Tableau

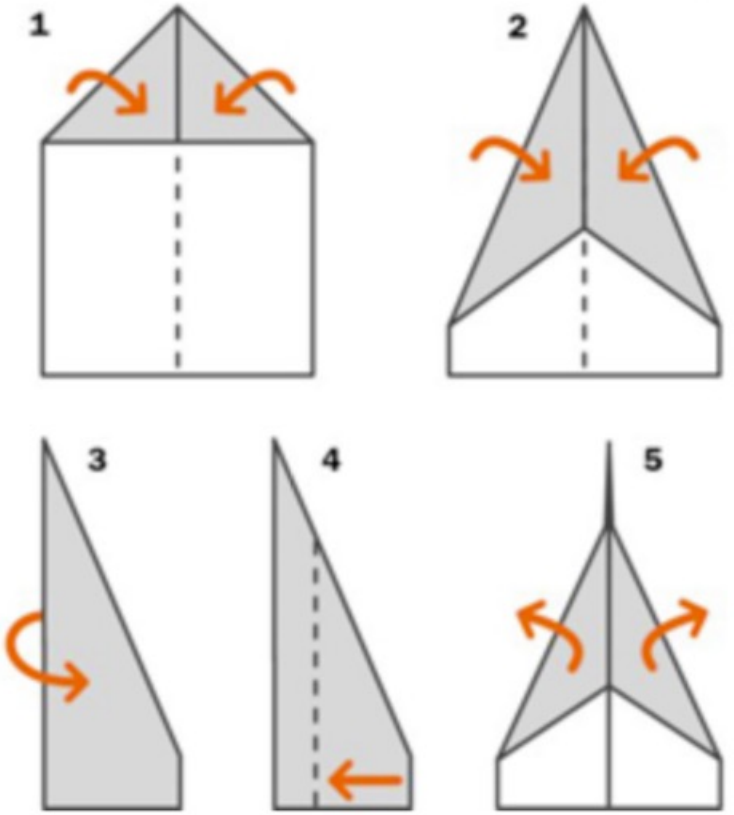
Mai 2021

The value of visualization

HOW TO FOLD A PAPER PLANE (TEXT)

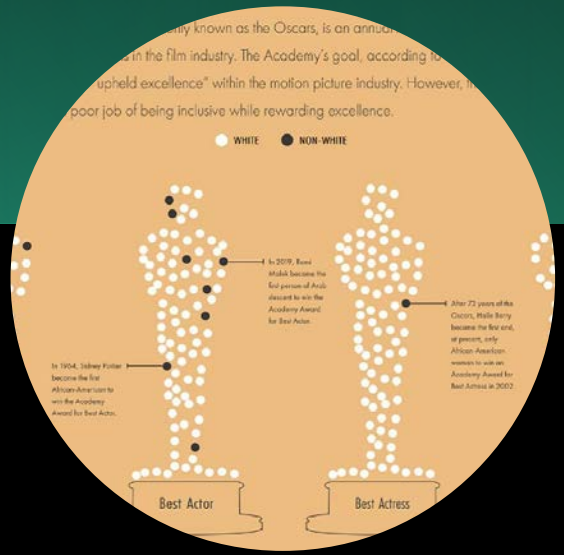
1. Fold a piece of 8.5x11″ paper in half lengthwise to create a crease down its center. Then fold the top two corners to the center crease.
2. Take the top two corners and fold them again into the center crease.
3. Fold the two sides inward to the center crease so they are touching.
4. Create the first wing by creating a fold along the length of the paper about 1–1.5″ from the spine. The fold should make the wing perpendicular to the body of the plane.
5. Repeat the above step to create the other wing for your paper plane.

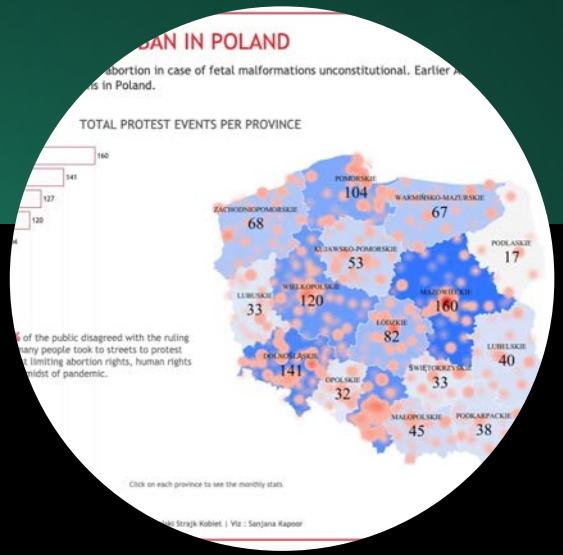
HOW TO FOLD A PAPER PLANE (VISUAL)



Brent Dykes (2019) Effective Data Storytelling: How to Drive Change with Data

What would you like to visualize ...





- diversity at the Oscars
  https://public.tableau.com/de-de/gallery/winners-oscars
- protest against abortion ban in Poland
  https://public.tableau.com/profile/sanjana.kapoor#!/vizhome/PROTESTSINPOLAND_MOM8/PROTESTSINPOLAND_MOM8
- deconstructing Nutella
  https://public.tableau.com/de-de/gallery/history-nutella

https://public.tableau.com/de-de/gallery

Software Components

- Tableau Public (free, no private files, saving files in the cloud, no Excel or image export)
- Tableau Desktop (70€/ month, student licenses available)
- Tableau Reader (free, offline browsing, data extraction)

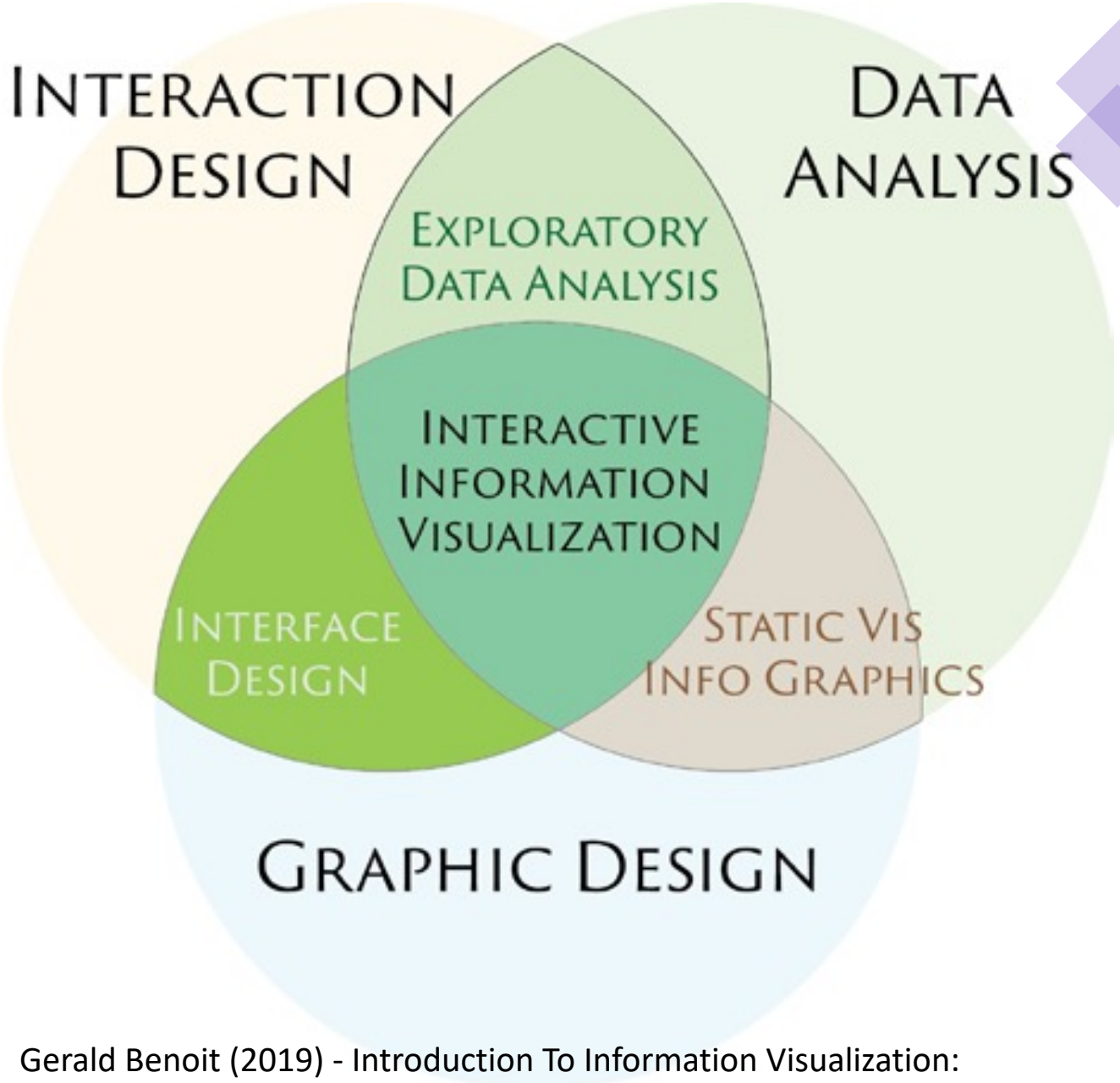
... and more

- Data prep and cleaning (Part of Desktop)
- Tableau Online (Cloud)

https://www.tableau.com/products

Disclaimer

- beginners level
- surface scratching, not included:
  i. matching fonts, colors, sizes (getting the basics right)
  ii. data visualization (picking diagram types, infographics)
  iii. digital storytelling as a craft (building a narrative, flow of elements, combining facts with people)



Gerald Benoit (2019) - Introduction To Information Visualization: Transforming Data Into Meaningful Information. Rowman & Littlefield

New paradigm: Low-code development

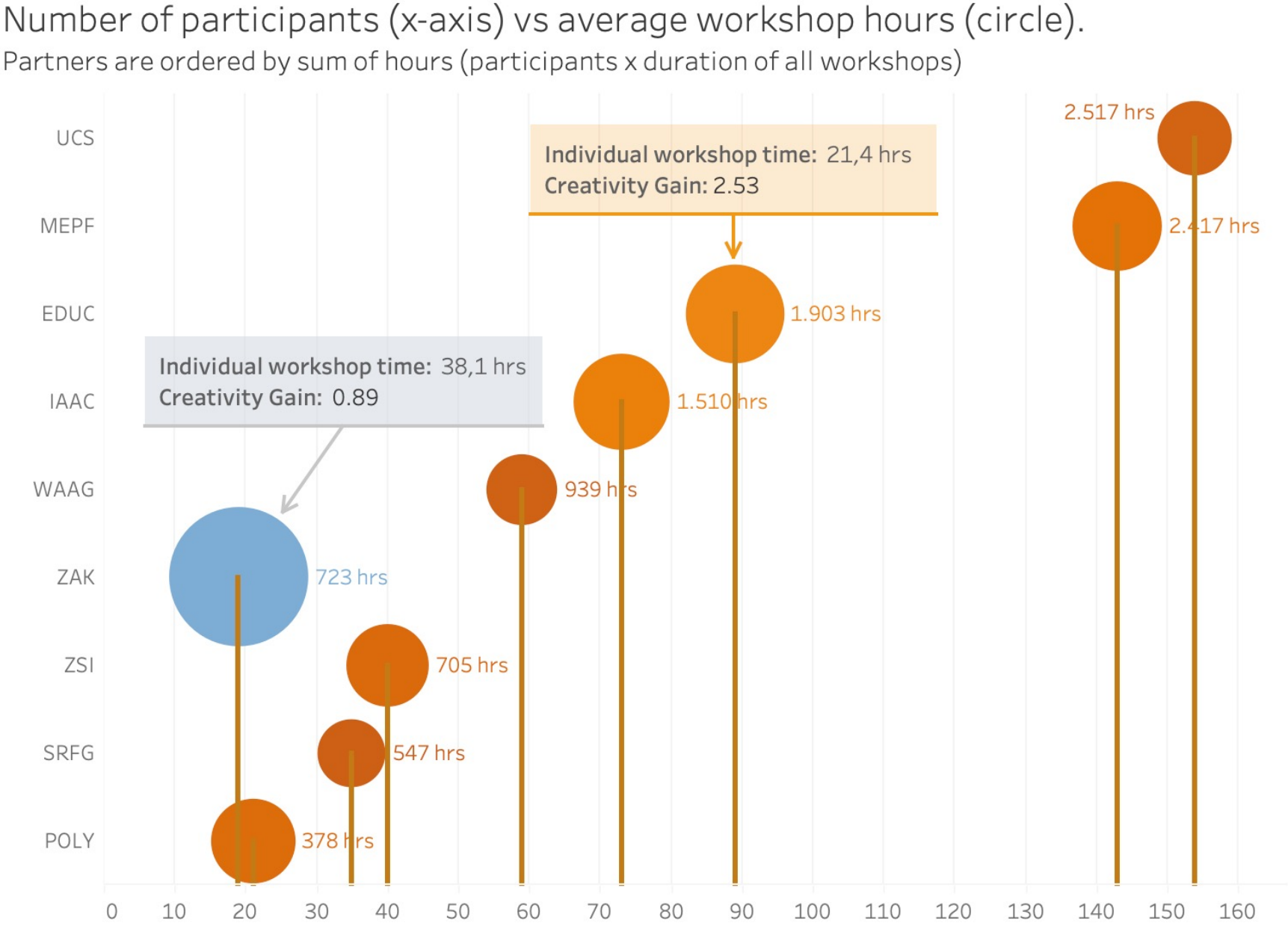
- new coding philosophy
- between fully customized software and standardized software
- Citizen Developers:= empowered domain experts
- Agile & fast development (rapid prototyping, MVP)
- in the case of tableau we could think of two extremes in data visualization and analytics (e.g. a python-based platform vs a google analytics web frontend)
- in the end, low code & classic code complement each other (cf. group software vs enterprise / organisational software)

Social implications of data visualizations

- Images and data visualization, what is it ?
  - knowledge presentation vs
  - knowledge / insight generation

=> Visualisierung als Methode

1 Lollipop

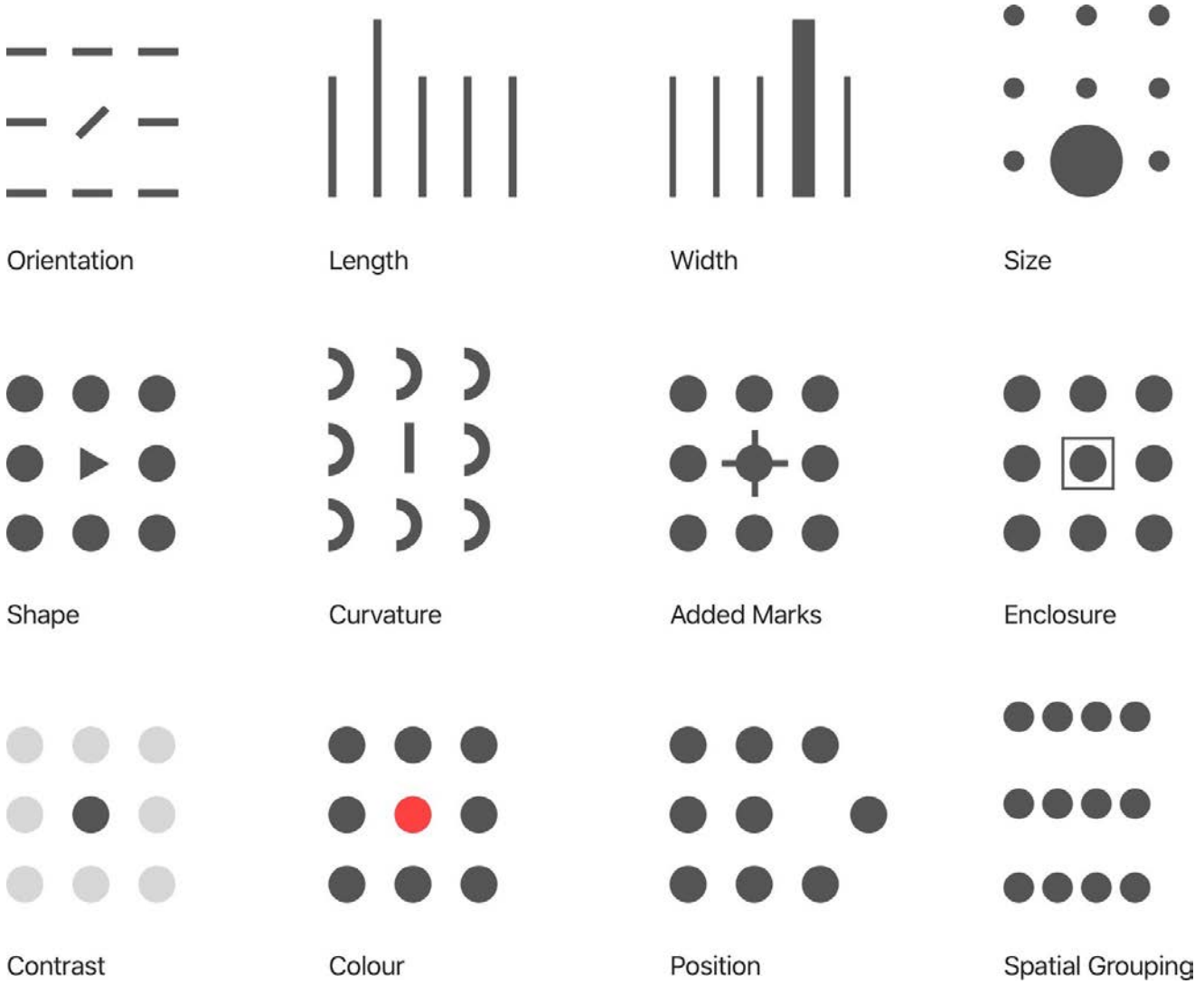

Number of participants (x-axis) vs average workshop hours (circle).
Partners are ordered by sum of hours (participants x duration of all workshops)
UCS
MEPF
EDUC
IAAC
WAAG
ZAK
ZSI
SRFG
POLY
Individual workshop time: 21,4 hrs
Creativity Gain: 2.53
Individual workshop time: 38,1 hrs
Creativity Gain: 0.89
2.517 hrs
2.417 hrs
1.903 hrs
1.510 hrs
939 hrs
723 hrs
705 hrs
547 hrs
378 hrs
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160

Ingredients

- Difference between dimensions & measures
- Difference between continuous & discrete
- Drag & Drop
- Bubble chart
- Colour coding
- Marker labelling
- Annotations

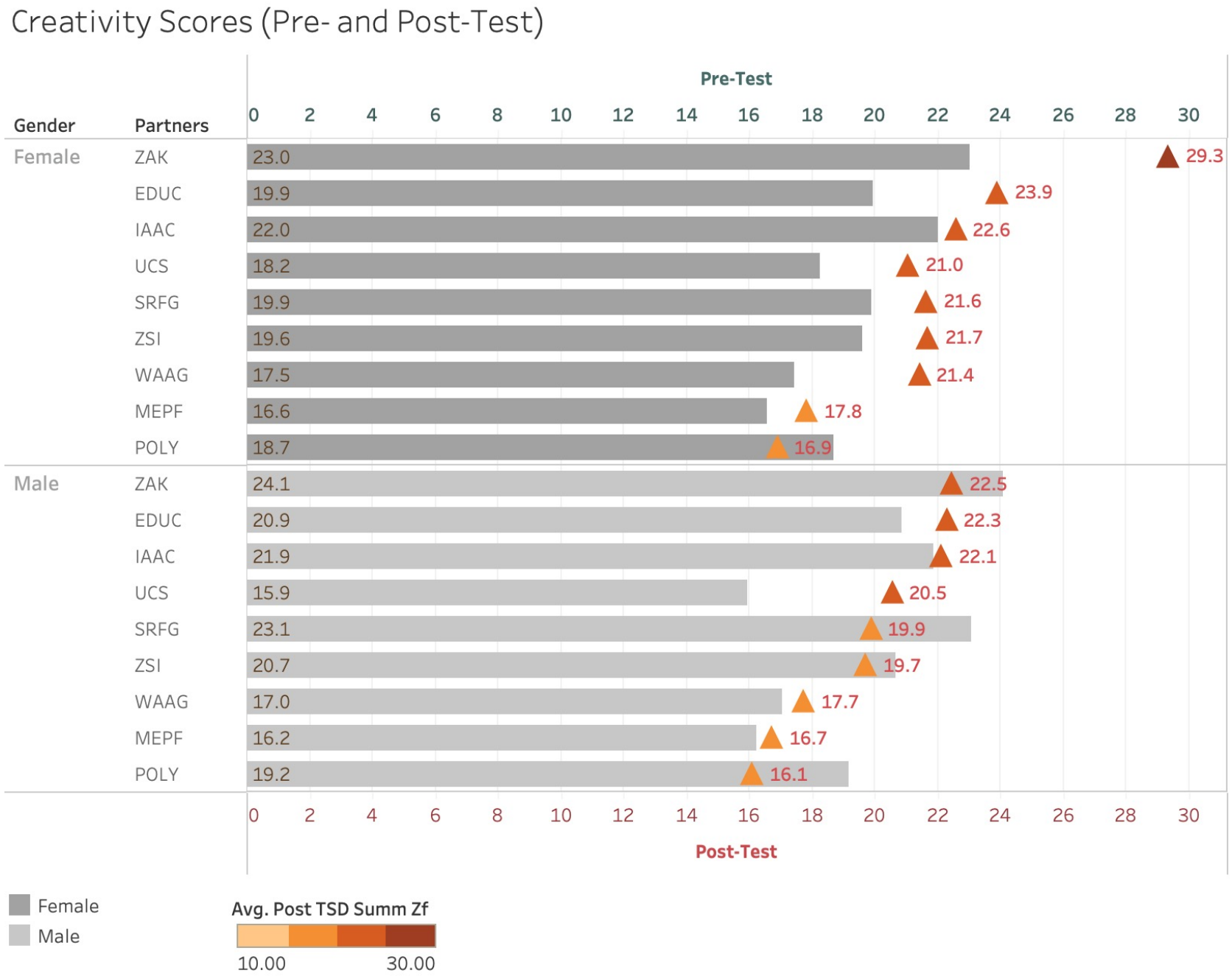
Pre-attentive visual properties

- What guides our attention when interpreting a visualization?



https://help.tableau.com/current/blueprint/en-us/bp_why_visual_analytics.htm#preattentive-attributes

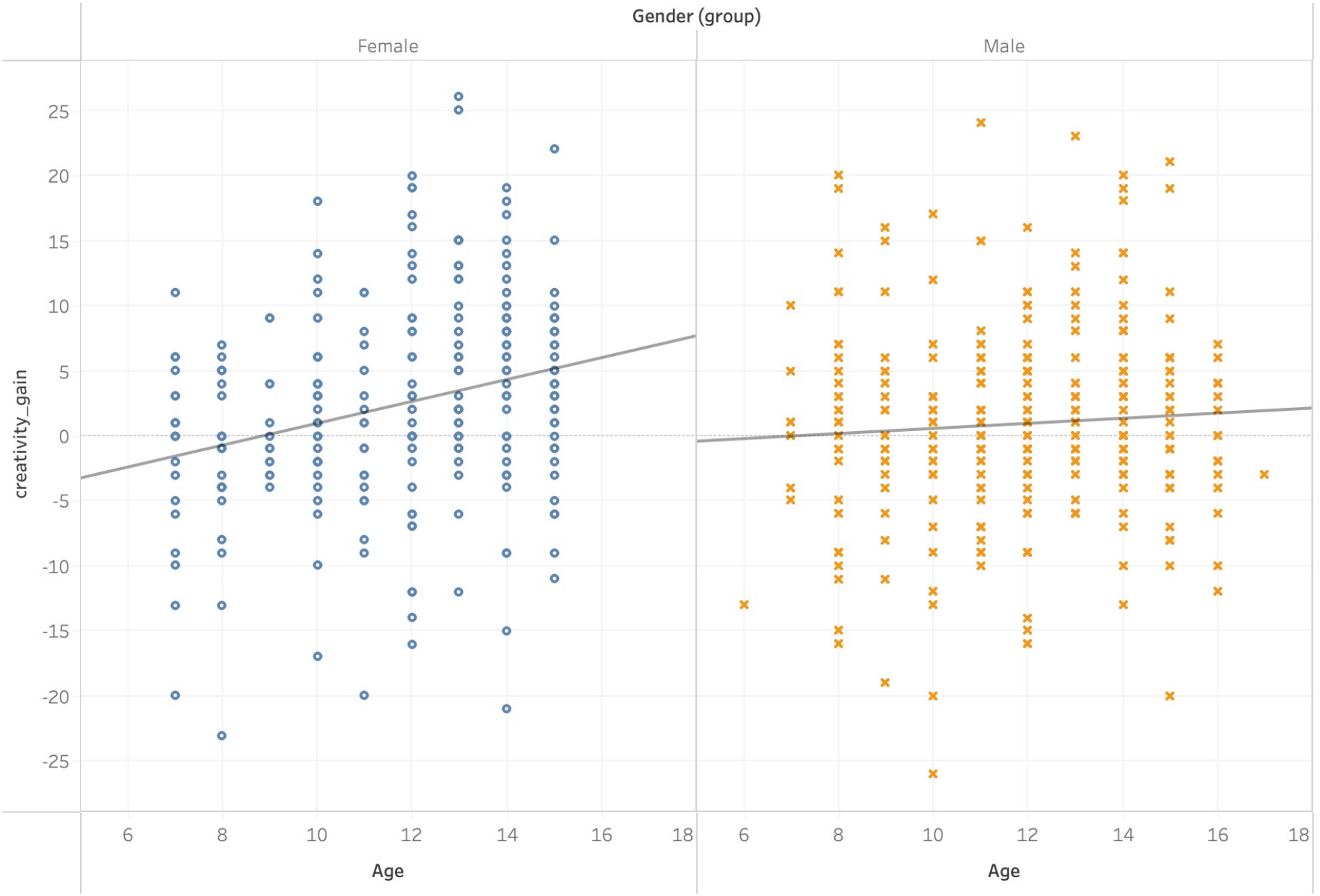
2 Dual axes


Creativity Scores (Pre- and Post-Test)
Pre-Test
Gender
Partners
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Female
ZAK 23.0 29.3
EDUC 19.9 23.9
IAAC 22.0 22.6
UCS 18.2 21.0
SRFG 19.9 21.6
ZSI 19.6 21.7
WAAG 17.5 21.4
MEPF 16.6 17.8
POLY 18.7 16.9
Male
ZAK 24.1 22.5
EDUC 20.9 22.3
IAAC 21.9 22.1
UCS 15.9 20.5
SRFG 23.1 19.9
ZSI 20.7 19.7
WAAG 17.0 17.7
MEPF 16.2 16.7
POLY 19.2 16.1
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30
Post-Test
Female
Male
Avg. Post TSD Summ Zf
10.00
30.00

Ingredients

- Using ‘dual axis’ and ‘synchronizing axis’
- Flipping axes
- Building hierarchies
- Styling the axes

3 Trendlines

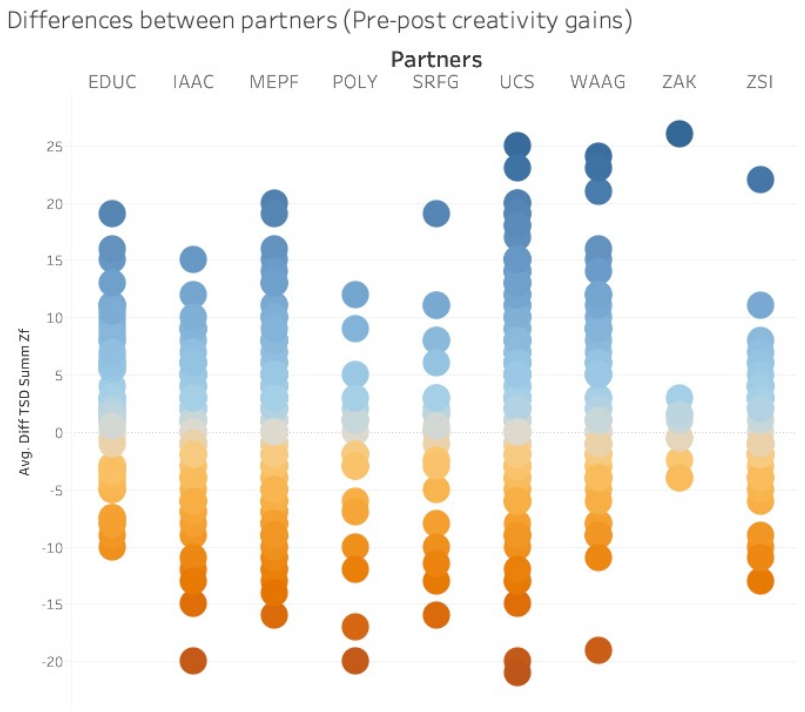


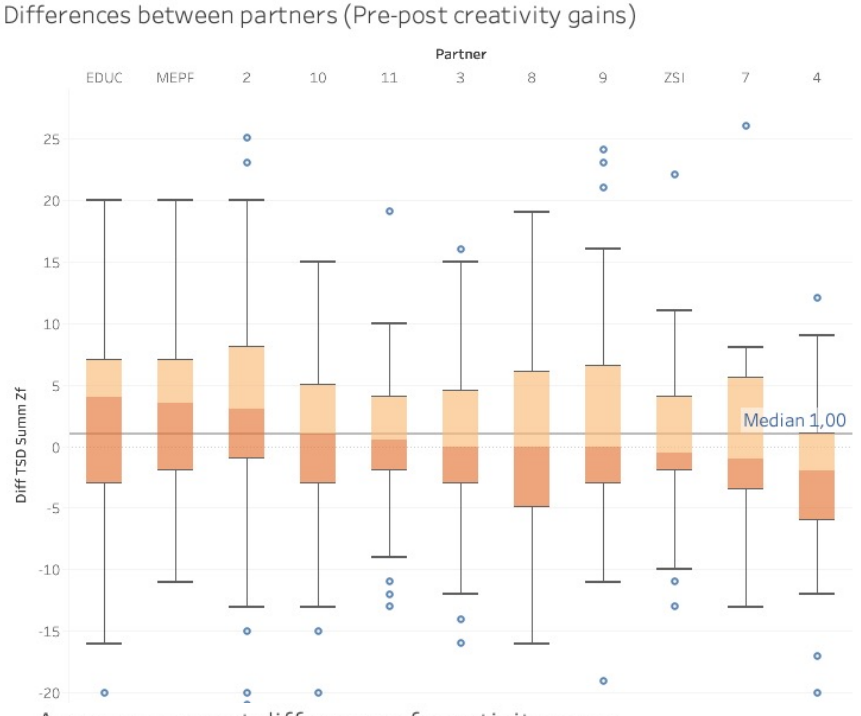
Panes		Line		Coefficients				
Row	**Column**	**p-value**	**DF**	**Term**	**Value**	**StdErr**	**t-value**	**p-value**
creativity_gain	Female	< 0,0001	251	Age	0,840365	0,193346	4,34643	< 0,0001
creativity_gain	Male	0,24764	315	Age	0,195797	0,169046	1,15825	0,24764

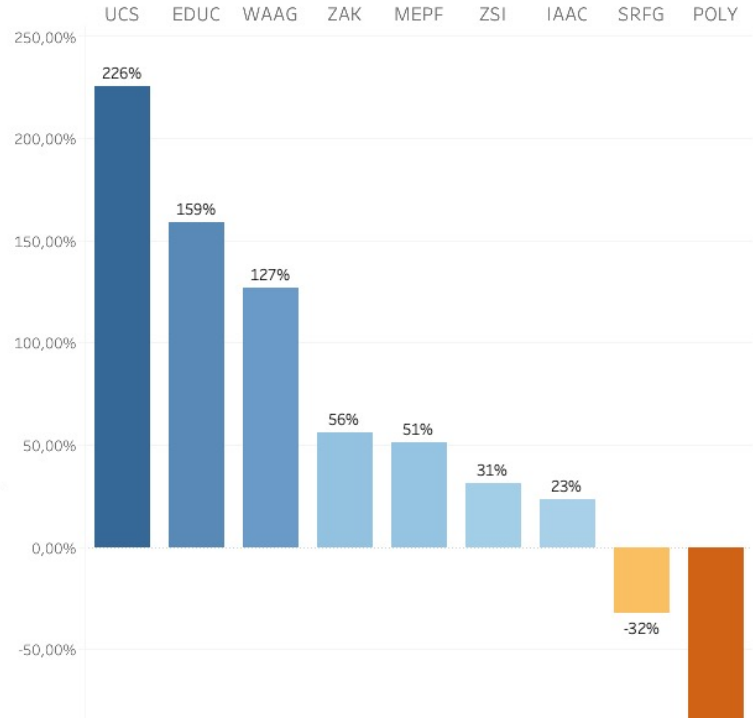
Field	DF	SSE	MSE	F	p-value
Gender (group)	2	696.32718	348,164	6,07351	0,0024559

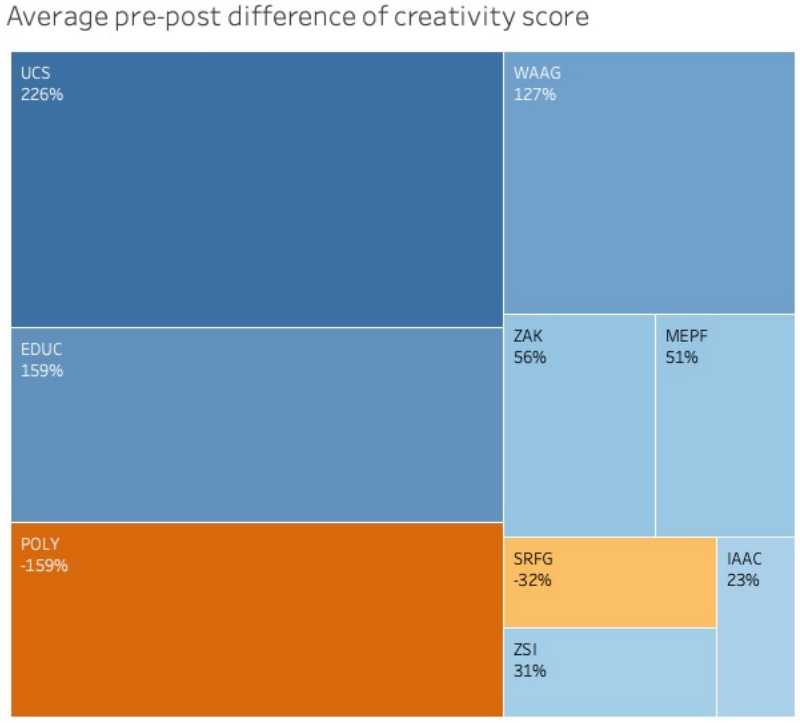
Model formula: Gender (group)*(Age + intercept)
Number of modelled observations: 570
Number of filtered observations: 0
Model degrees of freedom: 4
Residual degrees of freedom (DF): 566
MSE (mean squared error): 57,3249
R-Squared: 0,0436155
Standard error: 7,57132
p-value (significance): < 0,0001

4 x Same Message ?

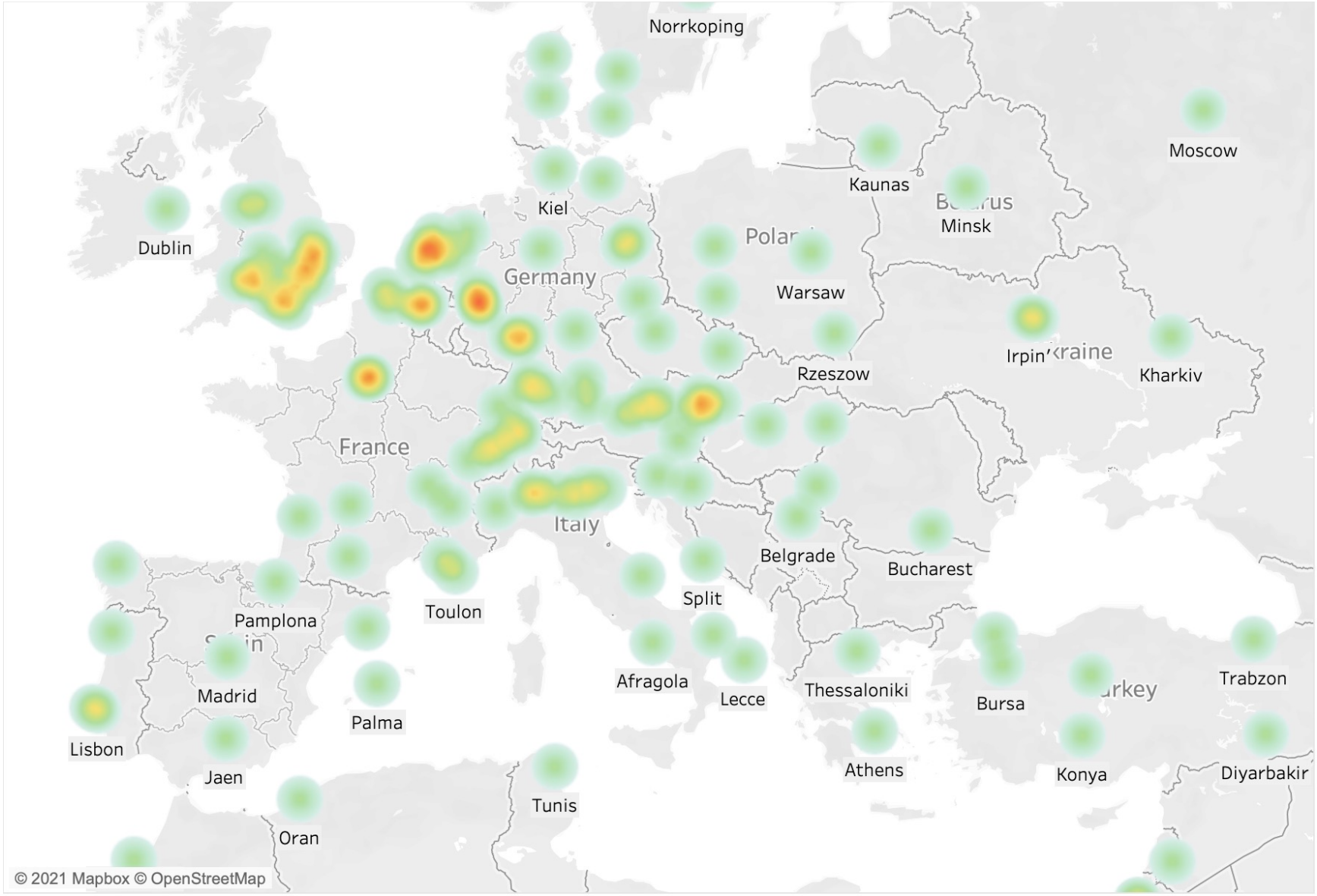








Geographical Data

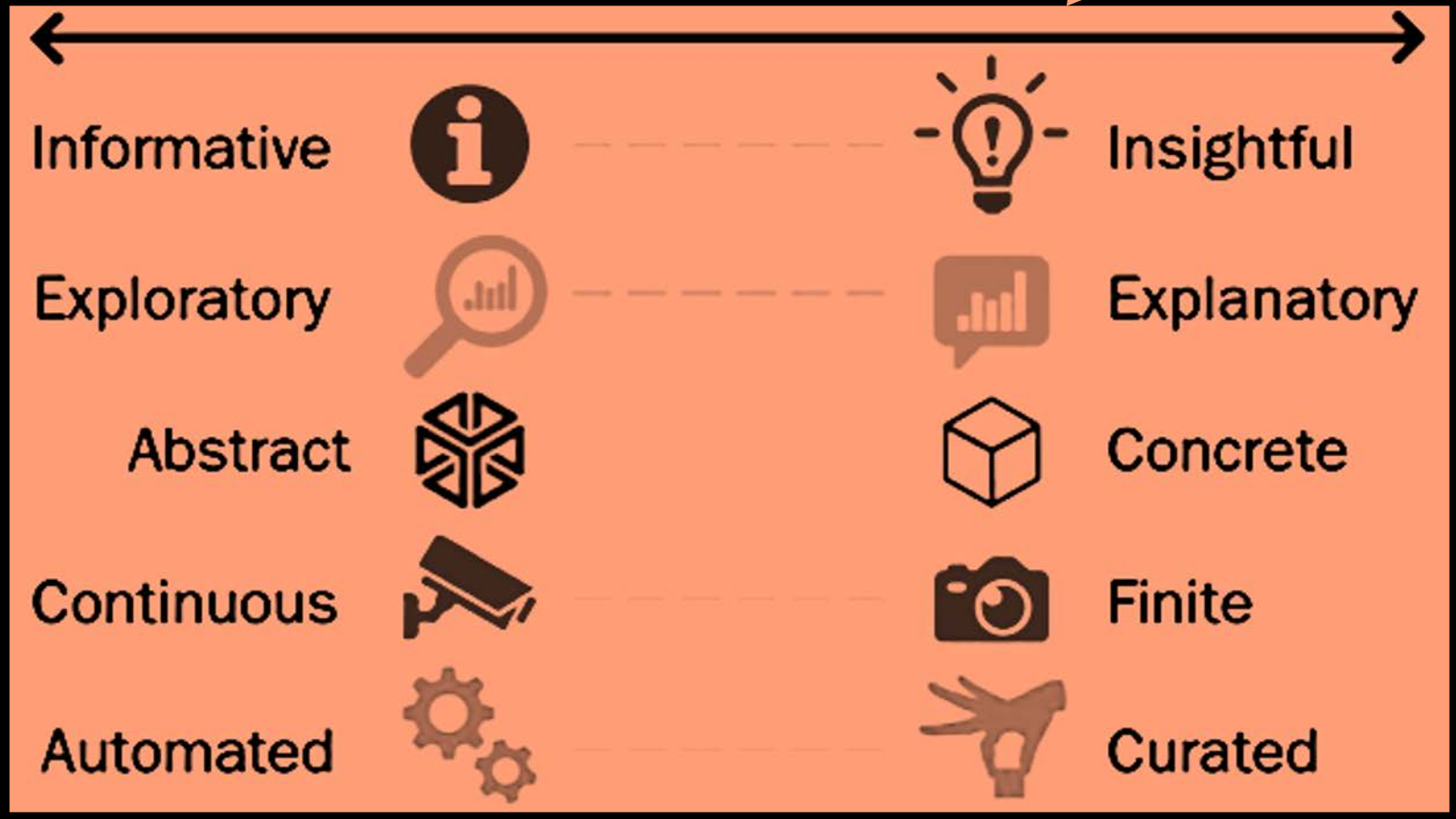


Map based on Longitude (generated) and Latitude (generated). The marks are labeled by City. Details are shown for Country and City. The view is filtered on Exclusions (City,Country) and Inclusions (City,Country). The Exclusions (City,Country) filter keeps 354 members. The Inclusions (City,Country) filter keeps 142 members.

Storytelling

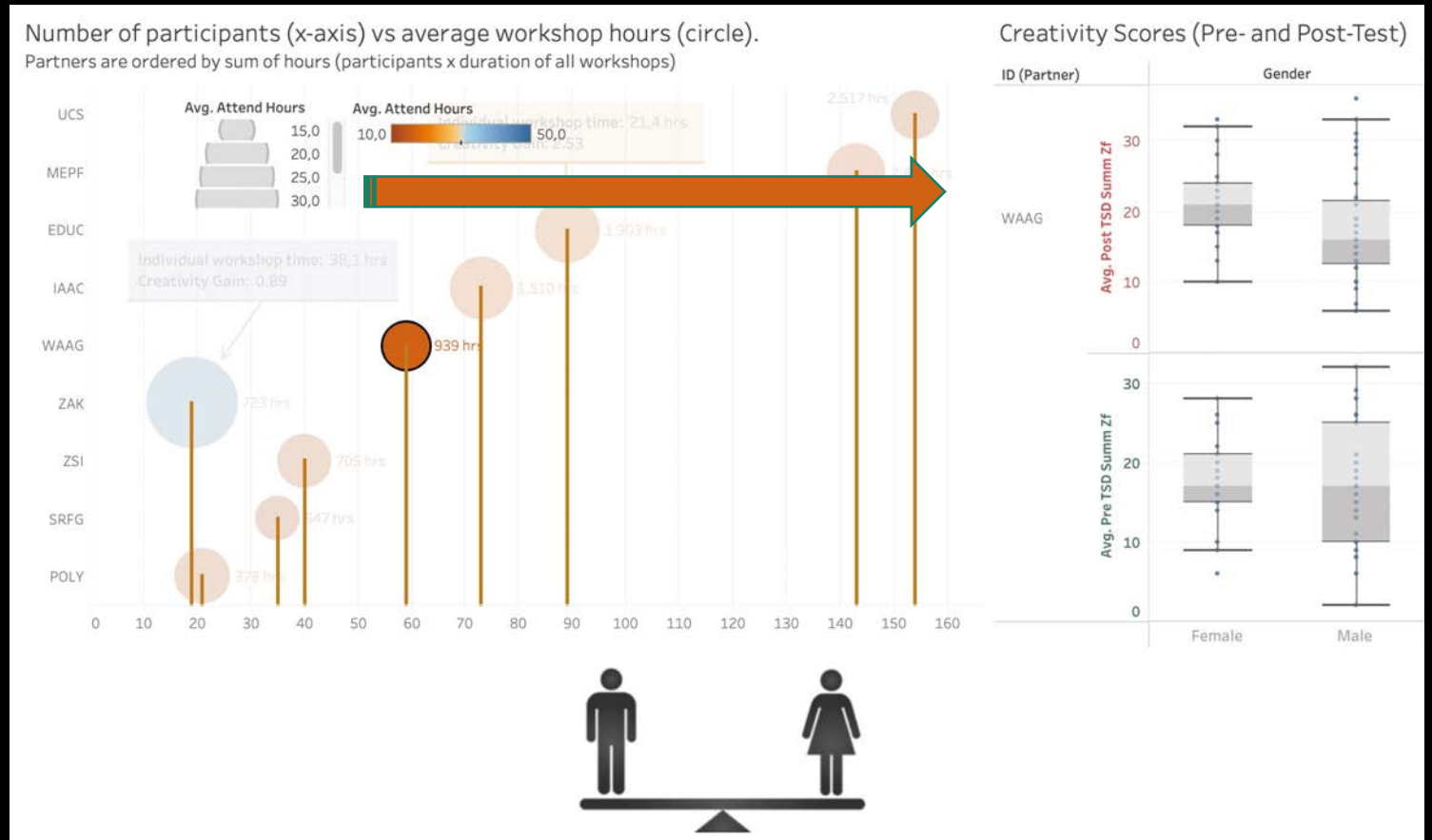
https://www.tlnt.com/stop-telling-us-the-end-of-your-story-first/

How do you know if there is a **STORY** to tell …



Dash-boarding

- Adding pictures & text
- Making thing float
- Combining worksheets
- Using filters



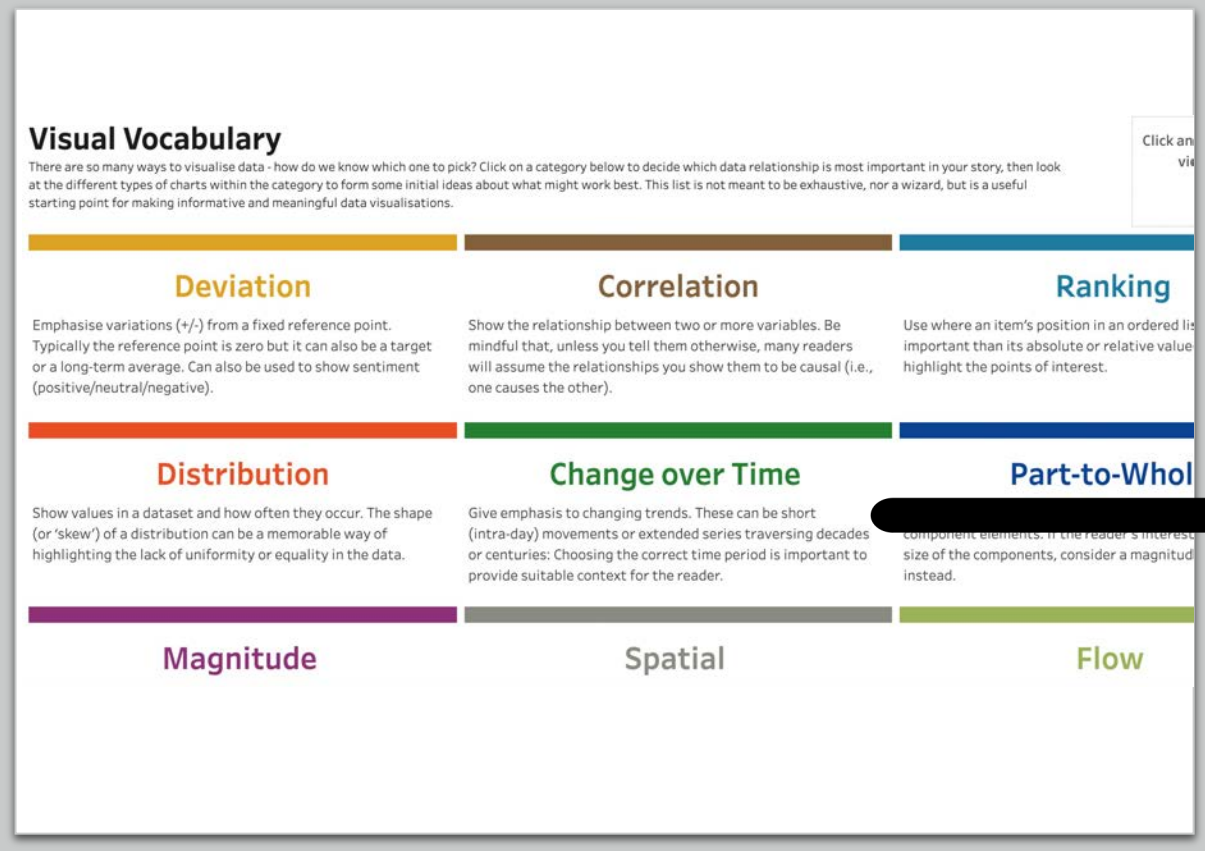
After 2 weeks, room for improvement ...

- getting relevant data & in-depth data knowledge: recruitment, sampling, question quality, what's in the data
- sufficient understanding of statistics : measures needed, quality judgement (e.g. k-nearest neighbour clustering)
- visualization driven by expectations
- aesthetics: colour combination, less is more

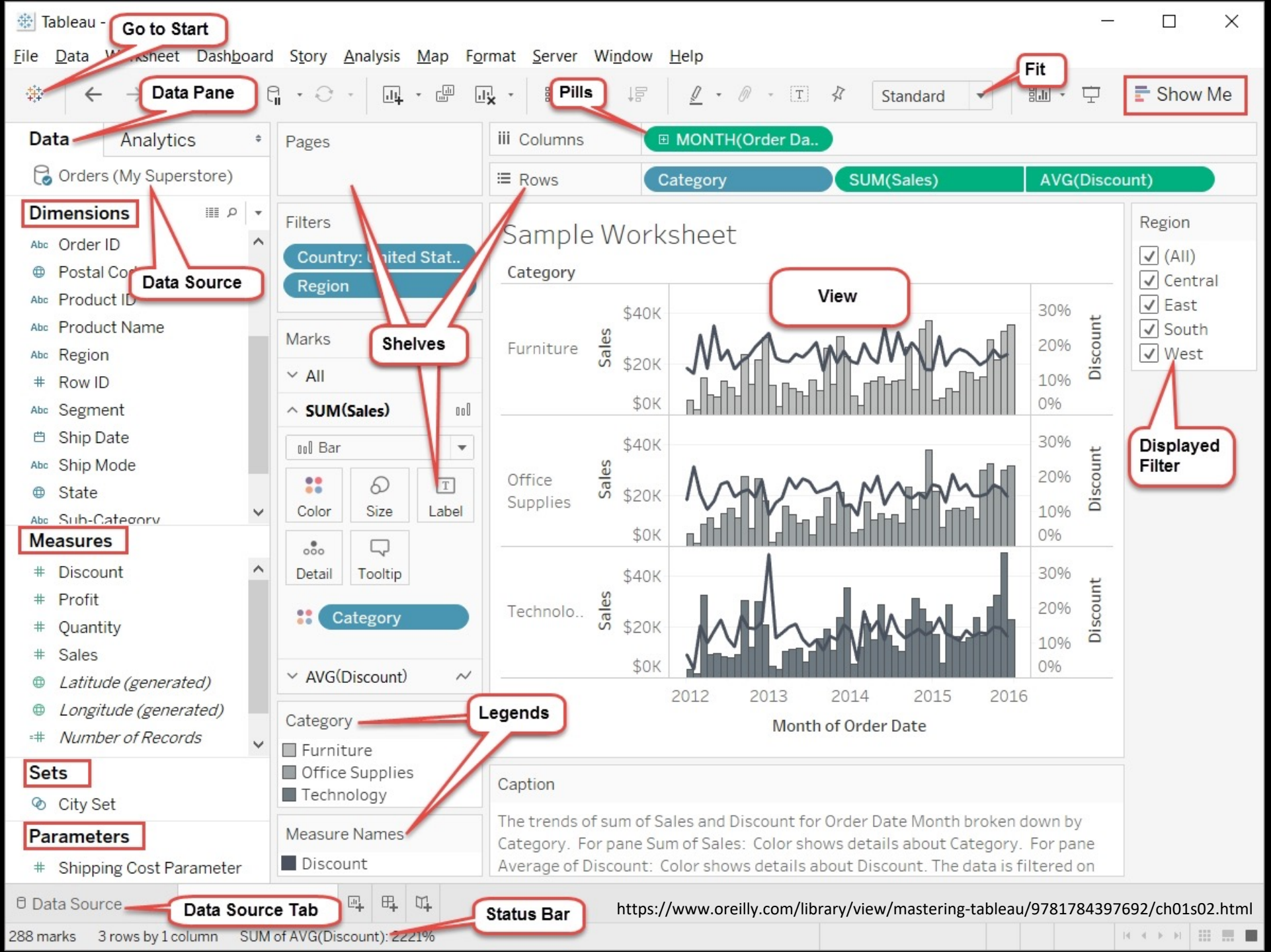
Annex

Diagram types

https://public.tableau.com/profile/andy.kriebel#!/vizhome/VisualVocabulary/VisualVocabulary



Terminology



https://www.oreilly.com/library/view/mastering-tableau/9781784397692/ch01s02.html

Trend 6: Democratized technology services (low-code and ‘no code’ development)

https://www.gartner.com/smarterwithgartner/6-trends-on-the-gartner-hype-cycle-for-the-digital-workplace-2020/

Low-code principles

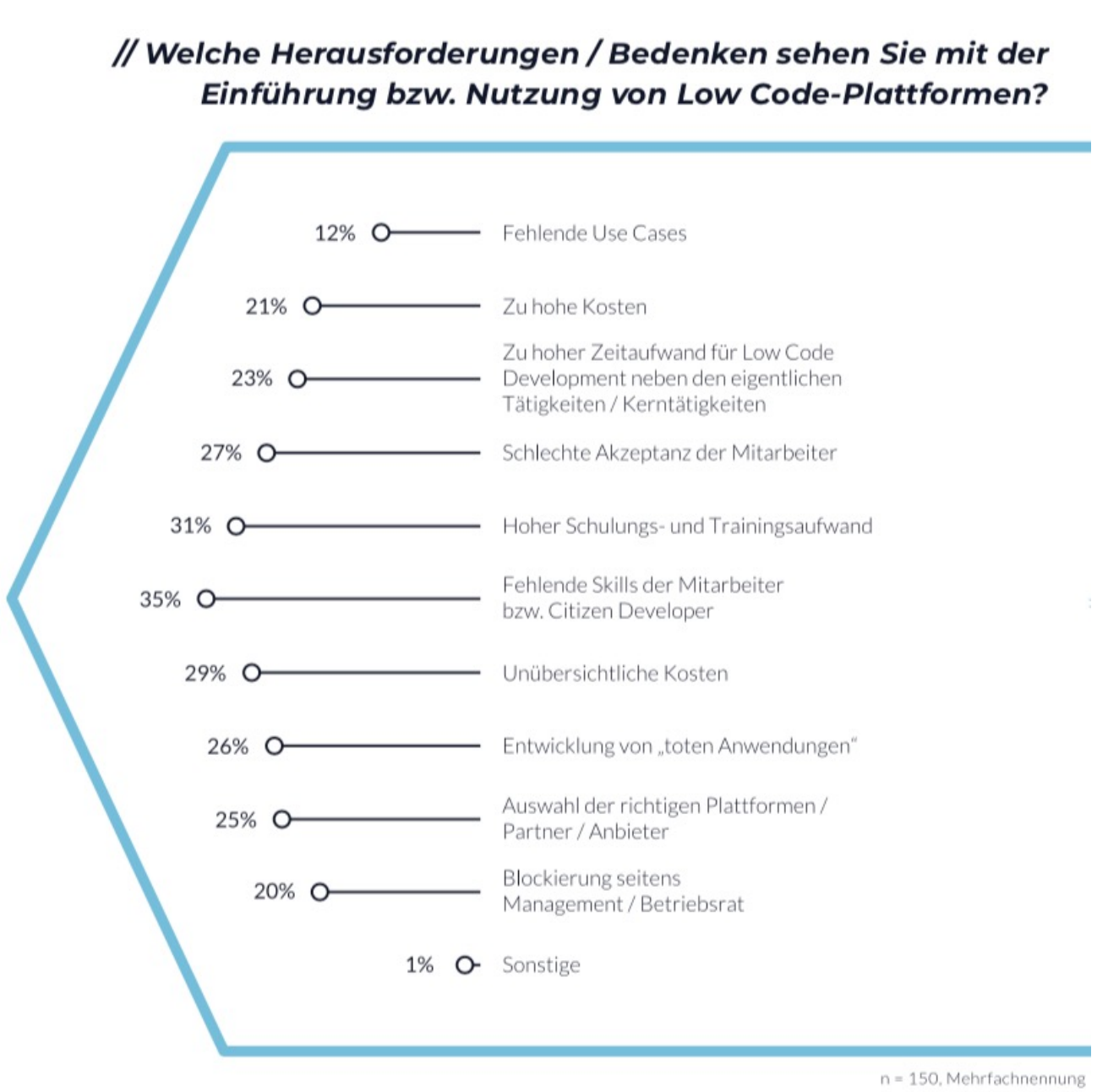
- Don’t repeat yourself (*or others*) – DRY *
  (database connectors, data slicing, visual styling)
- Principle of orthogonality
  (i.e. independence of changes in the system)
- Graphical interfaces as a way to handle complexity

* Andrew Hunt und David Thomas „The Pragmatic Programmers“

Aims of low code

Crisp_LowCodeDevelopment_Studie_2019_0.pdf

Crisp_LowCodeDevelopment_Studie_2019_0.pdf



// Können Sie bereits heute eine Low Code Development Plattform in Ihrem Unternehmen nutzen?

15%

Wir sehen uns technisch nicht in der Lage, ein solches Entwicklungs-tool einzuführen

35%

Ja, sowohl technisch als auch organisatorisch

45%

Die technische Einführung ist kein Problem, wir können es organisatorisch nicht abbilden / die Prozess- und Unternehmenskultur muss

5%

Auf keinen Fall

Adoption

Crisp_LowCodeDevelopment_Studie_2019_0.pdf

// Wieviel Prozent Ihrer Mitarbeiter werden zukünftig zum Citizen Developer?

6%
Low-Code-platform-business
(mehr als 76 Prozent)

33%
Low-Code-advanced
(26 - 50 Prozent)

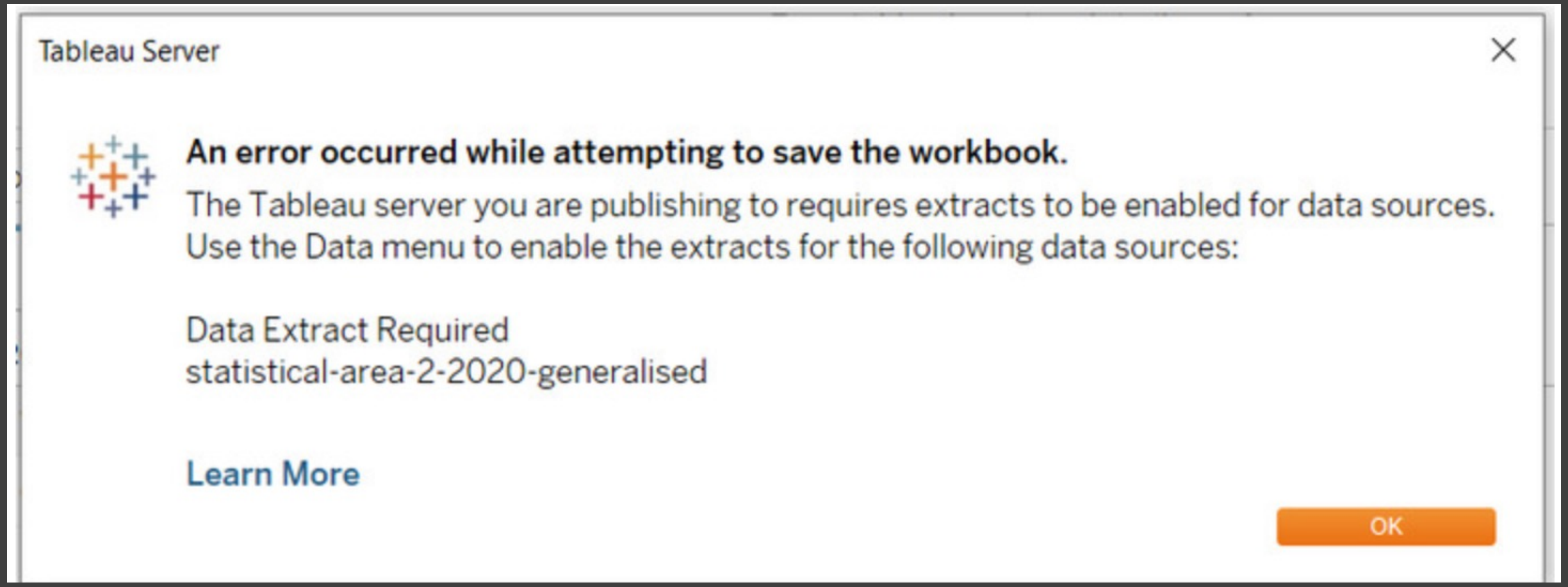
10%
Low-Code-expert
(51 - 75 Prozent)

51%
Low -Code-selected
(0 - 25 Prozent)

= 150, Einfachnennung

Troubleshooting

- not able to save



Beware of the glitch ...

It's enough to click on your worksheet before you save. It does not work if you try to save from the data source screen.