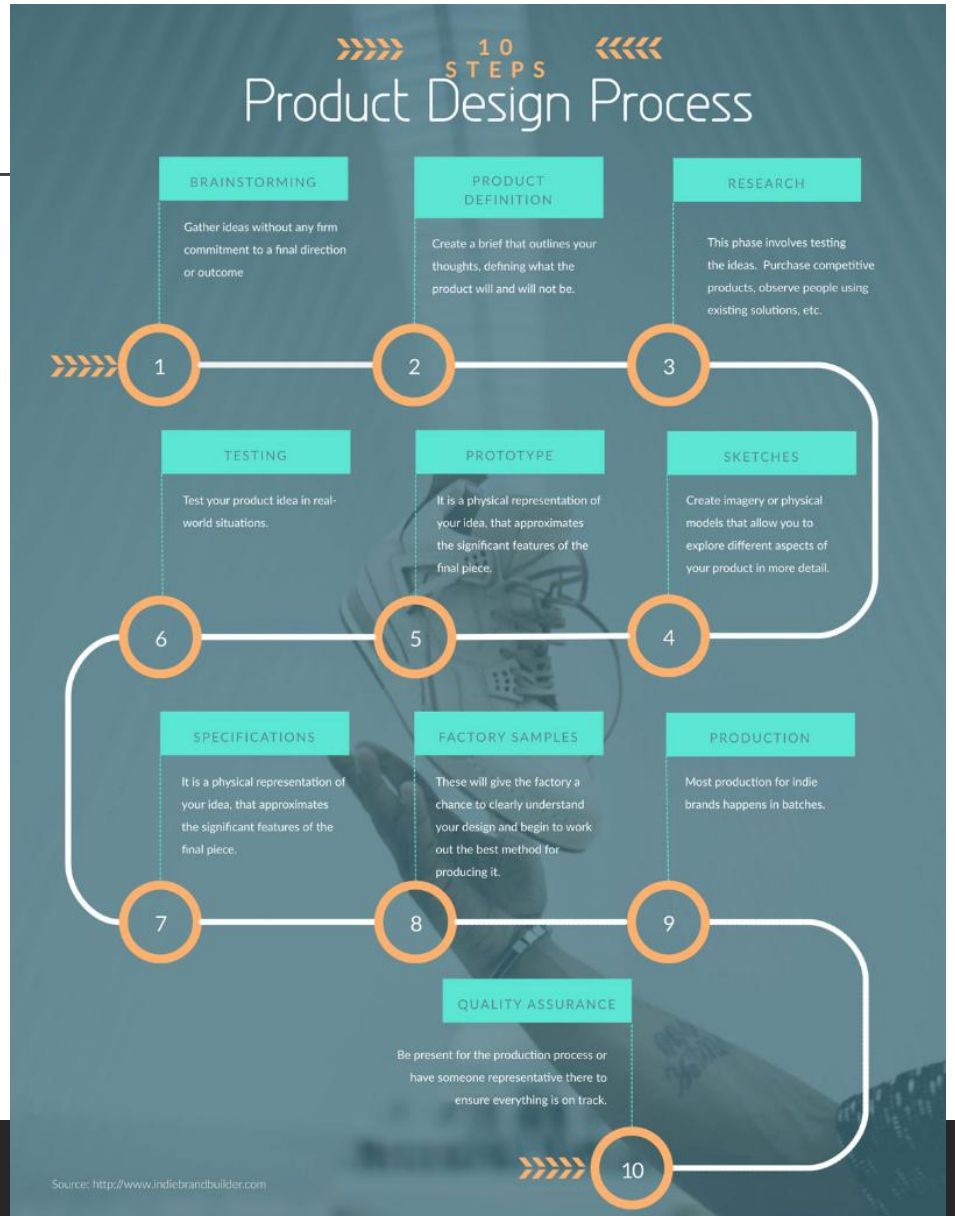


Venn Diagram

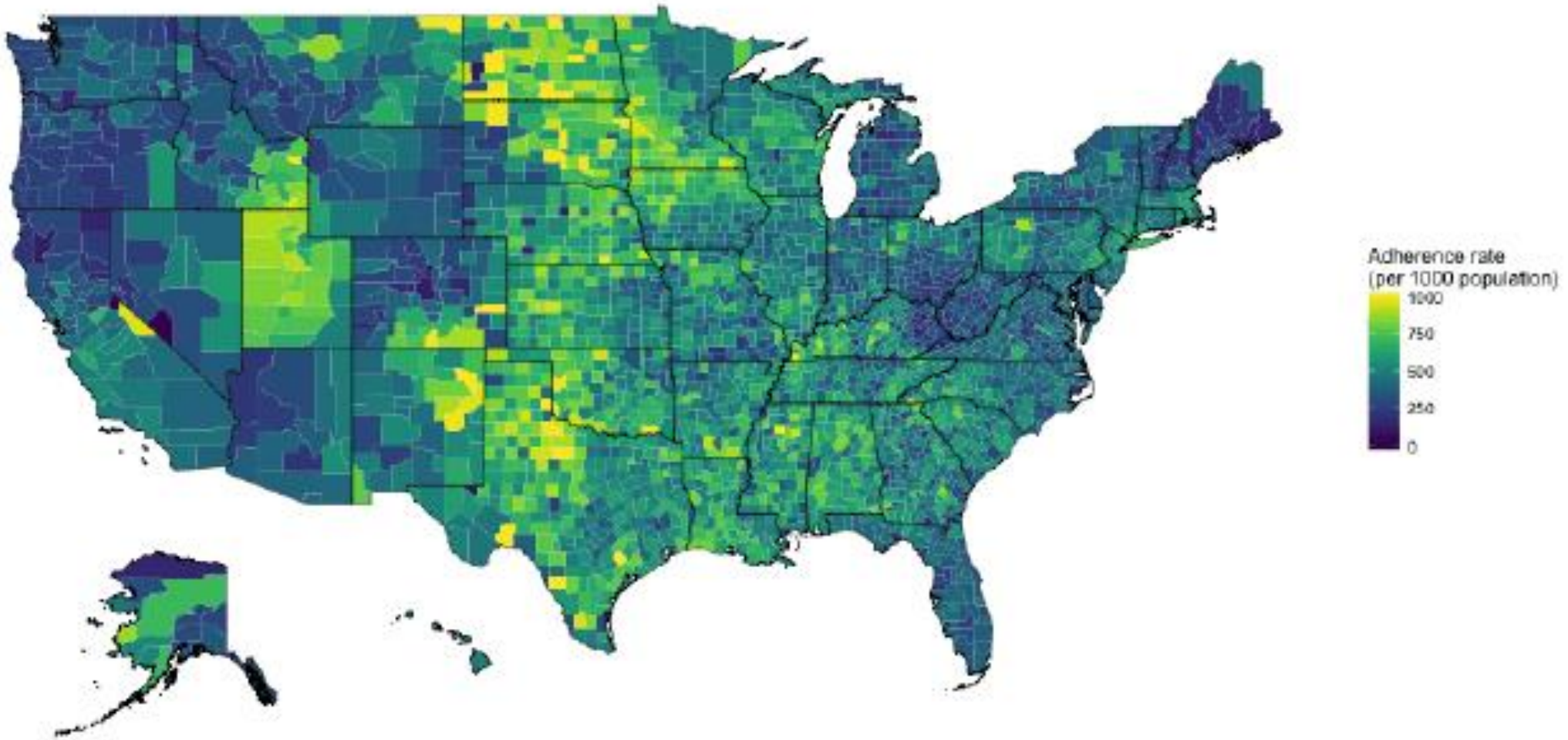
Wordcloud


faculty
awareness
notion
semantics
academics
reading
doctrine
science
discernment
theory
principles
dirt
sense
book
potential
facts
consciousness
ken
accomplishments
brilliance
development
wisdom
light
global
attitude
dope
power
discipline
attention
insight
practice
intelligence
learning
value
acquaintance
philosophy
observation
substance
school
study
recognition
judgment
cognition
enlightenment
graduate
apprehension
scholarship
proficiency
coaching
vision
dogma
knowledge
curriculum
scoop
idea
familiarity
genius
university
experience
schooling
concept
tolerance
comprehension
career
tuition
degree
goods
instruction
perception
erudition
expertise
know-how
motivation
attainments
lore
picture
grasp
ability
education
teacher

Infographics



Map

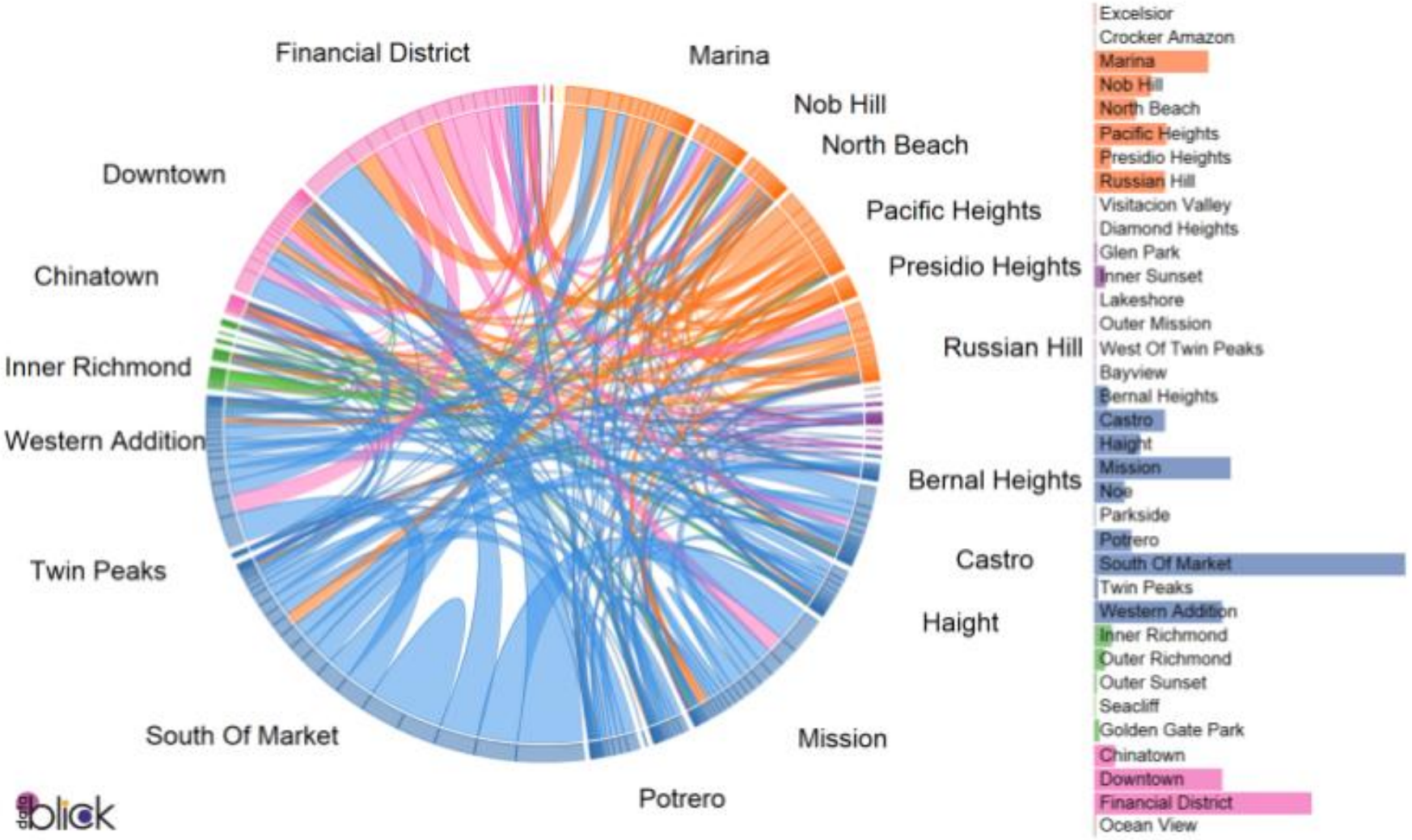


Heatmap

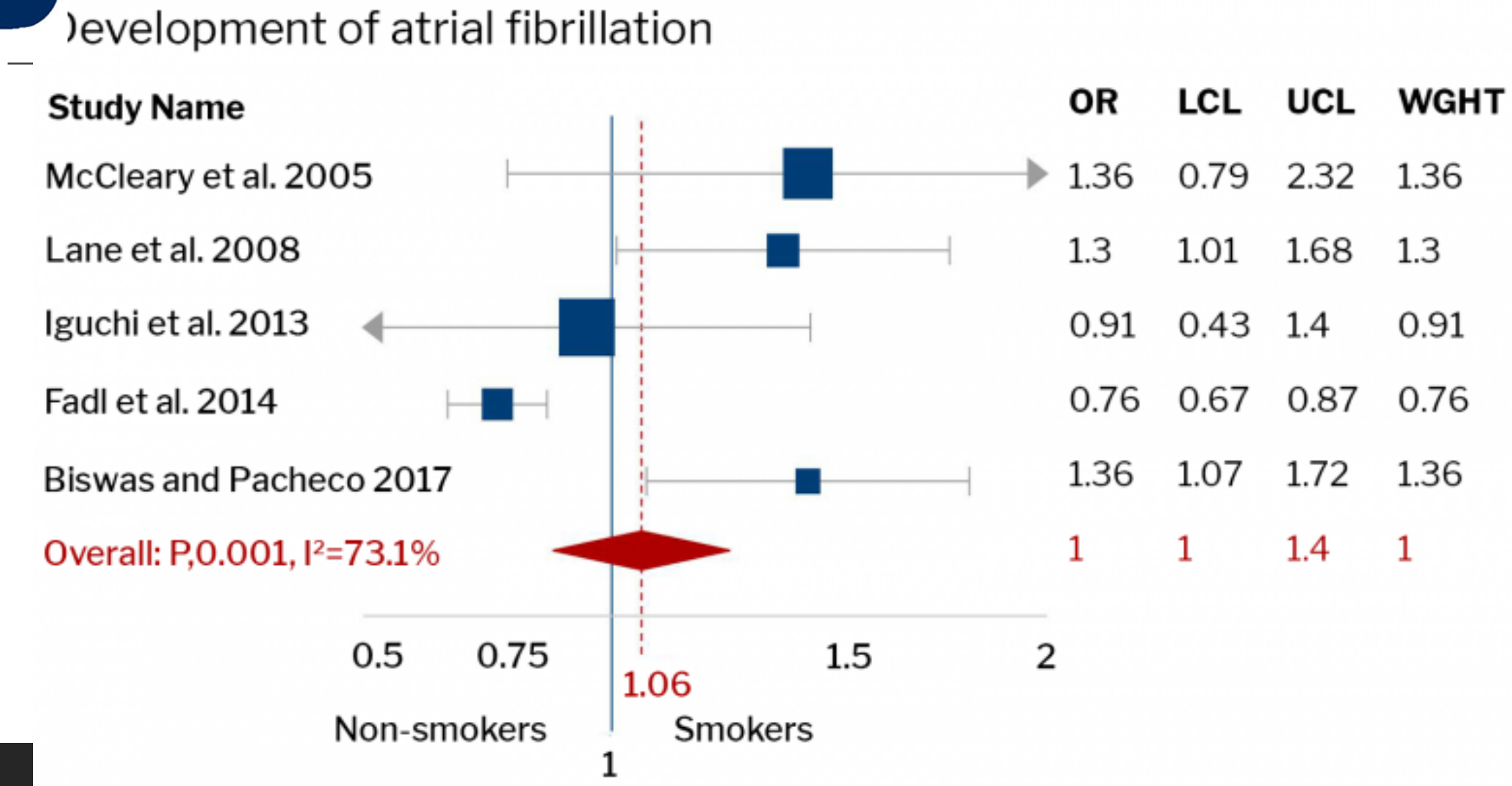
Sales per Region and Sub-Category

	Central	East	South	West
Accessories	$4,439	$6,054	$5,595	$8,926
Appliances	$3,659	$5,779	$2,120	$3,755
Art	$822	$1,290	$566	$3,380
Binders	$15,871	$6,347	$8,307	$12,963
Bookcases	$1,834	$10,863	$794	$6,545
Chairs	$20,754	$22,008	$13,072	$21,407
Copiers	$3,270	$4,100	$480	$3,000
Envelopes	$1,599	$1,348	$252	$658
Fasteners	$122	$97	$166	$277
Furnishings	$2,536	$3,757	$3,161	$4,372
Labels	$1,048	$516	$401	$876
Machines	$16,292	$14,636	$27,595	$3,500
Paper	$2,347	$3,917	$3,185	$5,386
Phones	$9,926	$20,689	$17,249	$29,527
Storage	$11,093	$16,207	$6,715	$16,313
Supplies	$440	$468	$4,247	$9,238
Tables	$7,785	$10,604	$9,941	$17,758

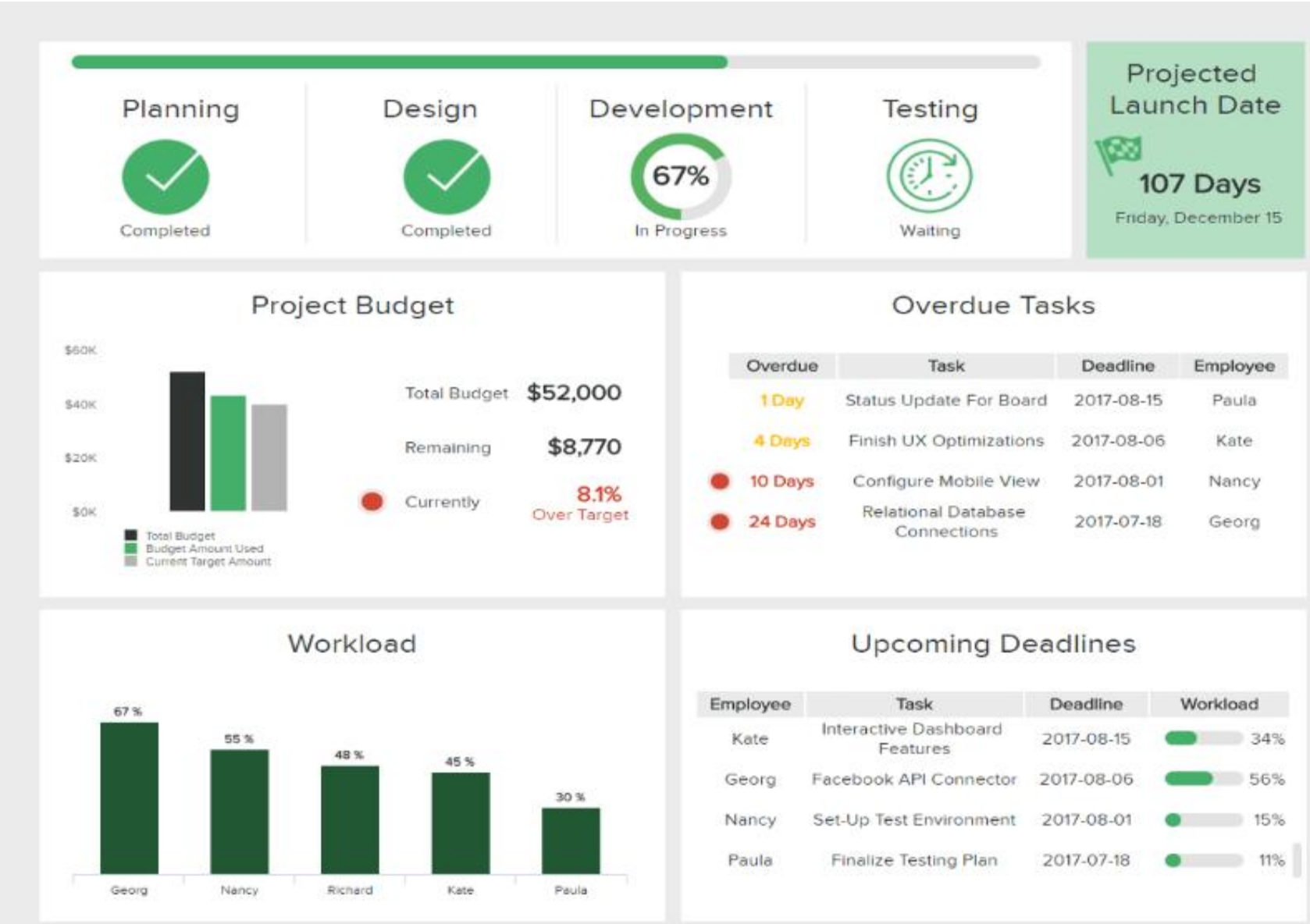
Chord Plot


Financial District
Marina
Nob Hill
North Beach
Pacific Heights
Presidio Heights
Russian Hill
Bernal Heights
Castro
Haight
Mission
Potrero
South Of Market
Twin Peaks
Western Addition
Inner Richmond
Chinatown
Downtown
Excelsior
Crocker Amazon
Marina
Nob Hill
North Beach
Pacific Heights
Presidio Heights
Russian Hill
Visitacion Valley
Diamond Heights
Glen Park
Inner Sunset
Lakeshore
Outer Mission
West Of Twin Peaks
Bayview
Bernal Heights
Castro
Haight
Mission
Noe
Parkside
Potrero
South Of Market
Twin Peaks
Western Addition
Inner Richmond
Outer Richmond
Outer Sunset
Seacliff
Golden Gate Park
Chinatown
Downtown
Financial District
Ocean View

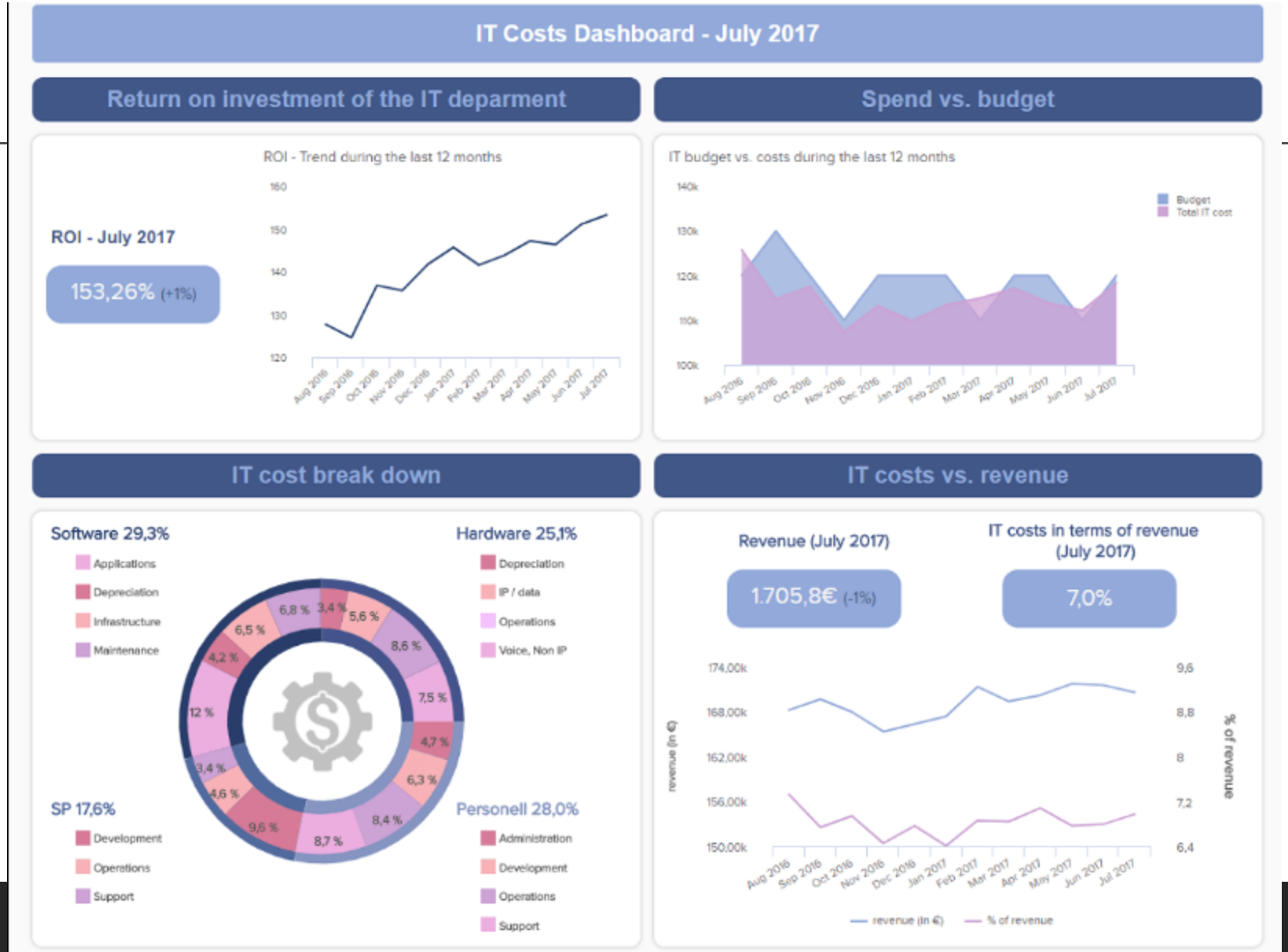
Forest Plot


Development of atrial fibrillation
Study Name
OR
LCL
UCL
WGHT
McCleary et al. 2005
1.36
0.79
2.32
1.36
Lane et al. 2008
1.3
1.01
1.68
1.3
Iguchi et al. 2013
0.91
0.43
1.4
0.91
Fadl et al. 2014
0.76
0.67
0.87
0.76
Biswas and Pacheco 2017
1.36
1.07
1.72
1.36
Overall: P,0.001, I²=73.1%
1
1
1.4
1
0.5
0.75
1.5
2
1.06
Non-smokers
Smokers
1

Dashboard

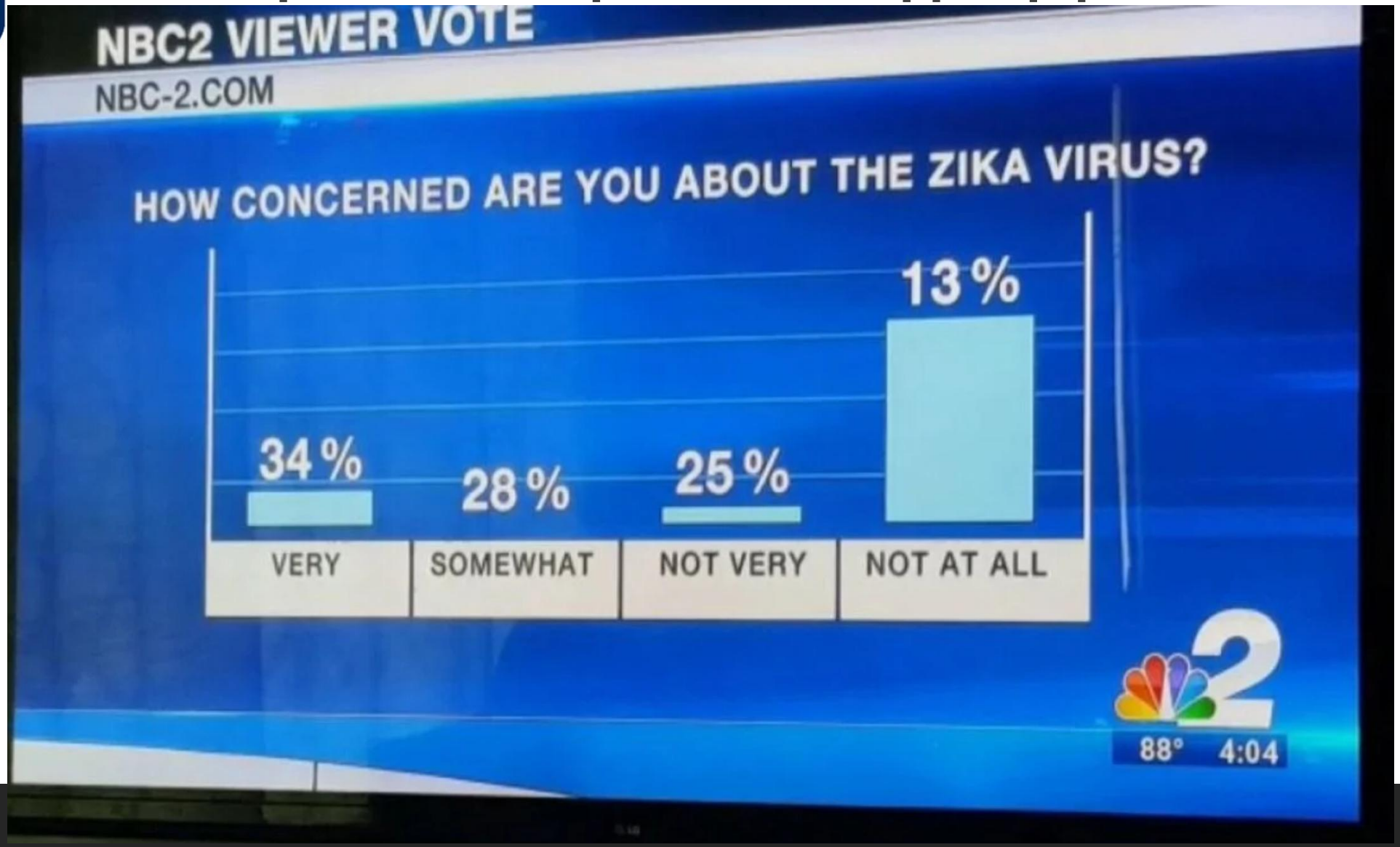

Planning
Completed
Design
Completed
Development
67%
In Progress
Testing
Waiting
Projected Launch Date
107 Days
Friday, December 15
Project Budget
$60K
$40K
$20K
$0K
Total Budget
Budget Amount Used
Current Target Amount
Total Budget $52,000
Remaining $8,770
Currently 8.1% Over Target
Overdue Tasks
Overdue | Task | Deadline | Employee
1 Day | Status Update For Board | 2017-08-15 | Paula
4 Days | Finish UX Optimizations | 2017-08-06 | Kate
10 Days | Configure Mobile View | 2017-08-01 | Nancy
24 Days | Relational Database Connections | 2017-07-18 | Georg
Workload
67 %
55 %
48 %
45 %
30 %
Georg
Nancy
Richard
Kate
Paula
Upcoming Deadlines
Employee | Task | Deadline | Workload
Kate | Interactive Dashboard Features | 2017-08-15 | 34%
Georg | Facebook API Connector | 2017-08-06 | 56%
Nancy | Set-Up Test Environment | 2017-08-01 | 15%
Paula | Finalize Testing Plan | 2017-07-18 | 11%

Dashboard

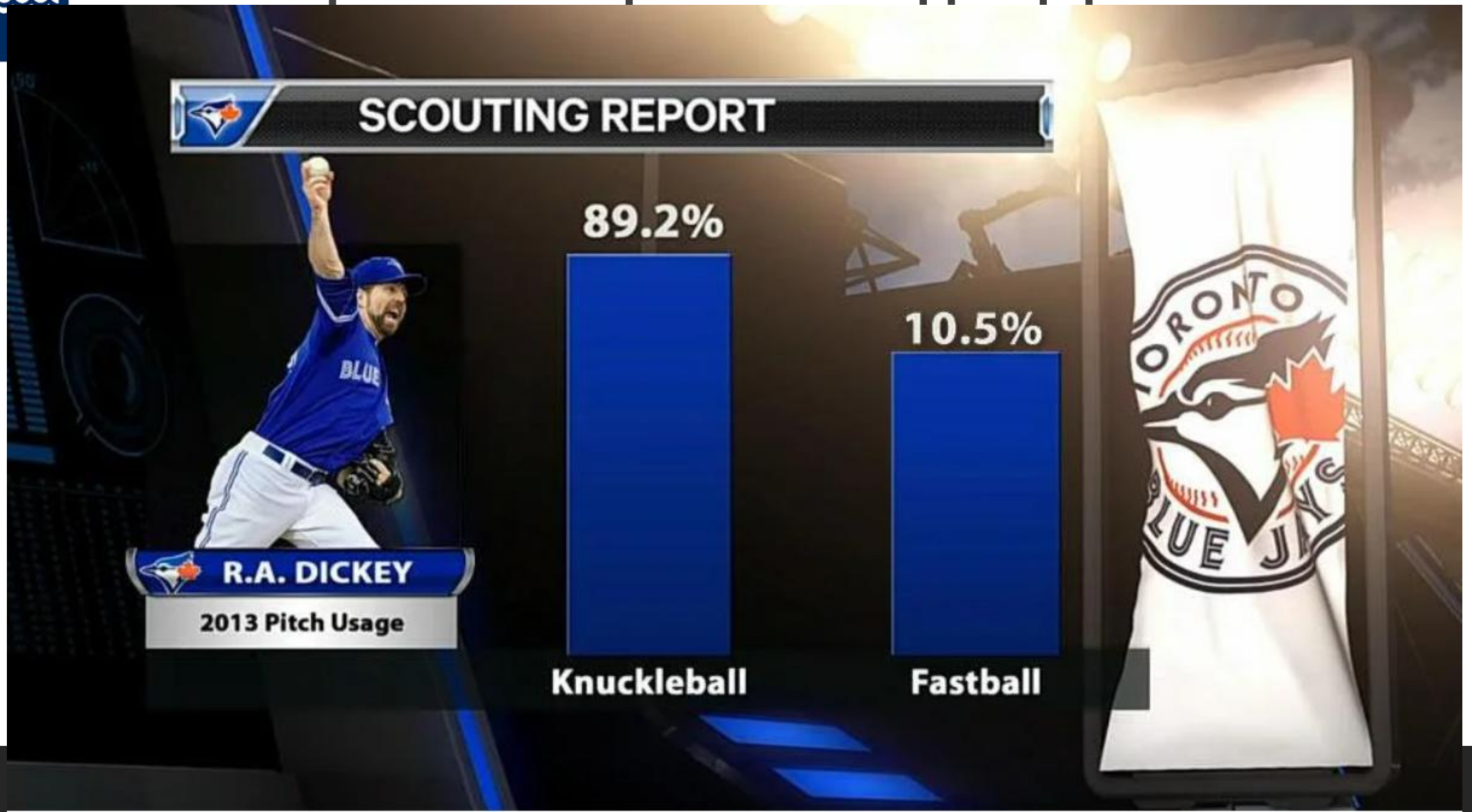

IT Costs Dashboard - July 2017
Return on investment of the IT deparment
ROI - July 2017
153,26% (+1%)
ROI - Trend during the last 12 months
160
150
140
130
120
Aug 2016
Sep 2016
Oct 2016
Nov 2016
Dec 2016
Jan 2017
Feb 2017
Mar 2017
Apr 2017
May 2017
Jun 2017
Jul 2017
Spend vs. budget
IT budget vs. costs during the last 12 months
140k
130k
120k
110k
100k
Budget
Total IT cost
IT cost break down
Software 29,3%
Applications
Depreciation
Infrastructure
Maintenance
Hardware 25,1%
Depreciation
IP / data
Operations
Voice, Non IP
SP 17,6%
Development
Operations
Support
Personell 28,0%
Administration
Development
Operations
Support
6,8 %
3,4 %
5,6 %
8,6 %
7,5 %
4,7 %
6,3 %
8,4 %
8,7 %
9,6 %
4,6 %
3,4 %
12 %
4,2 %
6,5 %
IT costs vs. revenue
Revenue (July 2017)
1.705,8€ (-1%)
IT costs in terms of revenue (July 2017)
7,0%
174,00k
168,00k
162,00k
156,00k
150,00k
revenue (in €)
9,6
8,8
8
7,2
6,4
% of revenue
revenue (in €)
% of revenue

Παραπλανητικά Διαγράμματα

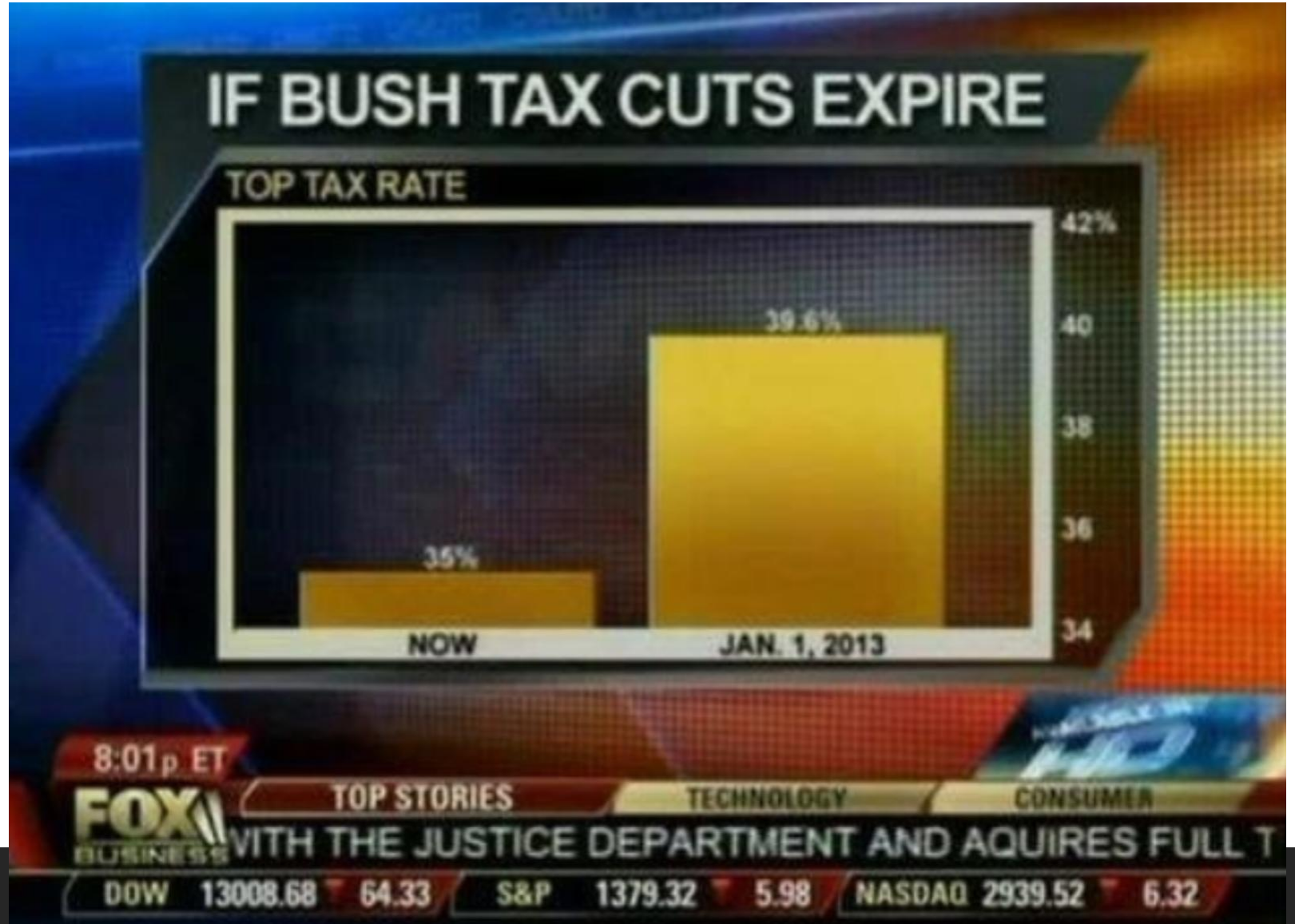
Παραπλανητικά Διαγράμματα



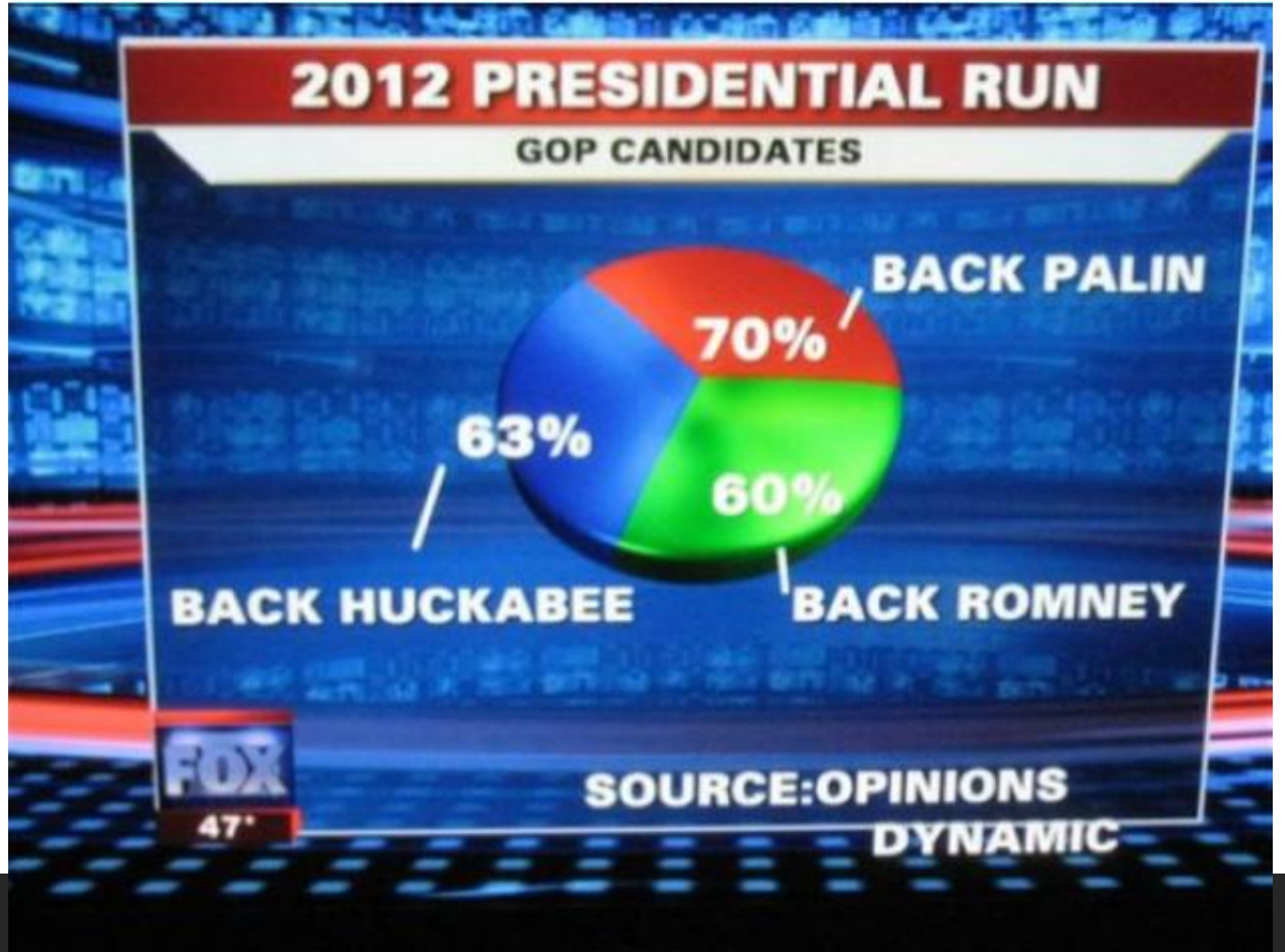
Παραπλανητικά Διαγράμματα



Παραπλανητικά Διαγράμματα

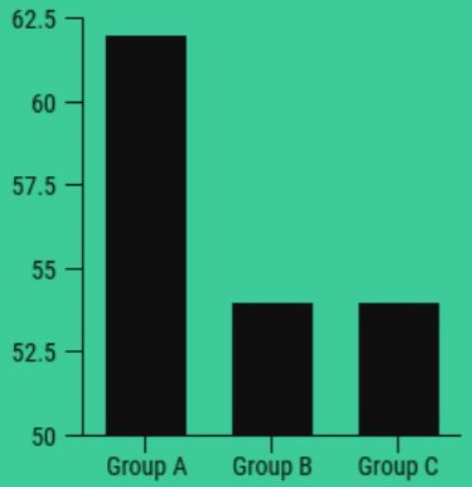


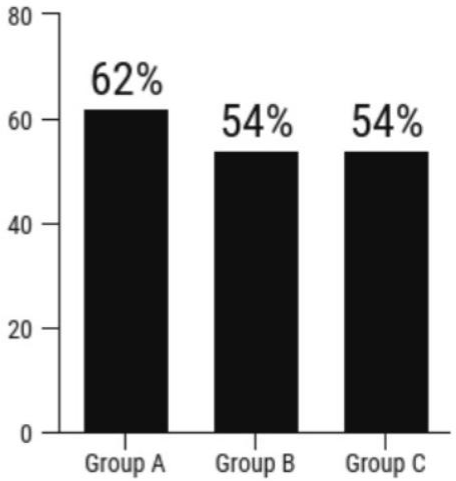
Παραπλανητικά Διαγράμματα



1 OMITTING THE BASELINE

In most cases, the baseline for a graph is 0. But writers can skew how data is perceived by making the baseline a different number. This is known as a "truncated graph".





MISLEADING

- Starting the vertical axis at 50 makes a small difference between groups seem massive
- Group A looks much larger than Groups B and C

VS

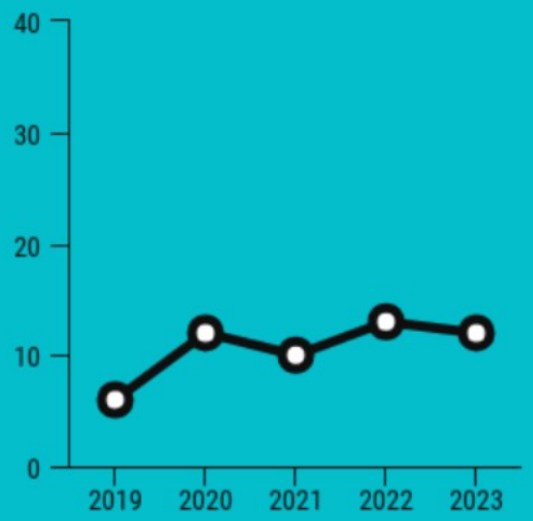
ACCURATE

- Starting the vertical axis at 0 offers a more accurate depiction of the data
- The difference between the groups does not seem as dramatic

2

MANIPULATING THE Y-AXIS

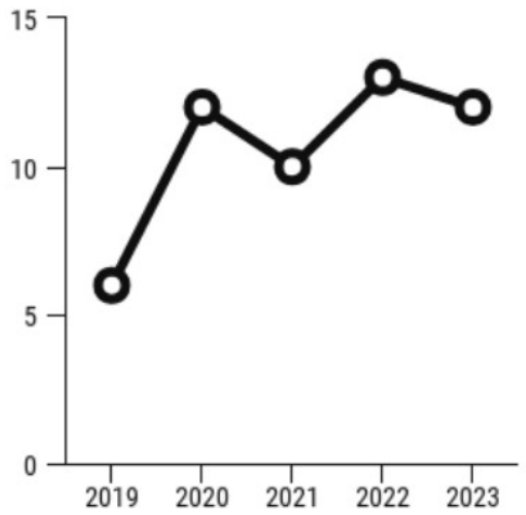
Expanding or compressing the scale on a graph can make changes in data seem more or less significant than they actually are.



MISLEADING

- The scale is disproportionate to the data, making the change over time seem small

VS



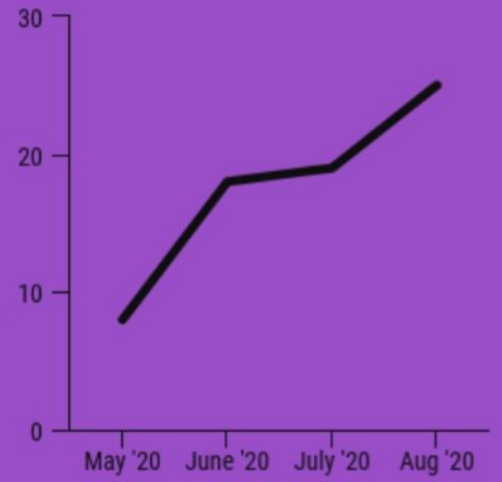
ACCURATE

- The scale is proportionate to the data, showing a greater change over time

3

CHERRY PICKING DATA

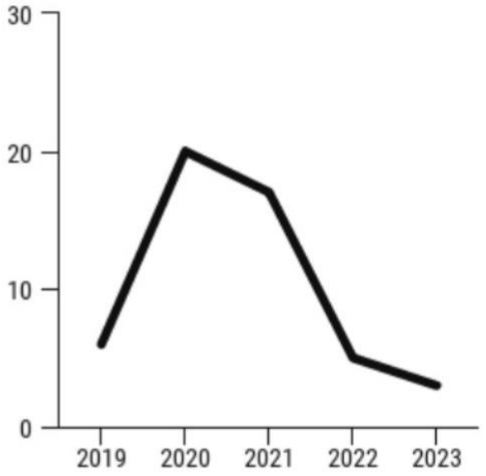
Writers may only include certain data points on their graphs to reinforce their narratives. This can create a false impression of the data.



MISLEADING

- Only a few months out of the year are graphed, depicting an upward trends

VS

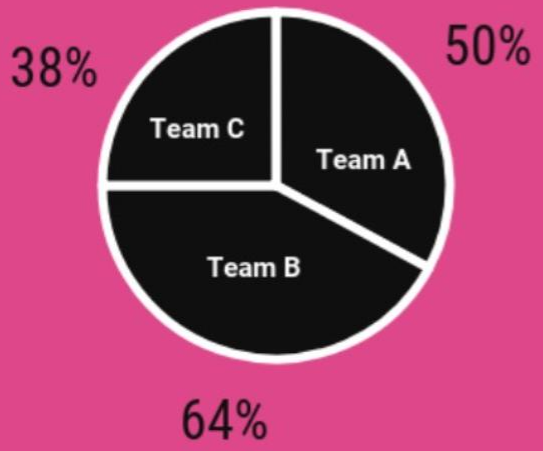


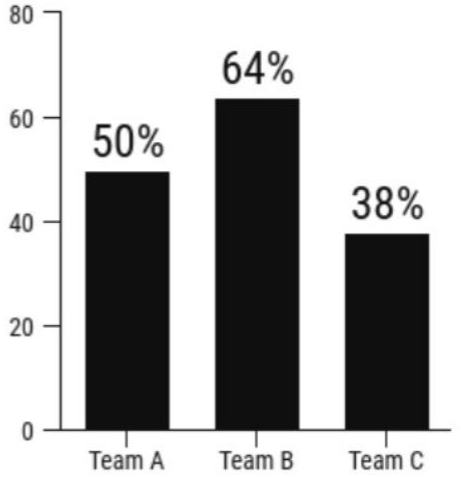
ACCURATE

- A much wider date range is graphed, revealing an overall downward trend
- This graphs shows the bigger picture

4 USING THE WRONG GRAPH

The type of graph you use should depend on the type of data you want to visualize. Using the wrong type of graph can skew the data. Writers will sometimes use the wrong type of graph on purpose.





MISLEADING

- Pie charts are used to compare parts of a whole, not the difference between groups
- A different type of graph should be used to compare the three teams

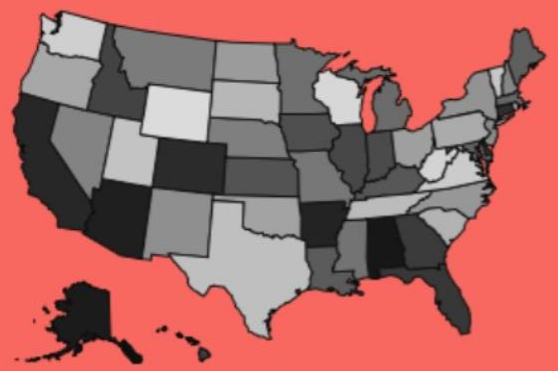
VS

ACCURATE

- Bar graphs are better for showing the differences between groups
- This chart is a better visualization of the data

5 GOING AGAINST CONVENTIONS

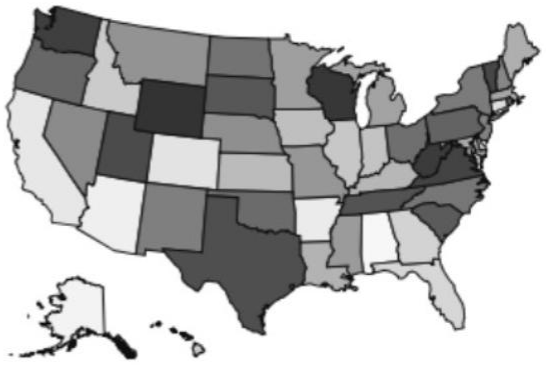
Over time, we have developed standards for how data is visualized. Flipping those conventions can make a graph confusing or misleading to readers.



MISLEADING

- Normally, darker shades are associated with density on a map but here, dark has been used to depict lower population density
- This graph can confuse and mislead readers, who expect dark to represent a higher population density

VS

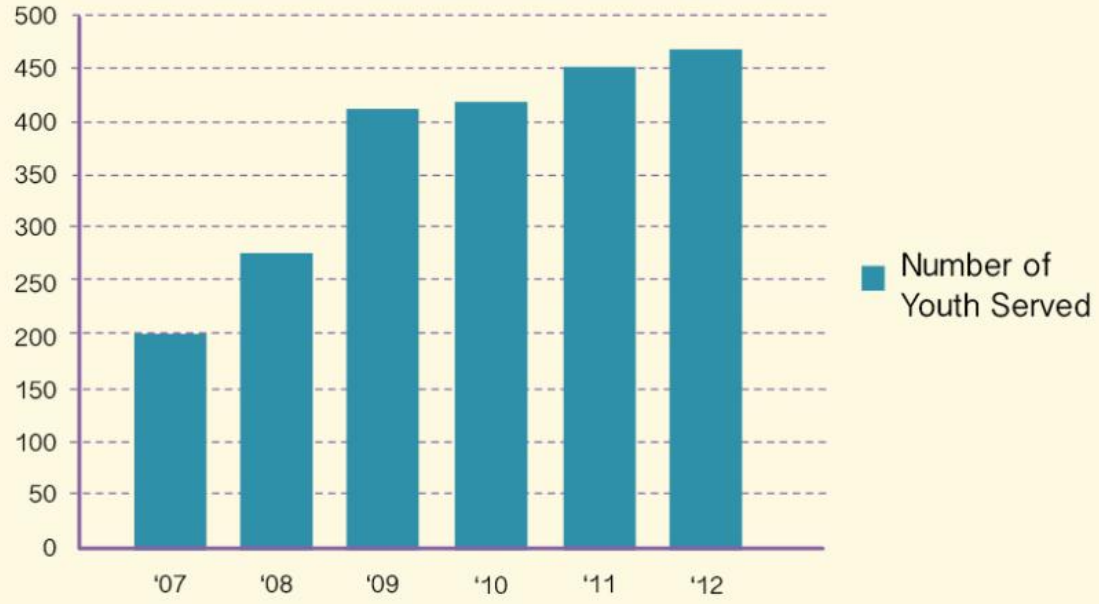


ACCURATE

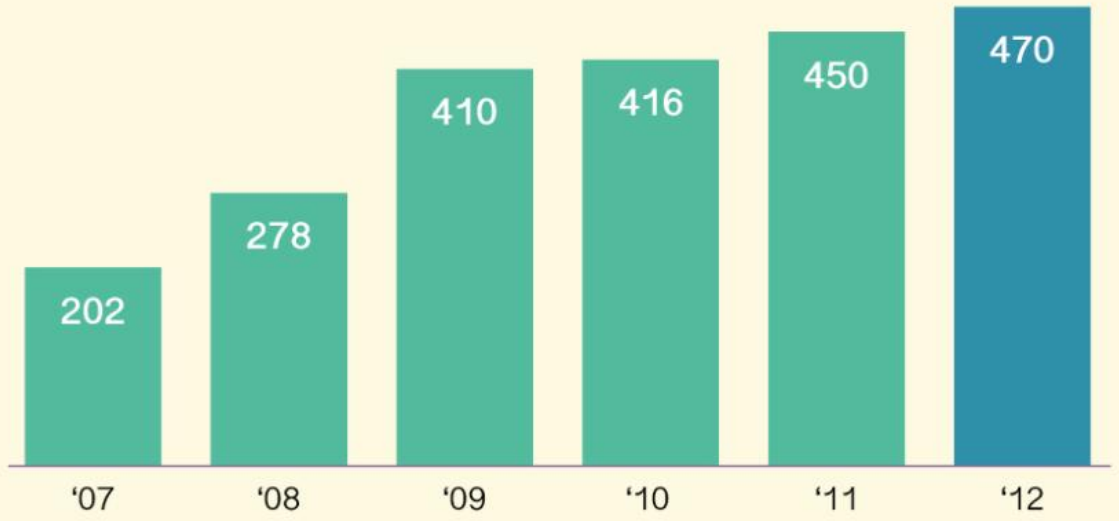
- This map follows the convention of using lighter shades for lighter density and darker shades for higher density
- Readers will intuitively know how to interpret the data

Readability

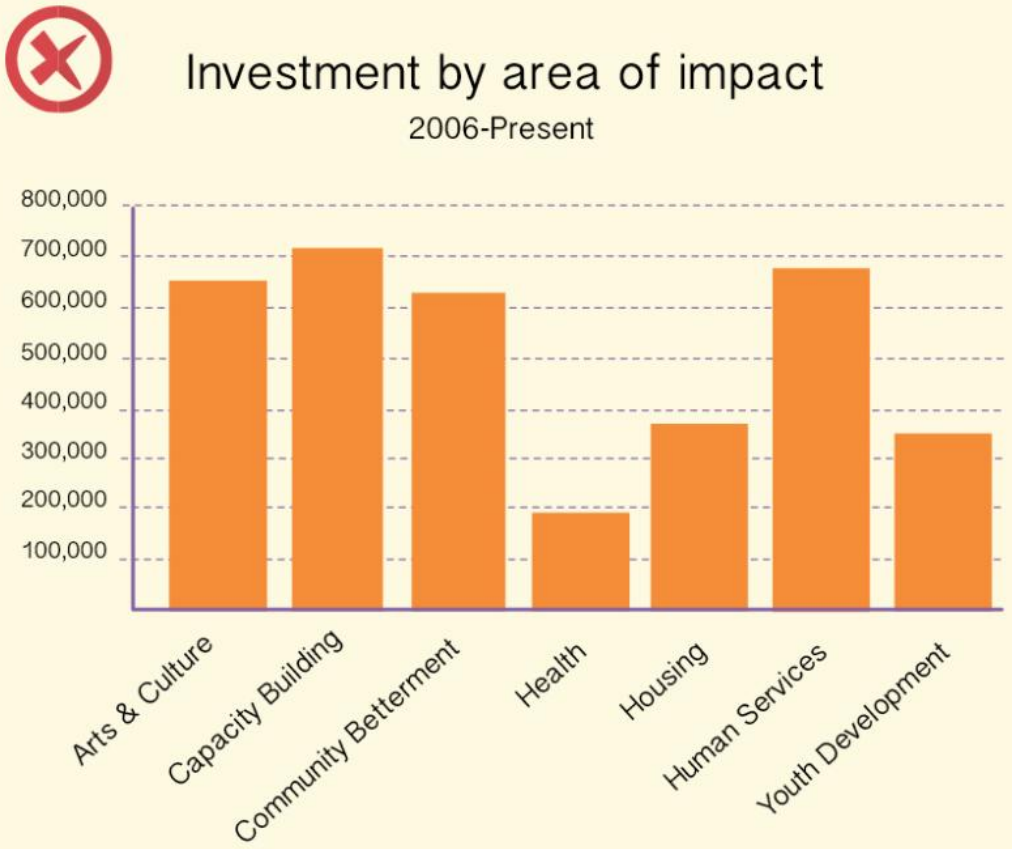
Number of Youth Served by Year



Number of Youth Served by Year

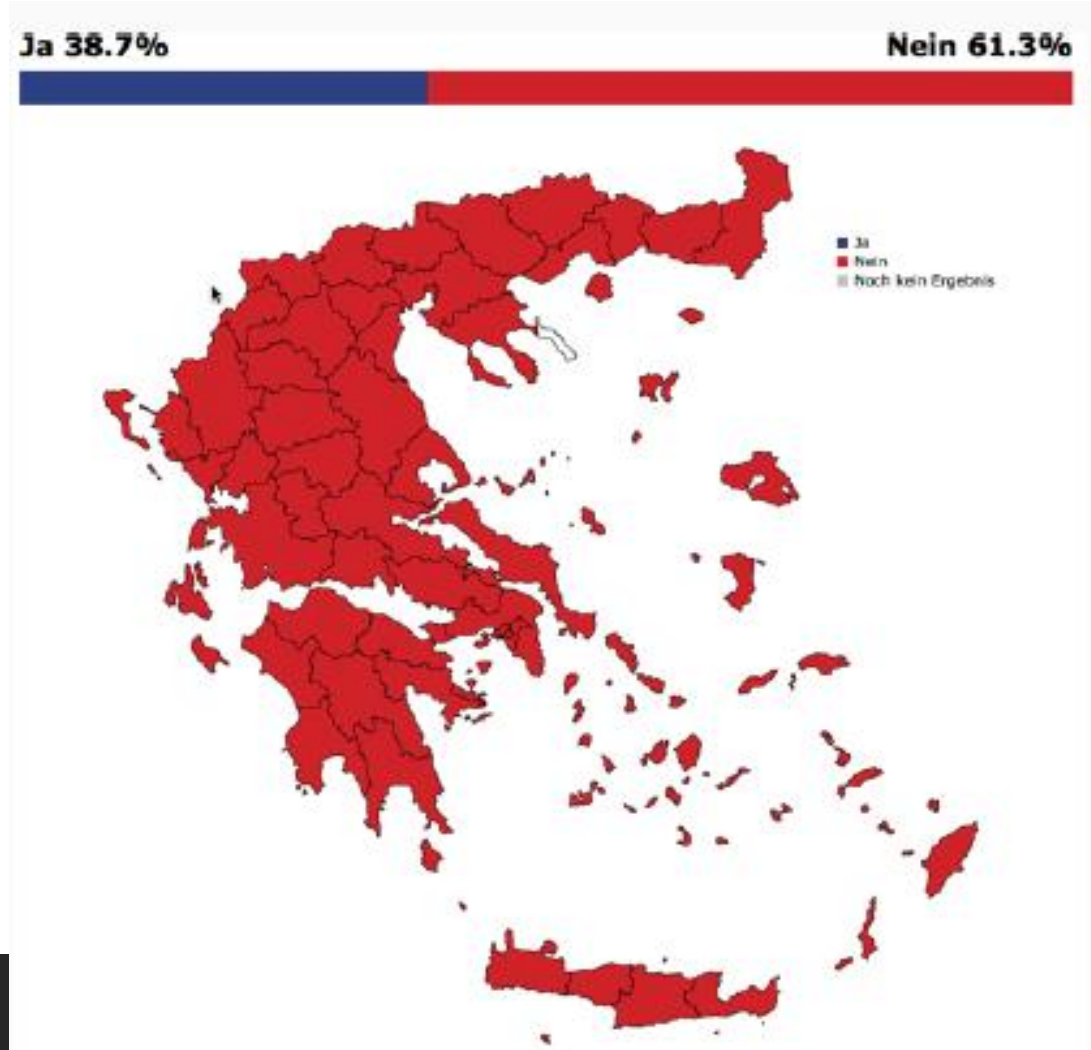


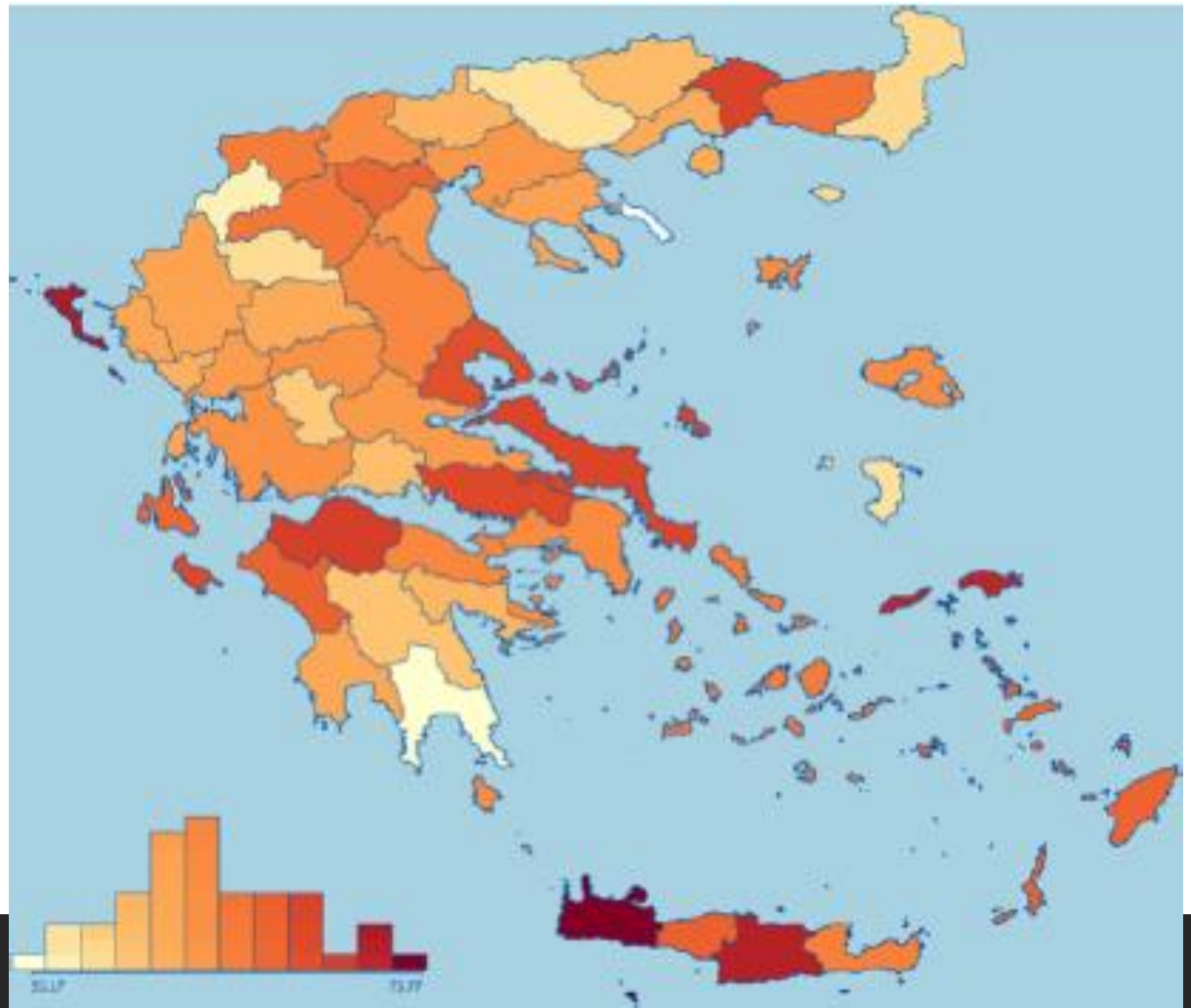
Readability



Color

Color





Finishing Touches

SQUINT TEST