Selecting the right data

DATA COMMUNICATION CONCEPTS
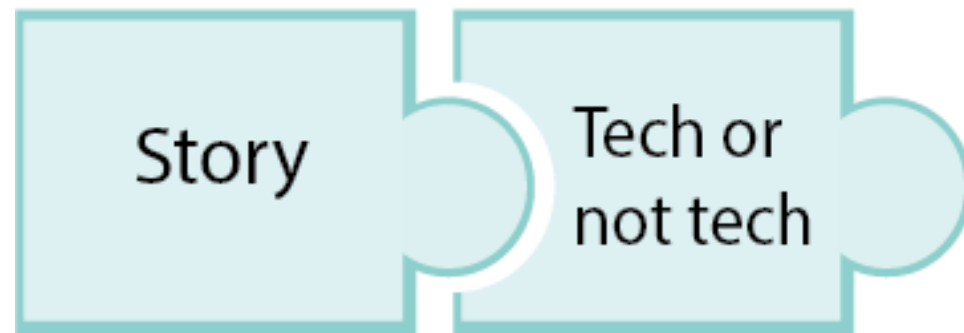
Hadrien Lacroix
Curriculum Manager
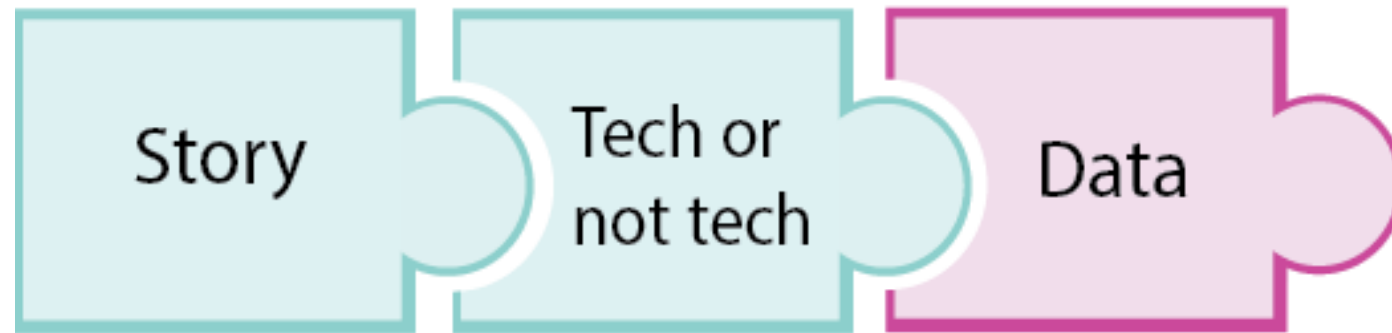
datacamp

Chapter 2

How to prepare for communicating data?

- Identify **personas**

- Selecting **findings** and **statistics**

- Selecting a **visualization**

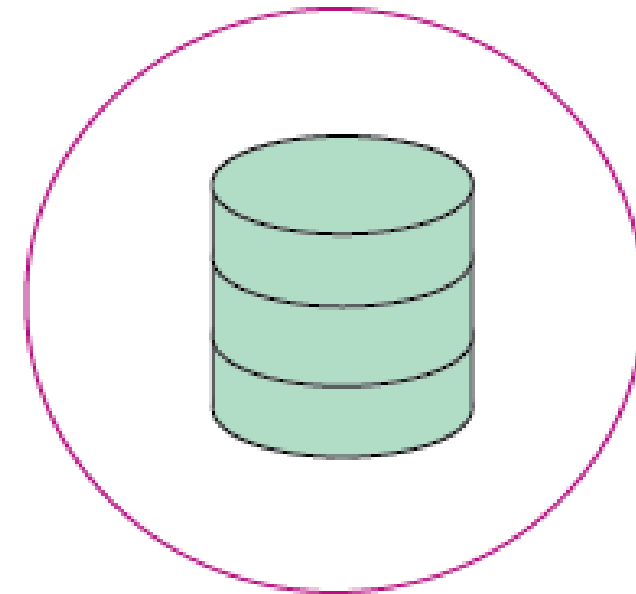- Choose **format**

Data storytelling road
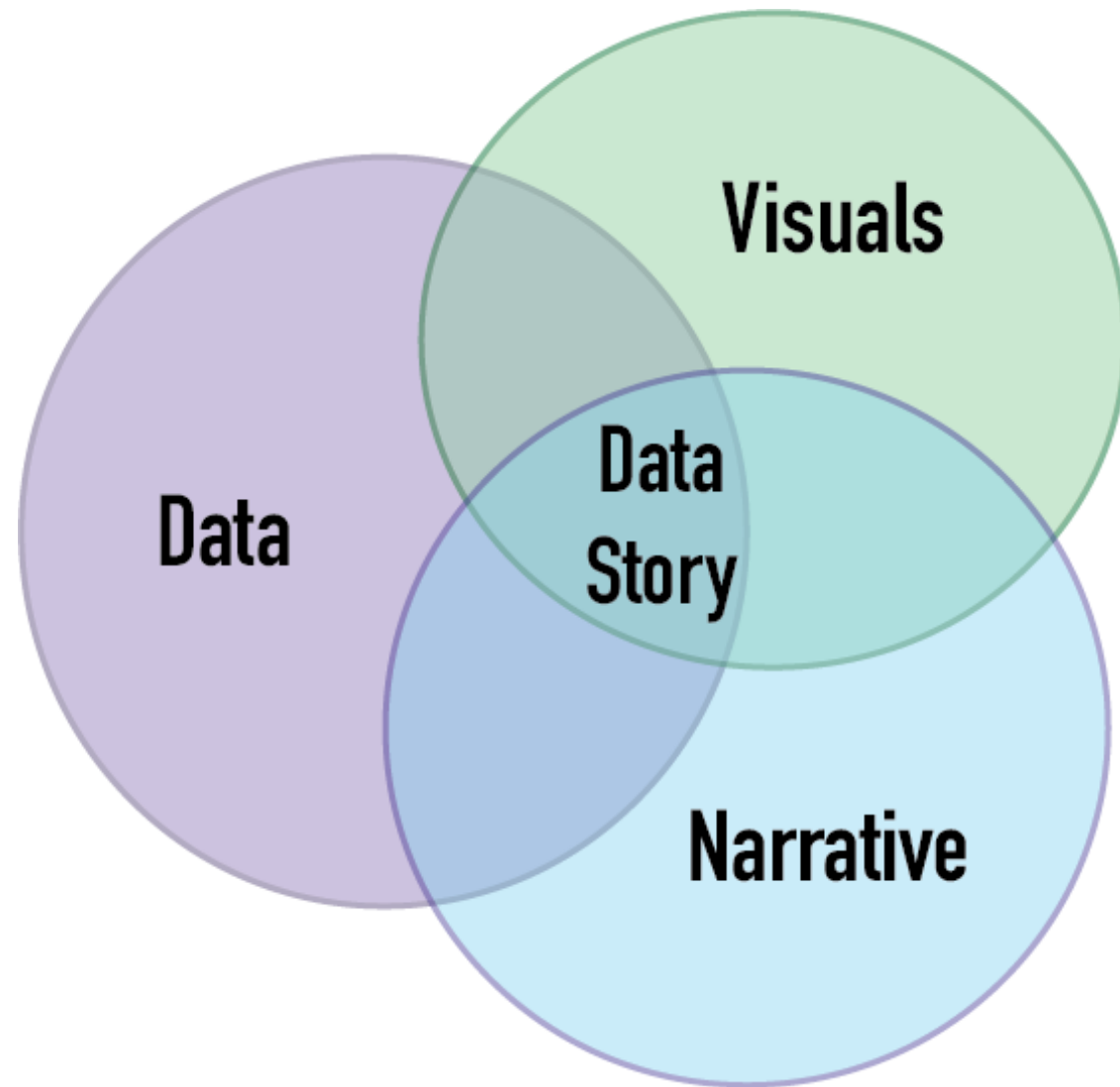
Data storytelling road

The right data

Selecting the right data implies including enough contextual insights in a story to better support the main point without overloading with information.

==> Minimal amount of information to support our story

[1] Dykes, Brent. Effective Data Storytelling. Wiley.

Data storytelling

1. **Data:**
   - Garbage in, garbage out
   - Adapt to the audience
2. Narrative
3. Visuals

Stakeholders

Any person interested in the project outcome or a decision or activity derived from it.

- Technical

- Non-technical

Identifying personas

- Description
  - Interests
  - Knowledge
- Select tailored findings
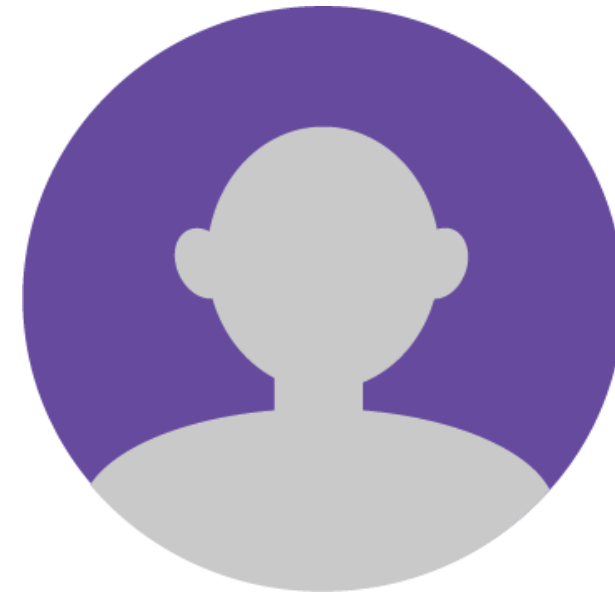
Identifying personas

Food project:

- Identify personas

- Select right findings

Executive team

- **Role:** Executive level (CEO, investor, director, founder)

- **Knowledge:** Fundamentals (technical aspects)

- **Interest:** Inform their decisions based on findings

Project manager

- **Role:** Project manager

- **Interest:** Project aligns with company objectives

- **Right data:**
  - Summary data: $2M cost of marketing campaign
  - Metrics:
    - 10% monthly increase in number of customers
    - 2% risk of declining profits

Tech team

- **Role:**
  - Project collaborator

  - Technical supervisor

- **Knowledge:** Expert (Technical aspects)

- **Interest:**
  - Replicate project

  - Continue project

General audience

- **Role:**
  - Customer (external)

  - Other department staff (internal)

- **Knowledge:** Novice or generalist

- **Interests:**
  - To understand the general results and impact of the project

General audience

- **Role:**
  - Other department staff (internal)

- **Interests:**
  - To understand the general results and impact of the project

- **Right data:**
  - Historical data: Decline in profits

  - Correlation/impact:
    - Chocolate needs rebranding

    - Impact next year earnings

Audience skepticism

- Different levels of skepticism

- Different levels of argumentation
  - Convince yourself
  - Convince a friend
  - Convince a skeptic

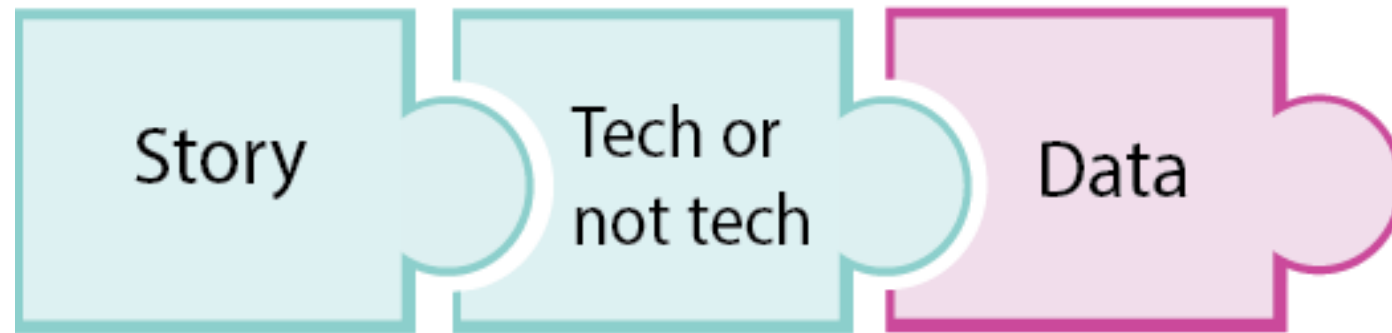# Let's practice!

DATA COMMUNICATION CONCEPTS

Showing relevant statistics

DATA COMMUNICATION CONCEPTS
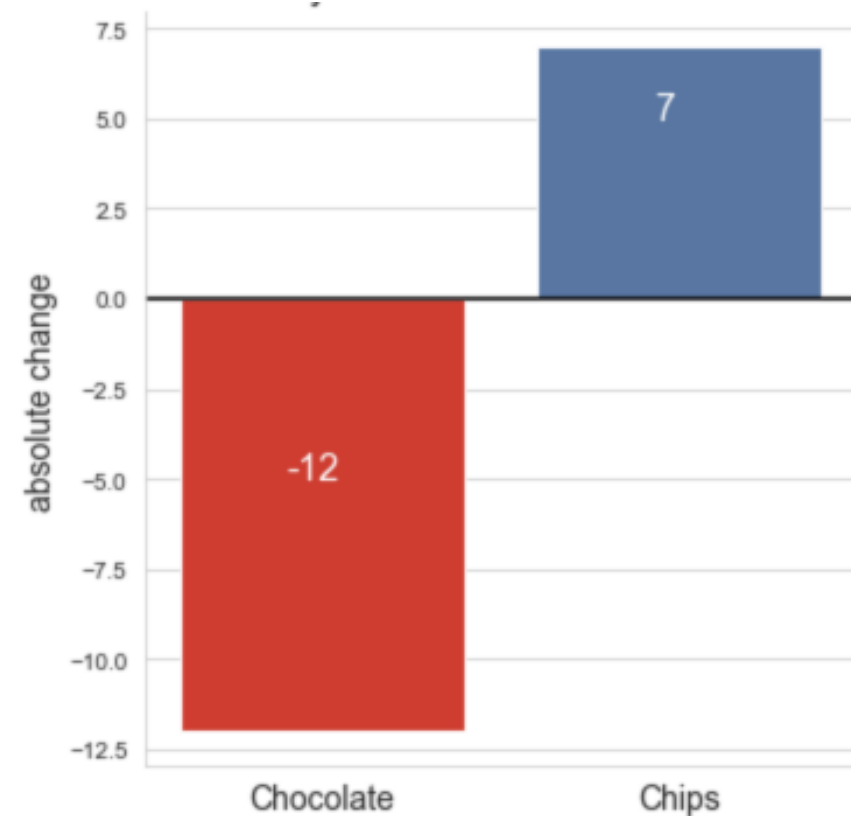
Hadrien Lacroix
Curriculum Manager

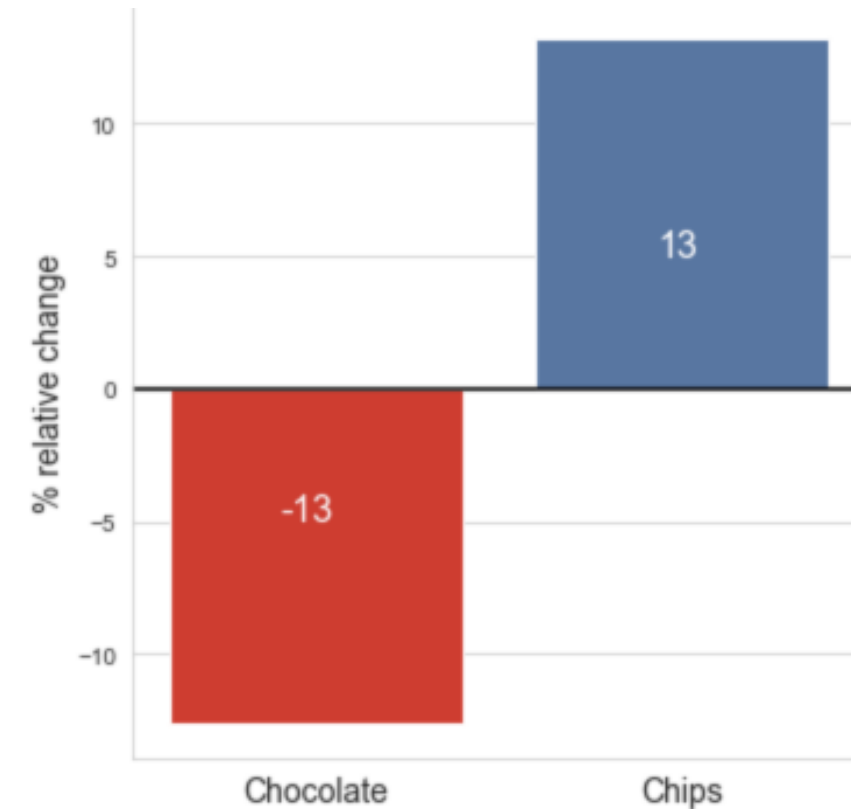# Data storytelling road

Variations of data

- **Absolute**
  - Difference between 2018 and 2017 sales
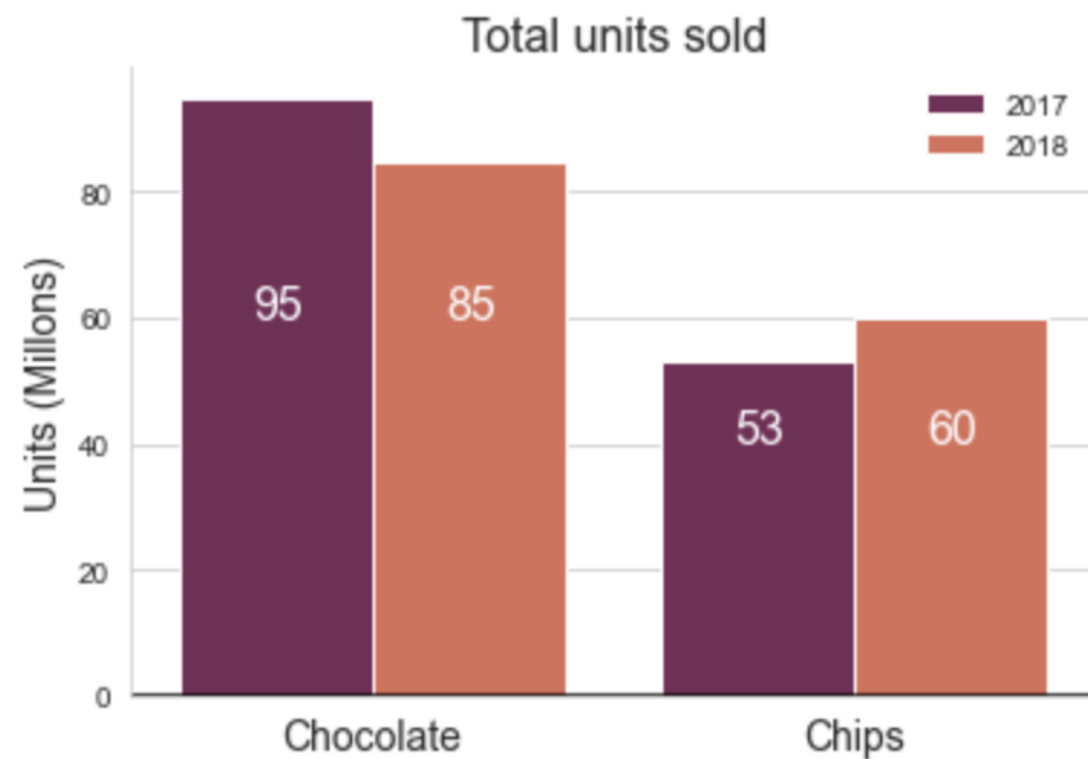 - Absolute change and relative change depend on the quantity

- **Relative**
  - Percentage variation 2018 from 2017
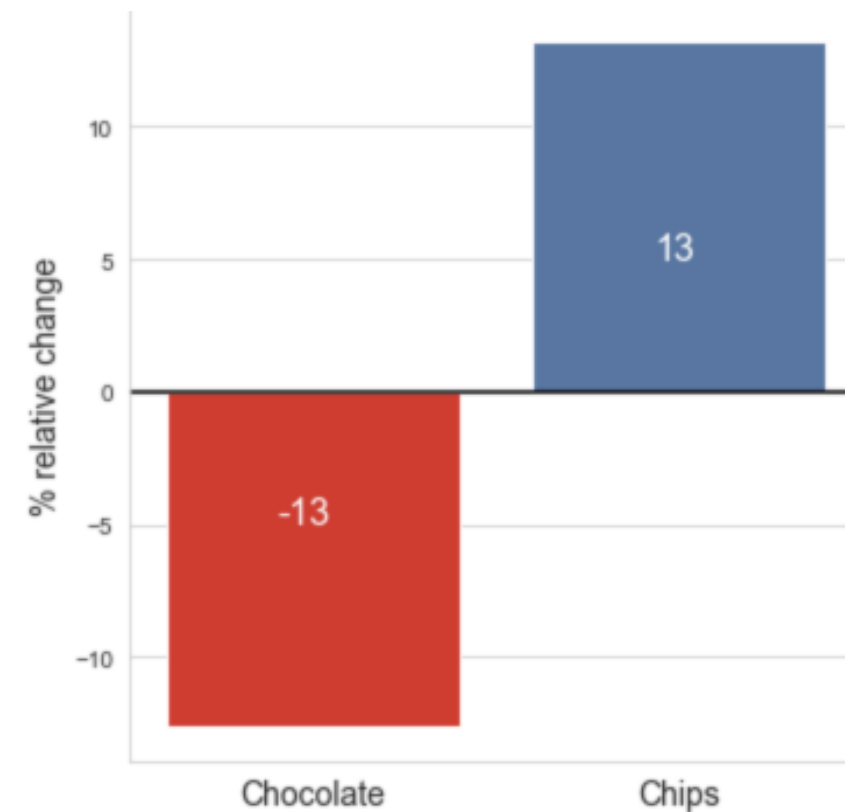 - Small numbers more significant than reality
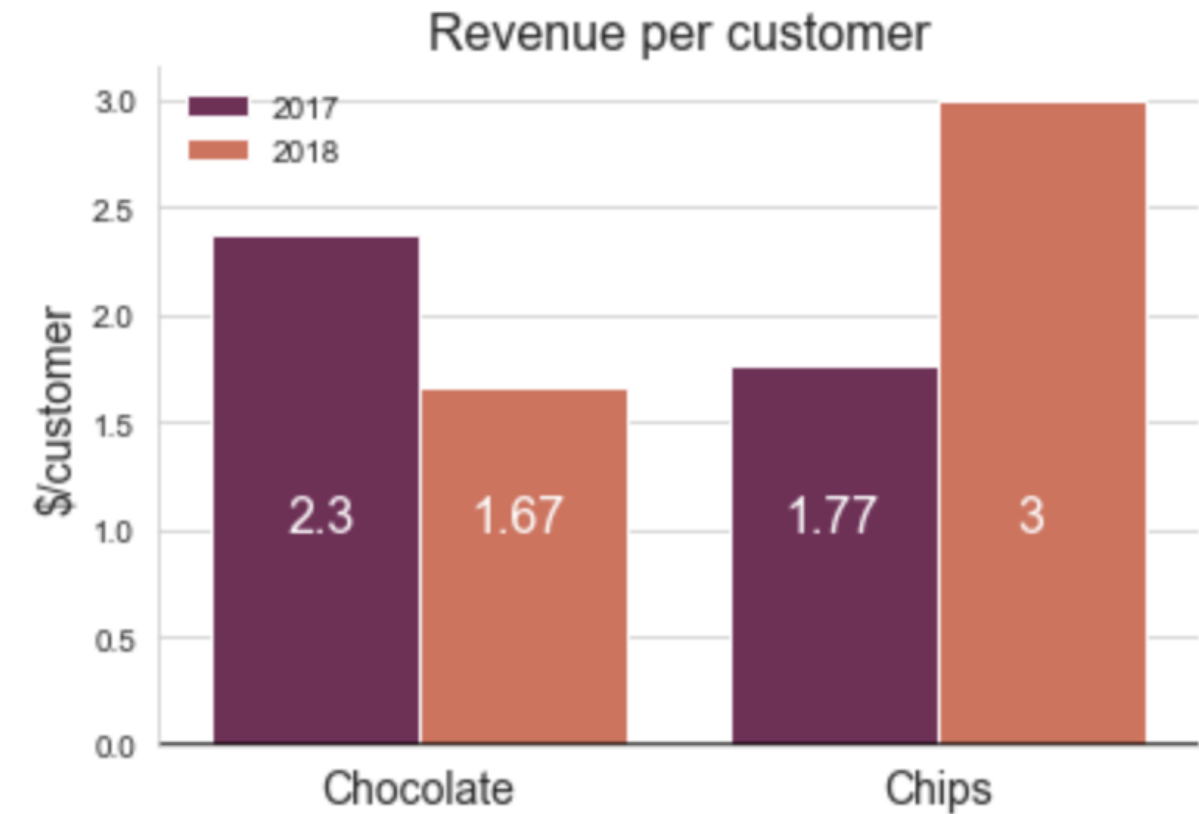
Variations of data

Absolute

Total units sold

Units (Millions)

2017
2018

Chocolate: 95, 85
Chips: 53, 60

Relative

% relative change

Chocolate: -13
Chips: 13

Ratio

- Quotient of two variables
  - Revenue per customer (**total product revenue/number customers**)

- Normalize values = **better comparisons**
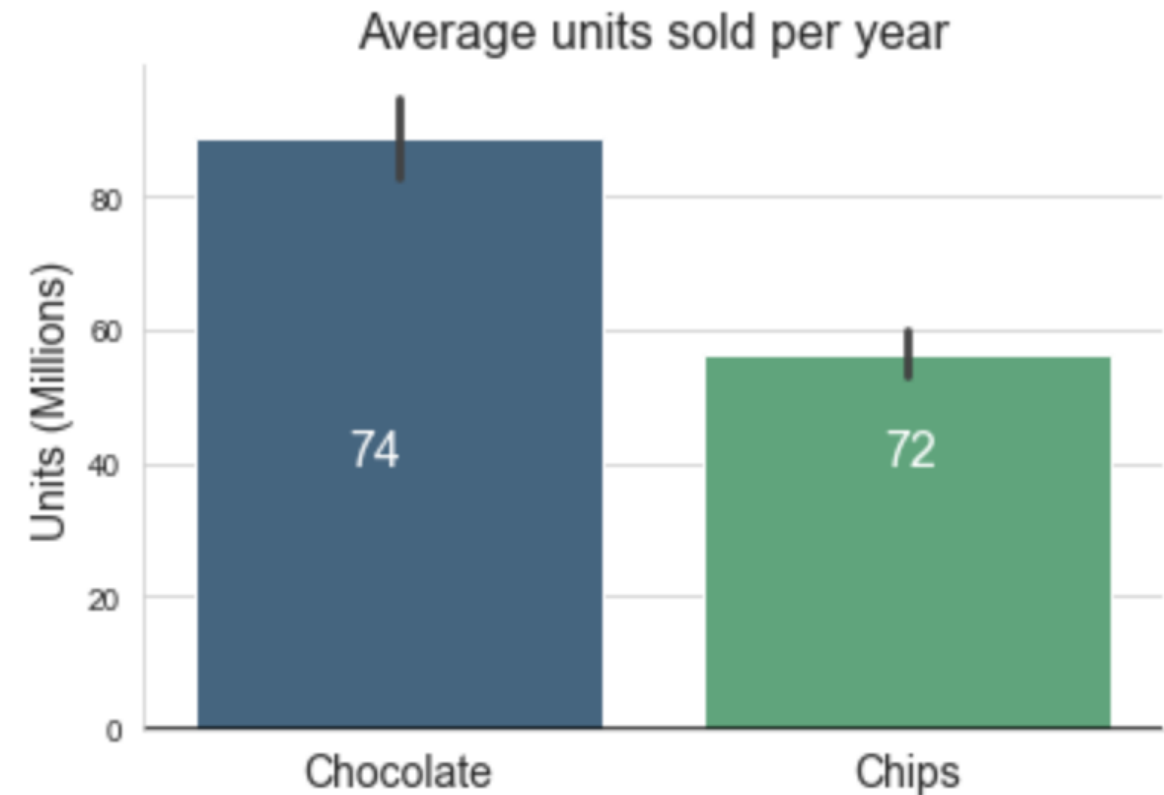

Revenue per customer

Aggregates

- Representative value:
  - Totals / counts

Aggregates

- Representative value:
  - Totals / counts

  - Mean

- Average units sold per year

Average units sold per year

Chocolate: 74
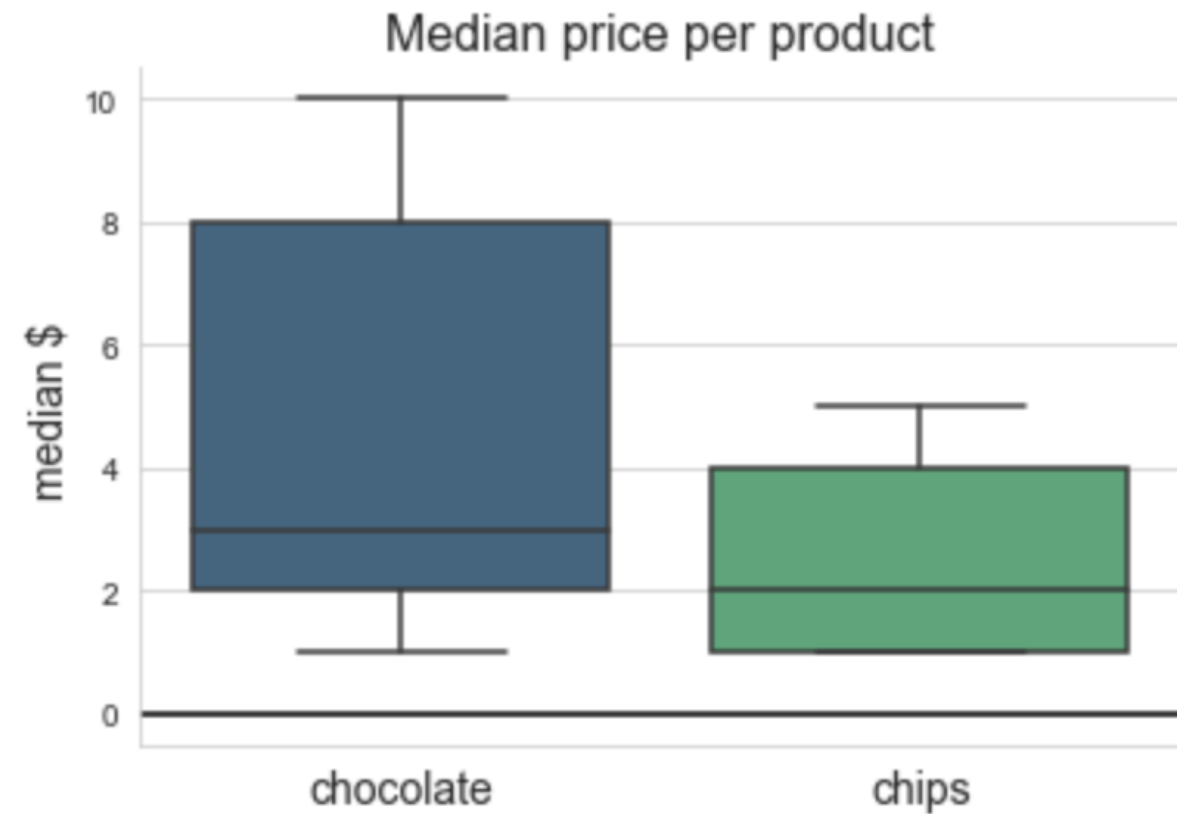Chips: 72

Aggregates

- Representative value:
  - Totals / counts
  - Mean
  - Median

- Median price

Aggregates

- Representative value:
  - Totals / counts

  - Mean

  - Median

- Mean can be misleading (outlier)

- Distribution of the data

- Example:
  - 2019 US **average** salary: **$51**,916.27

  - 2019 US **median** salary: **$34**,248.45

p-value

What is p-value?

- Convention:
  - Value less than 0.05: statistical significance

  - Values close to 0.05: weak indicator

What is it not?

- Not proof of evidence:
  - Reject our hypothesis, but not that is false

- Consider alternatives or complementary metrics

[1] P-Values: Misunderstood and Misused. Front. Phys. 2016.
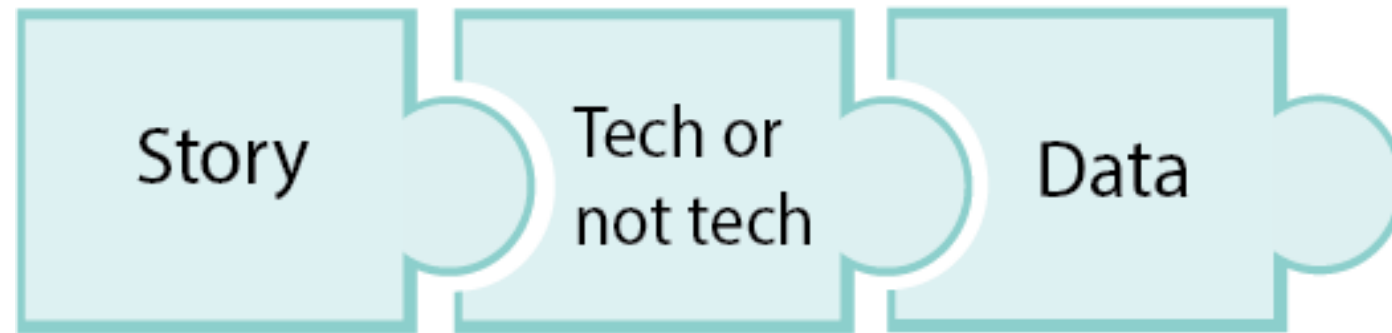
Let's practice!

DATA COMMUNICATION CONCEPTS

Visualizations for different audiences

DATA COMMUNICATION CONCEPTS

Hadrien Lacroix
Curriculum Manager
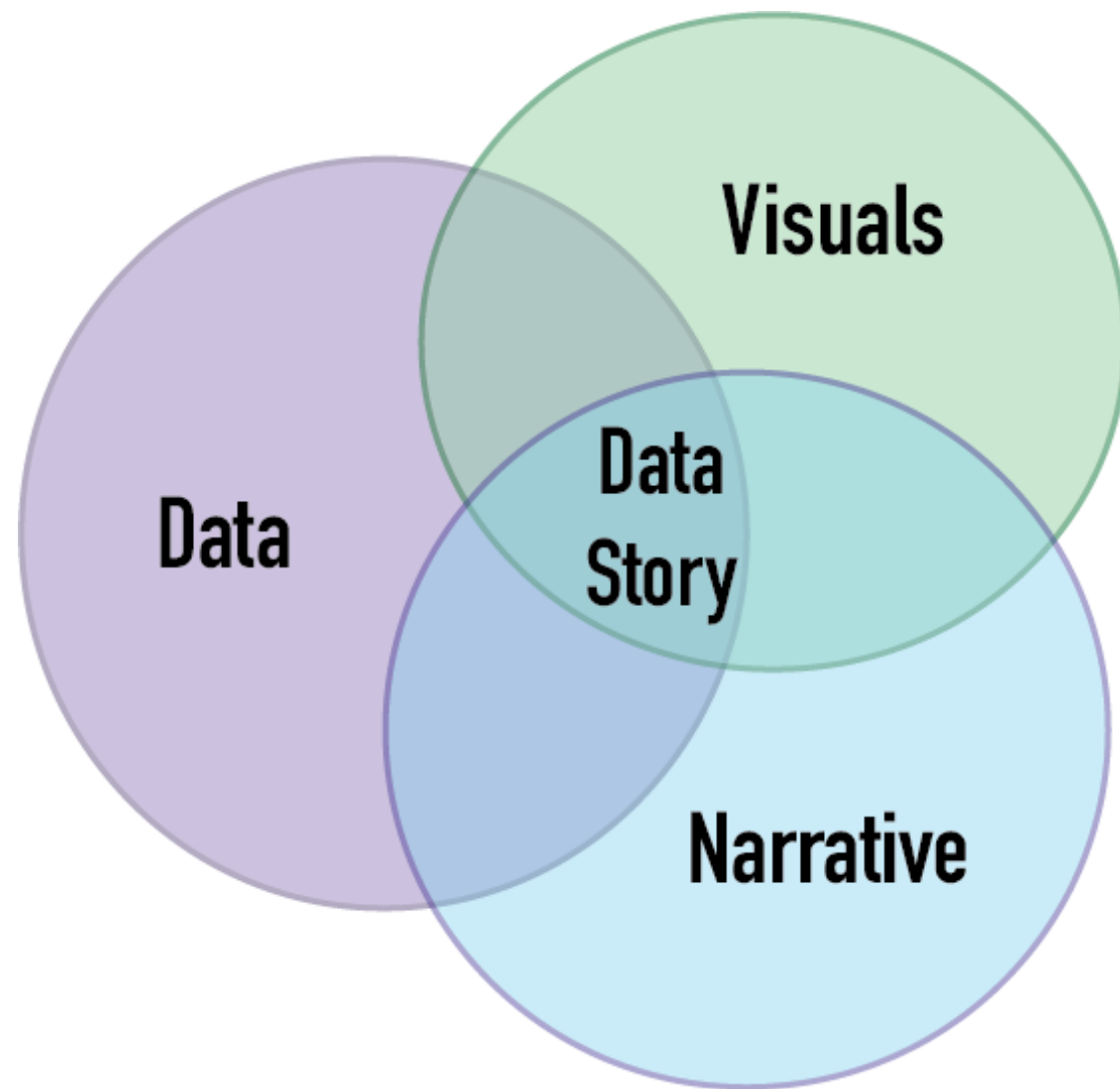
datacamp

Communication strategy

Communication strategy

Data storytelling

1. Data

2. Narrative

3. **Visuals**
   - Expertise
   - Familiarity

Tailored message

- **Investor**

Marketing campaign avoid 20% revenue drop
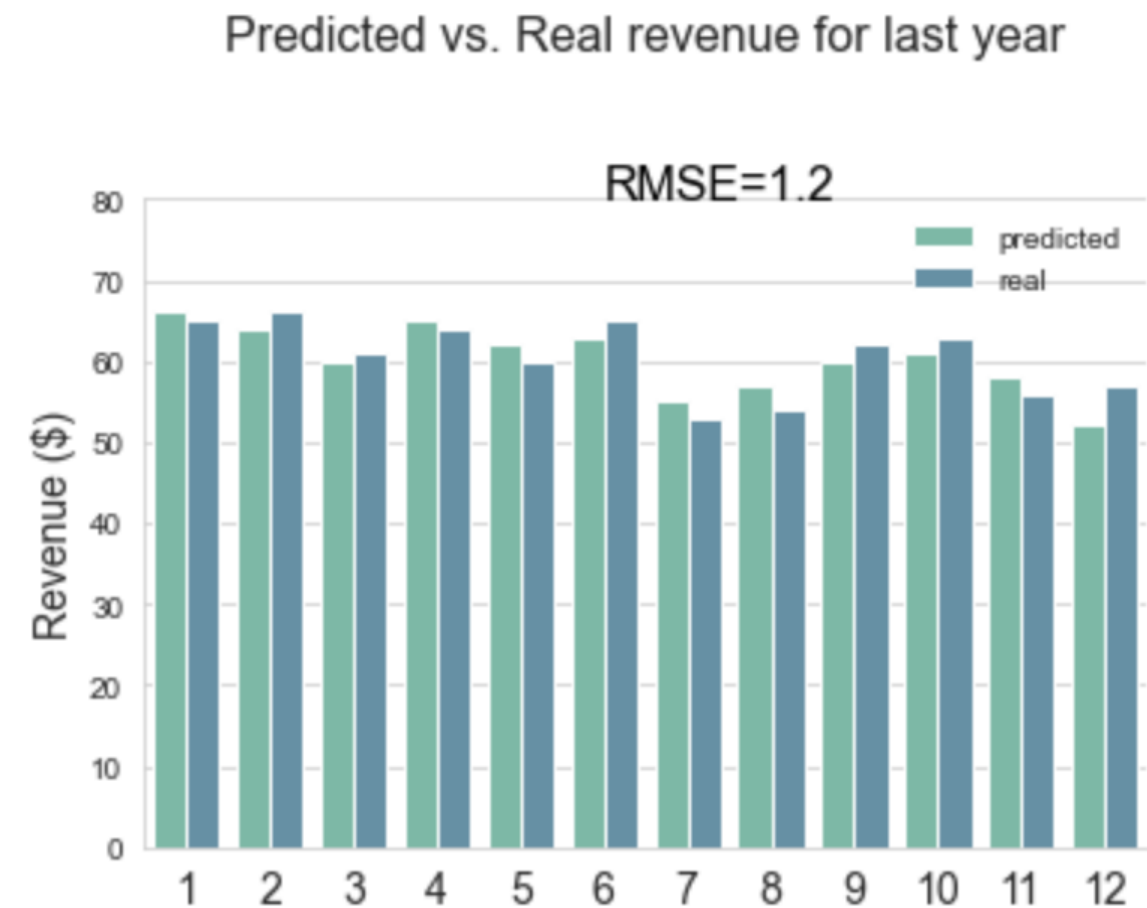
- **Technical lead**

Model predicted revenue decline (RMSE: 1.2)

Directly linked to message

- **Investor**

Forecasted montly revenue

- **Technical lead**

Predicted vs. Real revenue for last year
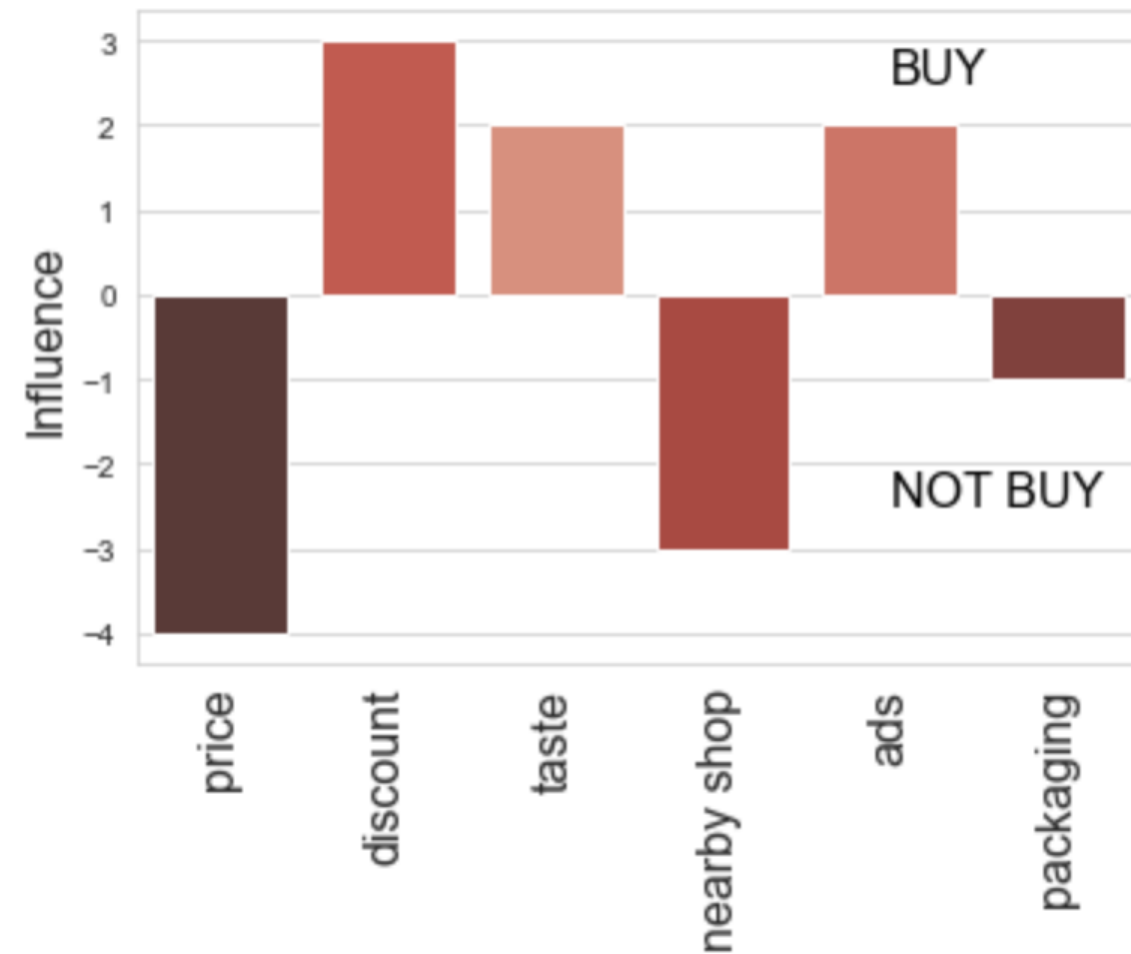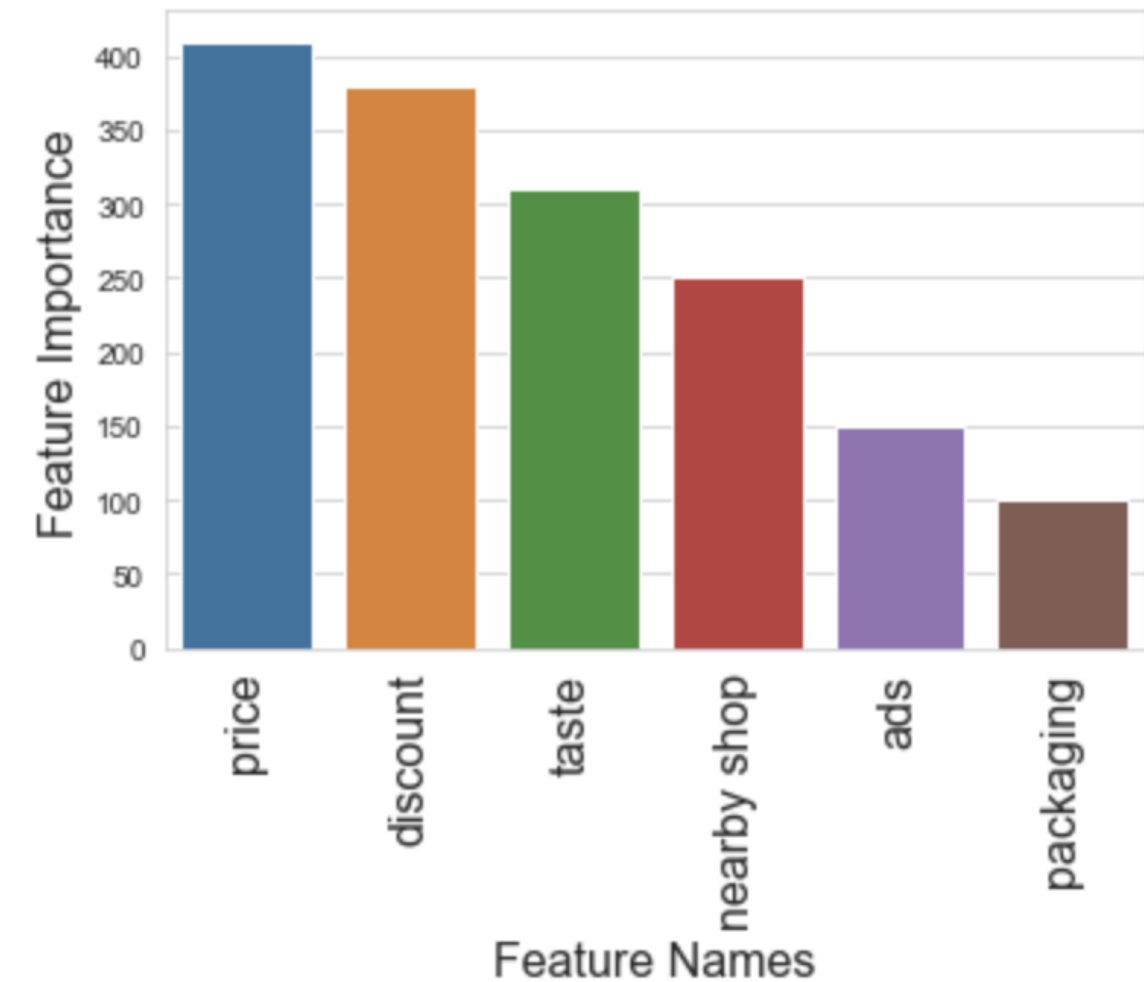
Provide context

- Investor

Influence of different factors on customer behavior

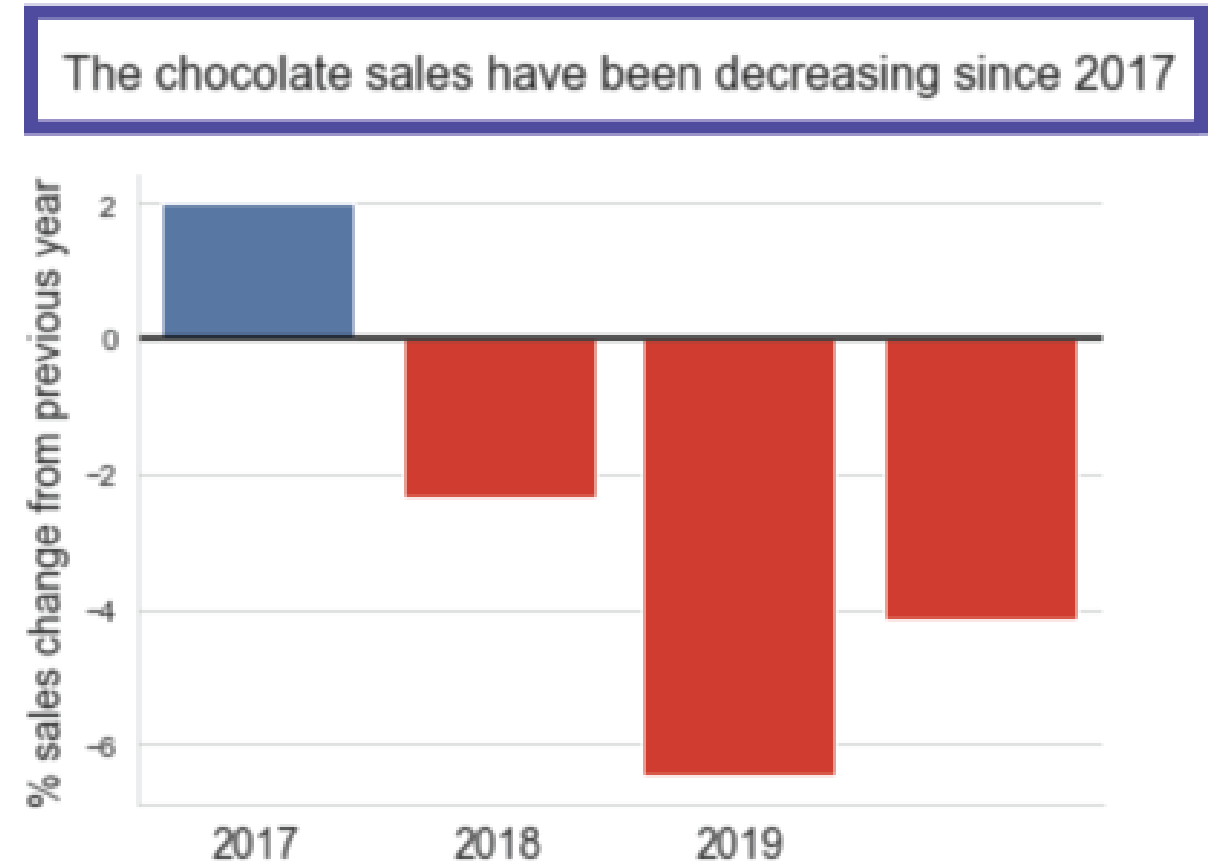- Technical lead

Feature Importance

More best practices

- Pareto principle:
  - Aggregate less relevant data

  - Include chocolate, chips and other products (aggregated)

- Approachable and engaging visuals

- How many / how quickly

- Less is more

McCandless method

1. **Introduce visualization by name**
   - Graph headline
   - Clear and obvious
   - y vs x technique

The chocolate sales have been decreasing since 2017

[1] https://artscience.blog/home/the-mccandless-method-of-data-presentation
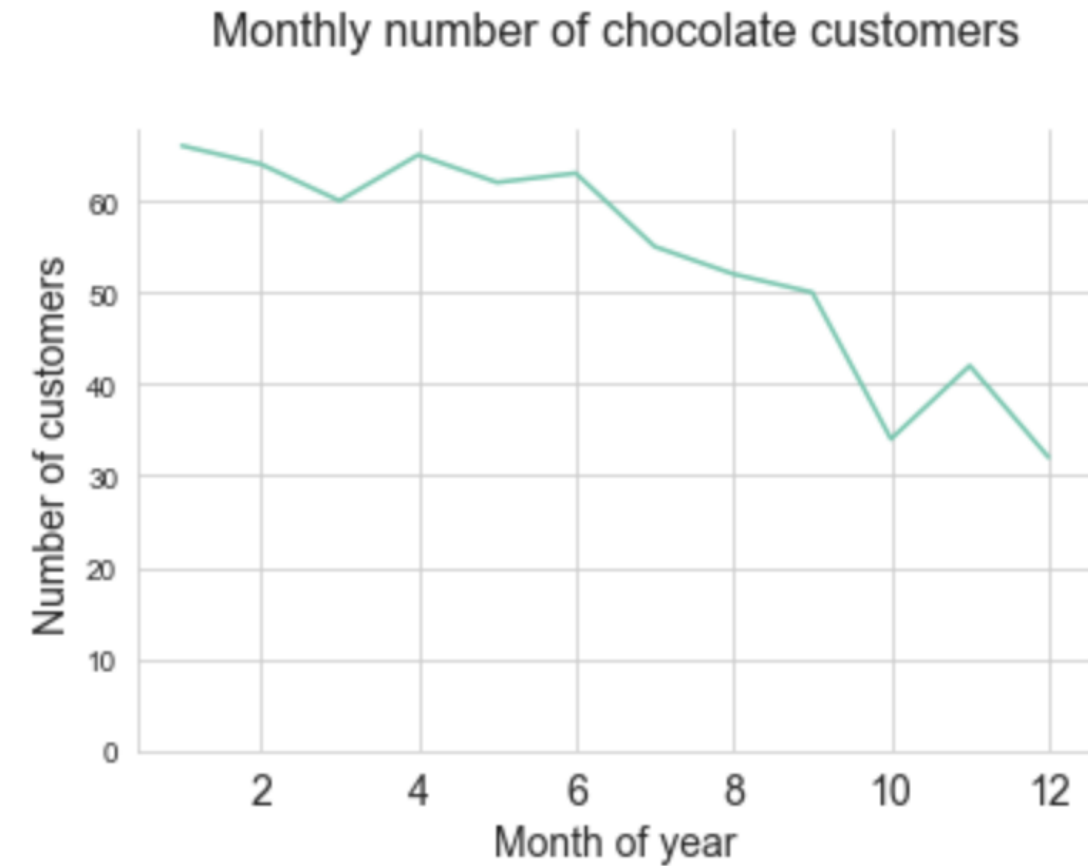
McCandless method

1. Introduce visualization by name

2. **Anticipate audience's questions**
   - Focus on story not on decoding graph

McCandless method

1. Introduce visualization by name

2. Answer audience's questions

3. **State insights**

Monthly number of chocolate customers

McCandless method

1. Introduce visualization by name

2. Answer audience's questions

3. State insights

4. **Help the audience relate**

   ○ Importance

   ○ Action items

Let's practice!

DATA COMMUNICATION CONCEPTS

Choosing the appropriate format

DATA COMMUNICATION CONCEPTS

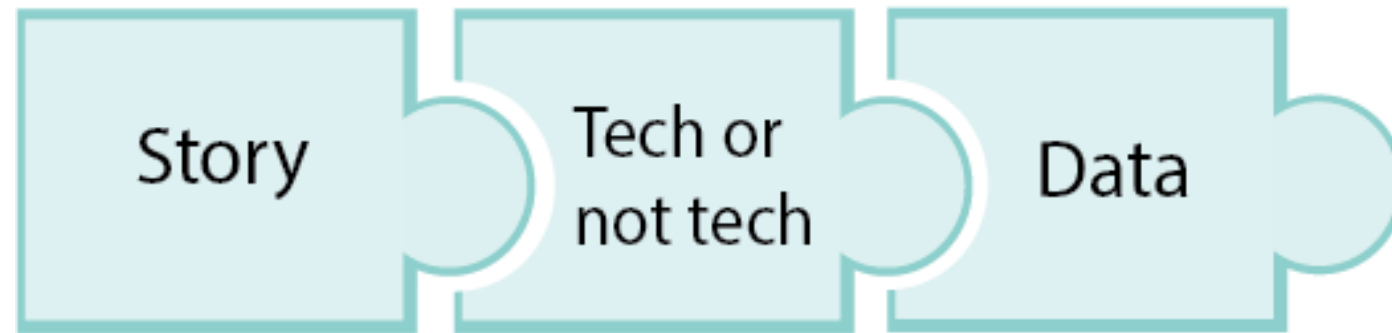**Hadrien Lacroix**
Curriculum Manager

datacamp

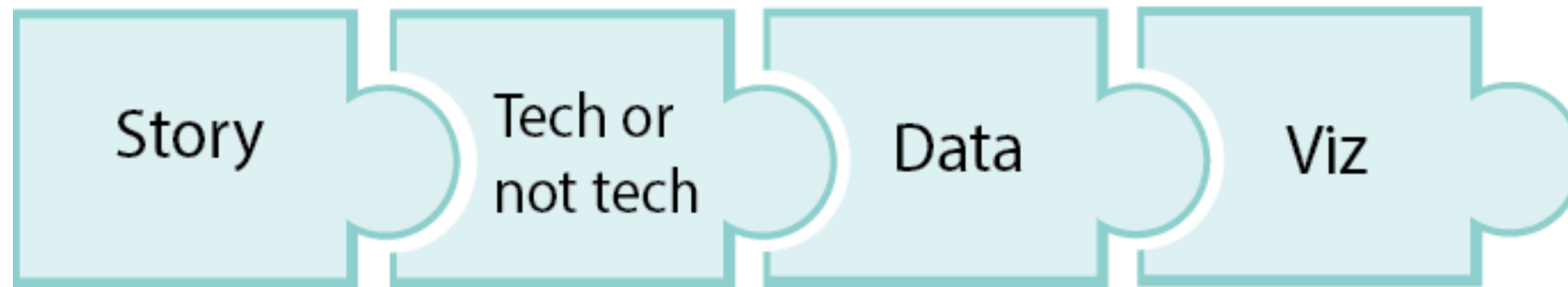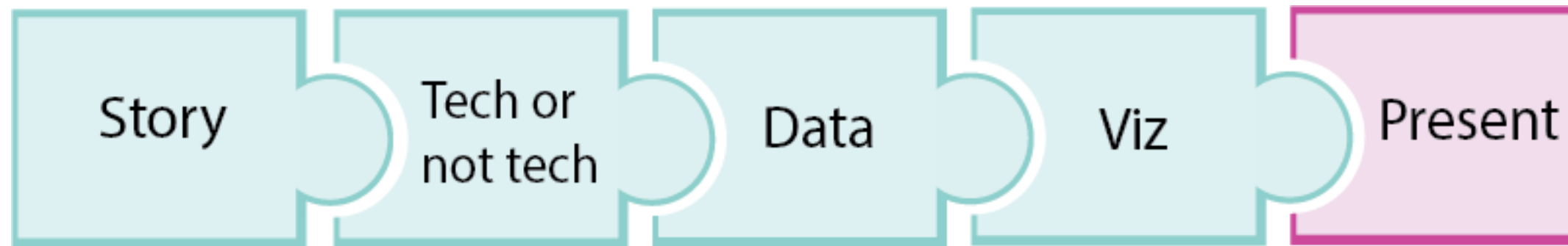# Data storytelling road

Data storytelling road

Data storytelling road

Data storytelling road

Data storytelling road

Which format is more effective?

Good communication format

- Key information

- Engaging

- Easy to understand
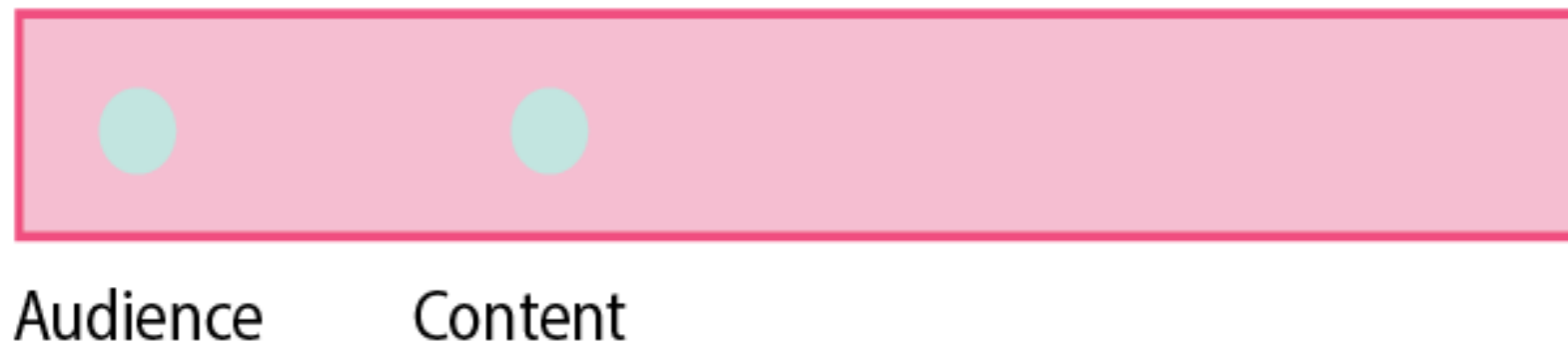
Which format is more effective?

1. Written reports

2. Oral presentations

Presentation strategy

Audience

Presentation strategy

Audience   Content

Presentation strategy

Audience   Content   Requirements

Presentation strategy

Audience   Content   Requirements   Channel

Presentation strategy

Audience   Content   Requirements   Channel → Presentation Format

Stakeholders

- **Who?**

- **Why?**
  - Accountability

  - Methodology

- **How?**
  - Make decisions

  - Start new project

- **What?**
  - Results

  - Impact

Content

- Results?

- Conclusion?

- Recommendations?

- Methods?

[1] Photo from Unsplash

Requirements

- Time

- Authority

- Time zone

Consumption

- **Format**
  - Document
  - Slide deck

- **Delivery** mechanism
  - Live
  - Asynchronous

- **Audience**
  - Conference room
  - Ballroom

[1] Photo from Unsplash

Oral communication

Advantages

- Relationship with the audience

- Immediate feedback

- Non-verbal cues

Disadvantages

- No permanent record of communication

- Not suitable for long messages

Written communication

Advantages

- Permanent record of communication

- Shared easily with a large audience

- Less emotional reaction to message

- Suitable to share code with colleagues

Disadvantages

- Hard to see if the message was understood

- No immediate feedback

Appropriate format

Oral presentation

- Who? **CEO**

- Why? **Monthly update**

- What? **Accountability**

- Content: **Conclusions**

- Requirement: **Time**

- Channel: **Meeting**

[1] Photo from Unsplash

Appropriate format

Report

- Who? **CEO**

- Why? **Important decisions ahead**

- How? **Report to investors**

- Content: **Recommendations**

- Channel: **Email**

[1] Photo from Unsplash

Let's practice!

DATA COMMUNICATION CONCEPTS