

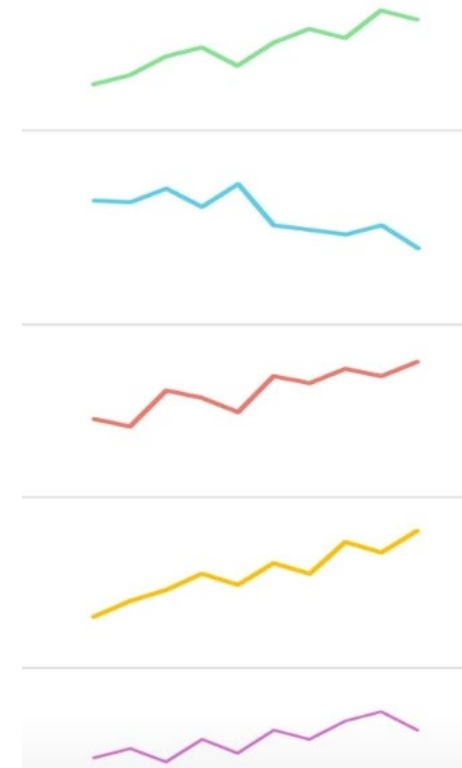
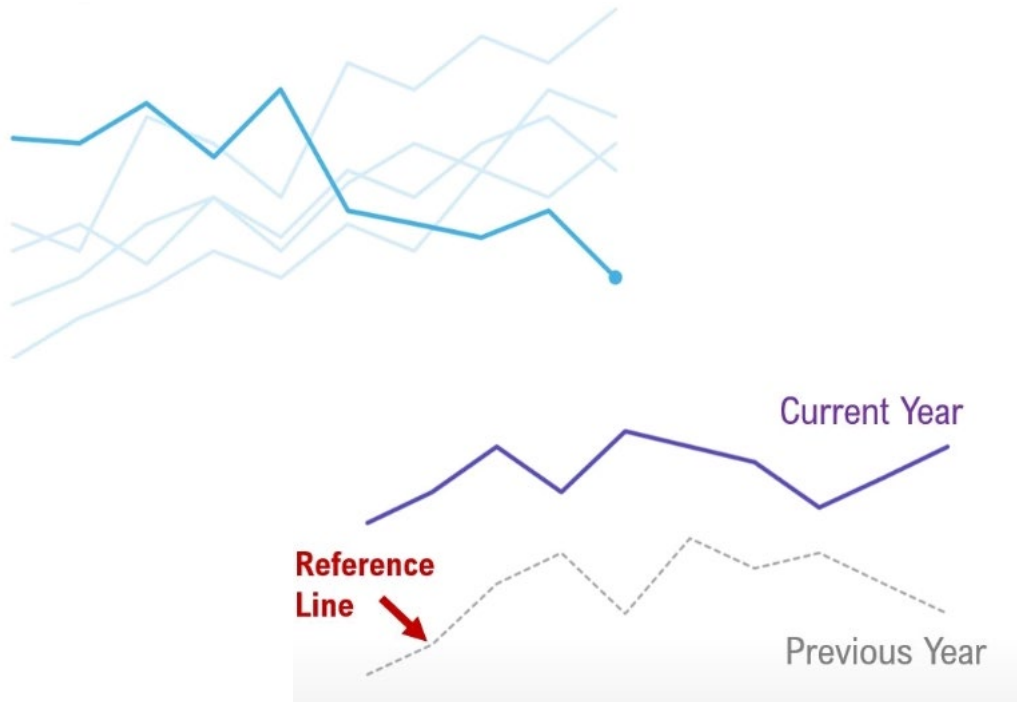
# Topic 9

Data Storytelling, What, Why and How



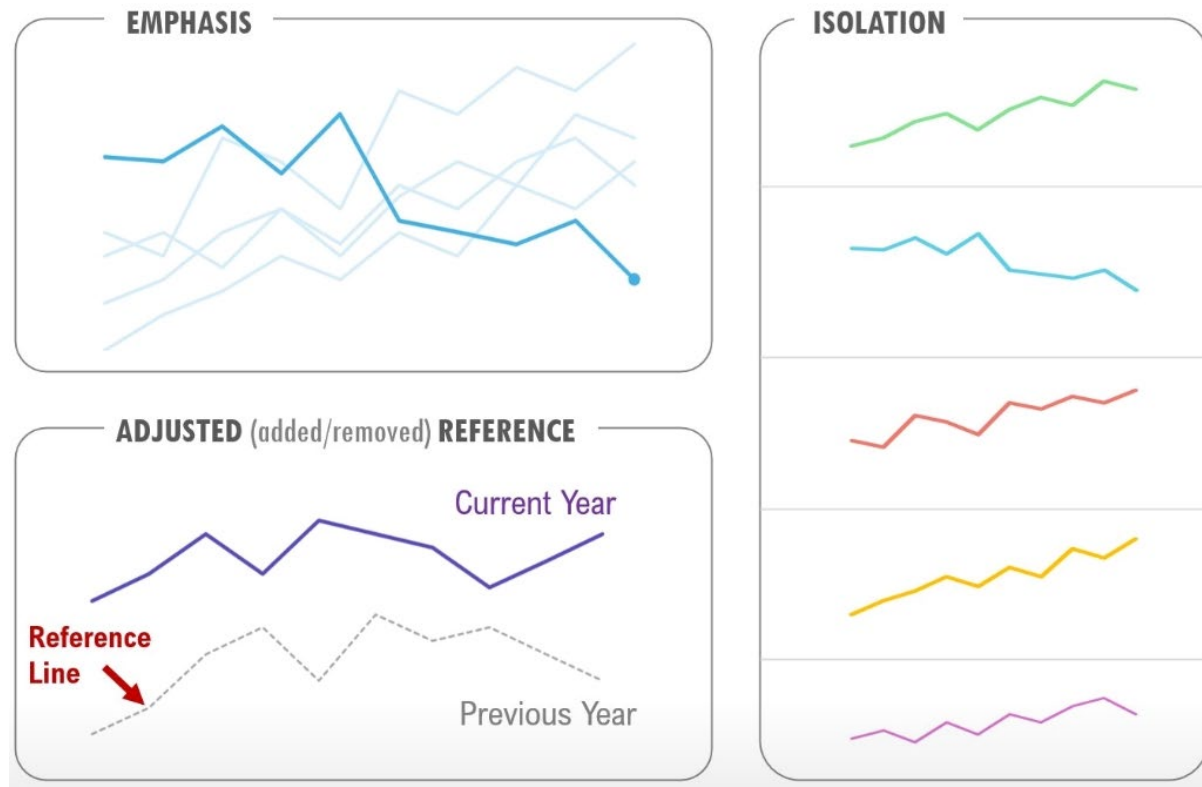
# What is data visualization?

- Data visualization is the presentation of data in a graphical format.
- It is transforming complex data into meaningful information.



# What is data visualization?

- Data visualization is the presentation of data in a graphical format.
- It is transforming complex data into meaningful information.



# Data Visualization

In this chart, numerical variances are the same. Plotting absolute values **minimizes** the significance of growth.



Plotting percentage changes makes the relative growth (or decline) **more accurately visible**. (Company B clearly outperformed Company A).





# Why do we need storytelling?

## CHAIR



- Language
- Visual

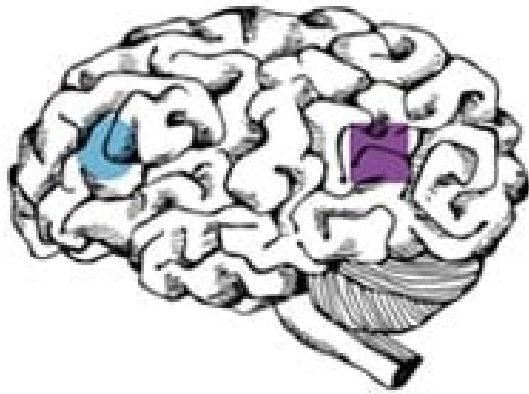
## COFFEE



- Language
- Visual
- Smell

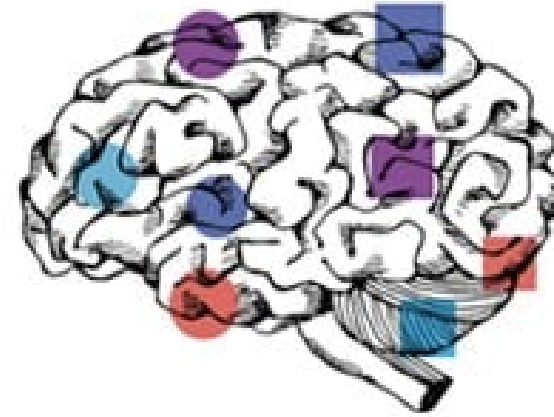
# Why do we need storytelling?

## Your Brain Receiving Facts



- WERNICKE'S AREA: *Language Comprehension*
- BROCA'S AREA: *Language Processing*

## Your Brain Receiving Stories



- |  |   |
|--|---|
| ● SENSORY CORTEX: <i>Touch</i>                   | ■ MOTOR CORTEX: <i>Movement</i>             |
| ● WERNICKE'S AREA: <i>Language Comprehension</i> | ■ BROCA'S AREA: <i>Language Processing</i>  |
| ● AUDITORY CORTEX: <i>Sounds</i>                 | ■ VISUAL CORTEX: <i>Colors &amp; Shapes</i> |
| ● OLFATORY CORTEX: <i>Scents</i>                 | ■ CEREBELLUM: <i>Touch</i>                  |

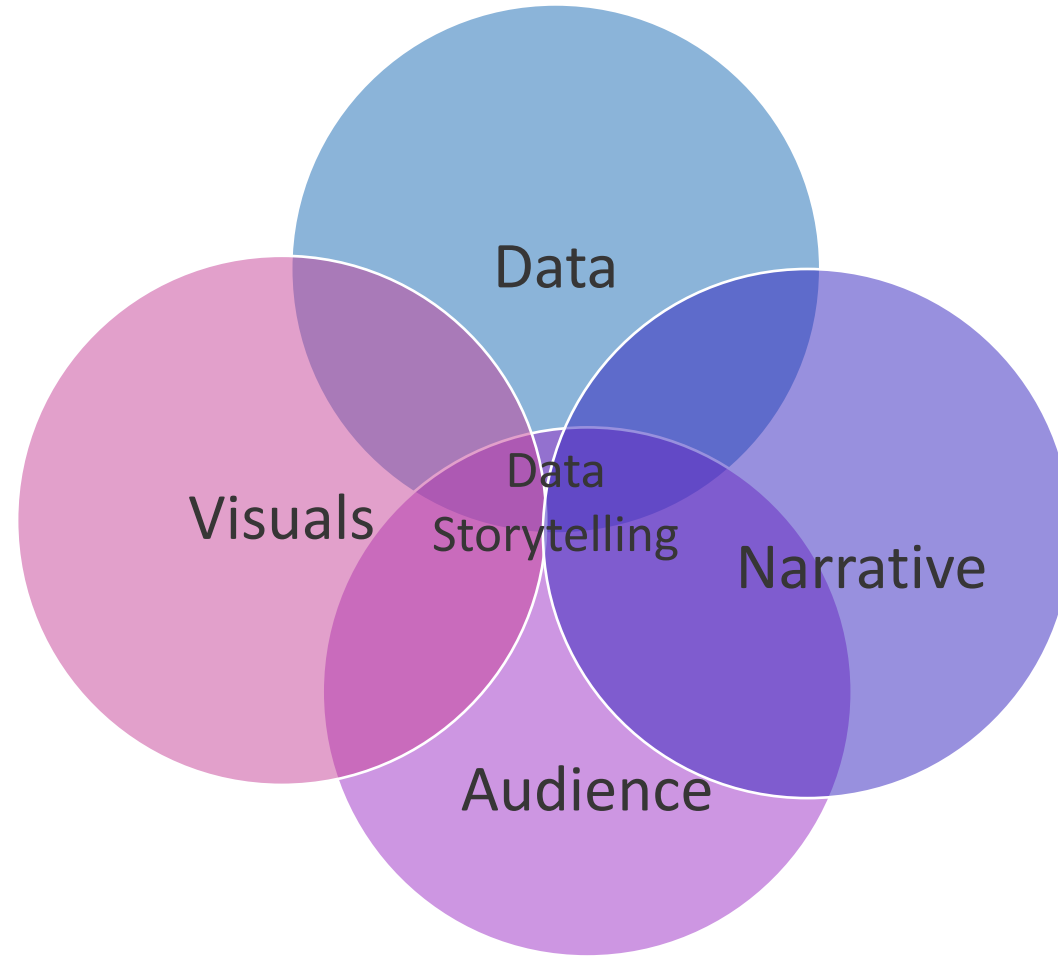
# Why story telling with data matters?

**Data visualization** is transforming complex data into information which is easier to understand.

- Data visualizations are created to answer "what" questions, but they don't explain the "why," or provide other contextual information to find the reason.
- **Data Story telling** links the visualization with a narrative to answer the “why” question, and conveys credible and compelling insights that is actionable by the decision makers.
- **Data Story telling** connects the visualization and narration/insights to the audience to make data-driven decision.

***Ryan Fuller, general manager at Microsoft and former CEO "The narrative is the key vehicle to convey insights, and the visualizations are important proof points to back up the narrative."***

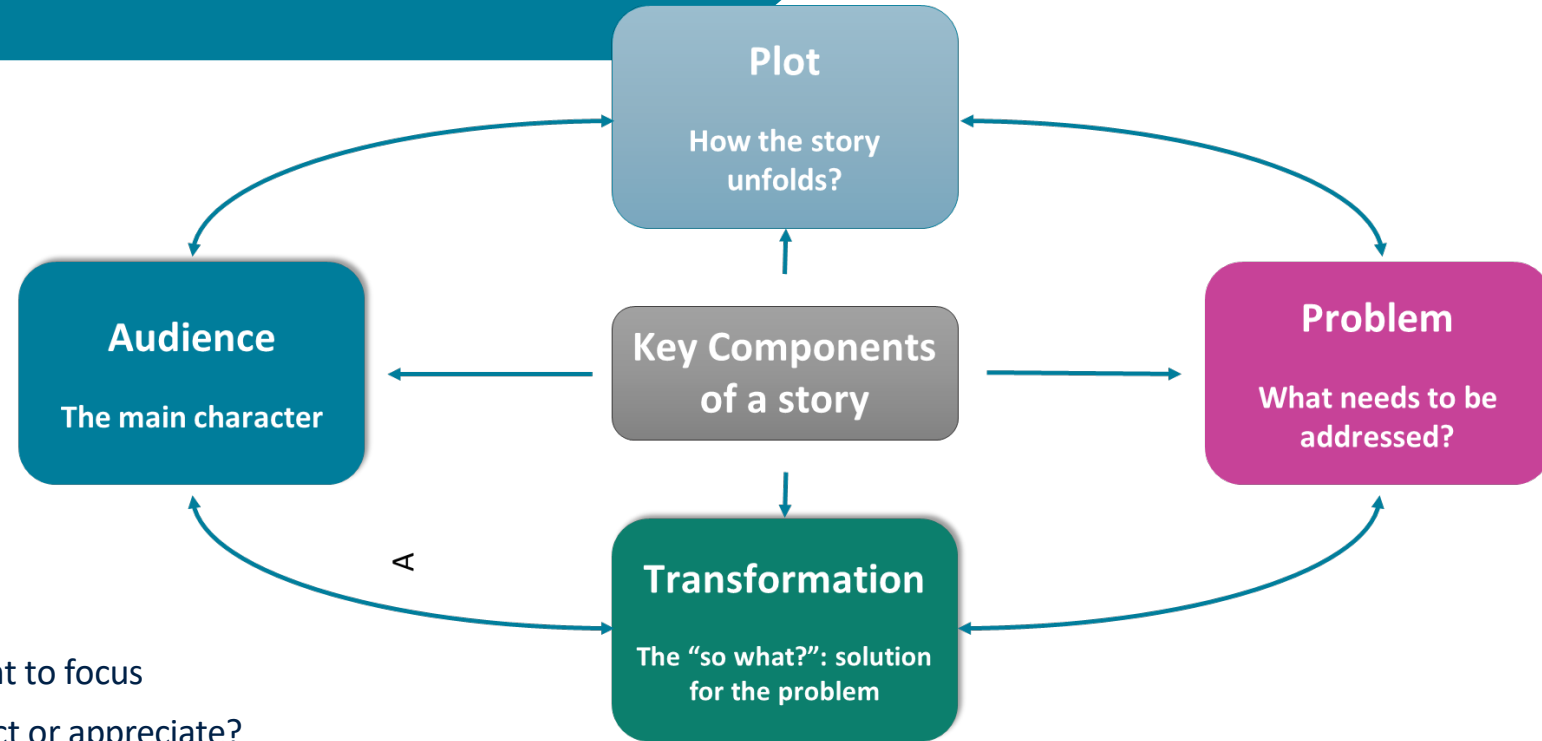
# Data Storytelling - What





# How - Steps of storytelling with data

1. Identify your story
  - What question are you trying to answer
  - Context/the current situation
2. Collect your data.
  - What data is most important
  - What am I trying to achieve with the data
3. Be aware of your audience
  - Who are my audience
  - What are the most important points you want to focus
  - What level of data detail will they likely expect or appreciate?
4. Transform the data to data visualization
  - How you want to present the data: charts, graphs; to answer the question
5. Generate your insights / Narration/
  - Answer the “WHY” question of your visualization
  - What is the one thing I want my audience to know or do with my data?
  - Conclude with actions to taken



# Data Storytelling Example

Data presentation (Before)  
Without narrative structure



Data presentation (After)  
Through the lens of narrative structure



# KPIs Example - Airlines

**Average Baggage Transfer Time:** The average amount of time between luggage drop-off from the check-in desk to being loading onto the plane

**Average Baggage Weight per Flight:** The average total weight of all luggage on a single flight

**Lost and/or Misplaced Bags:** The number of lost or misplaced bags

**Percentage of Seats Sold:** The total number of seat tickets that have been sold for a specific flight

**Revenue per Passenger:** The total amount of revenue gained from a single passenger

**Denied Boarding of Passengers:** A count of passengers who have been denied boarding

**Total Seat Capacity:** The total amount of seats per plane

**Passengers per Flight:** The number of passengers on a specific flight

**Average Passengers per Flight:** (to be used with location and plane size segmentation) The average number of passengers on flights

**Industry Average Ticket Price:** A comparison of the price listings for flights throughout the industry

**Current Delayed or Cancelled Flights:** A list of all cancelled and delayed flights within a given time period

**Fuel Consumption:** The total amount of fuel consumed by a fleet

**Engines in Need of Repair:** A log of engines that require further maintenance before being deployed

**Cost per Kilometer:** The overall cost to the company per kilometer travelled

**Operating Margin:** Leftover revenue after cost of goods sold and operating costs are deducted

**Overall Timeliness:** A measure of how effectively the company sticks to their schedule for flights

**Current Flight Paths:** A map of current flight paths in use

**Today's Flights:** A list of flights departing today

- **Ethical Considerations in Using Data for Analytics**

- Getting Consent to collect the data – You have Secondary Data
- Anonymised data
- Data Ownership and IP
- Bias and discrimination
- Transparency and reproducibility
- Privacy and confidentiality
- Outcomes - Data accuracy and integrity

# References

Dykes, B., (2019) Effective Data Storytelling, Wiley