

Data storytelling

COMMUNICATING DATA INSIGHTS



Joe Franklin

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What is a story?

A connected series of events told through:

- words (written or spoken)
- imagery (still and moving)
- body language, performance, music
- any other form of communication

¹ <https://literaryterms.net/story/>

What is storytelling?

The activity (or art?) of telling stories. It involves elements like:

- Message
- Senses
- Connection
- Emotion



Data storytelling

The process of building a **narrative** to **communicating relevant and actionable insights** in an understandable and widely accessible format

- An addressable question or problem
- Data-driven facts
- An "Arc"
 - Beginning, middle, and end
- Actionable insights



¹ What is data storytelling? (n.d.). Microsoft Power BI. <https://powerbi.microsoft.com/en-us/data-storytelling/>

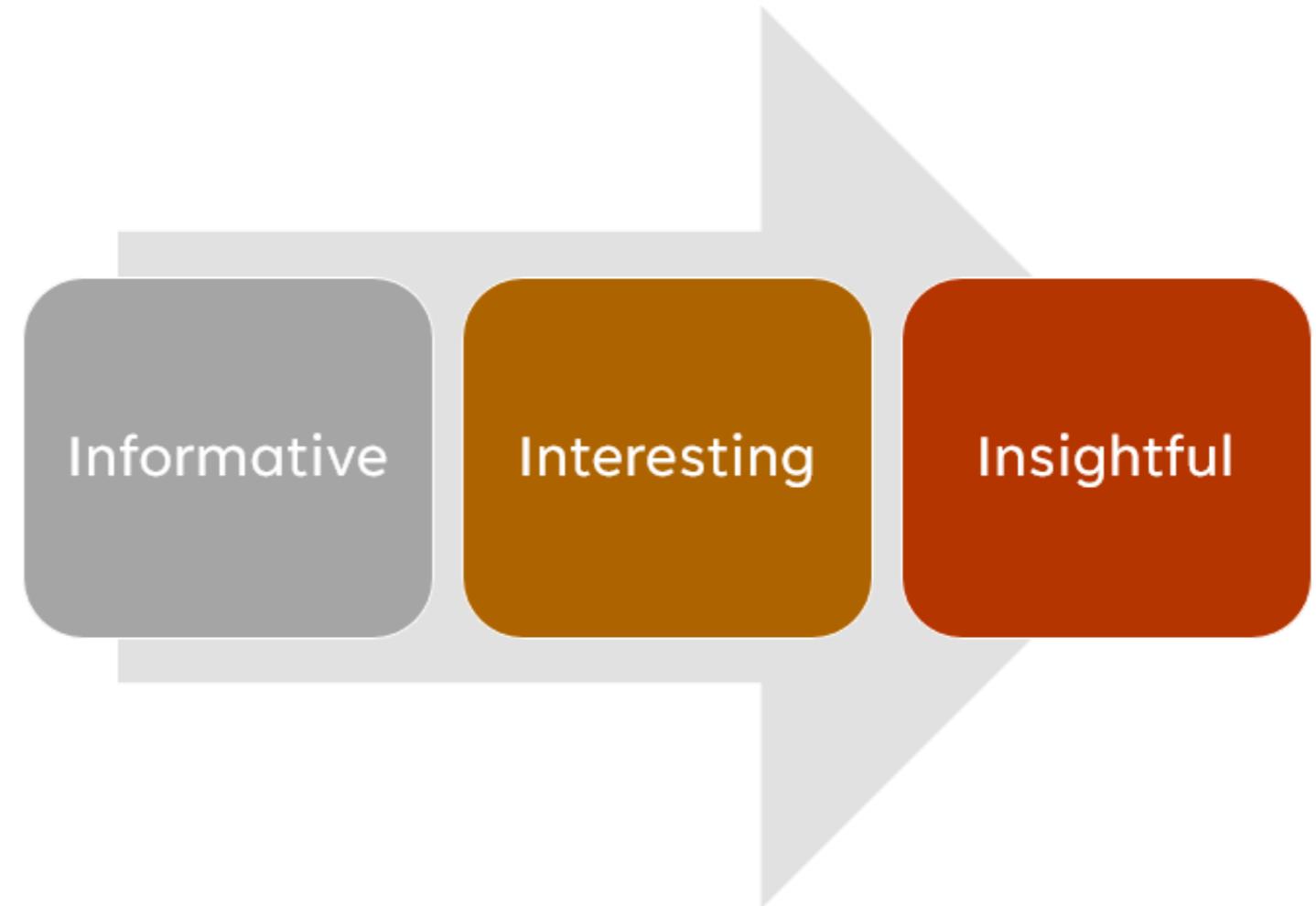
Why should you care?

A story is worth a thousand images

- It can draw your audience into a situation they can empathize with
- It can convey emotions, values, and insights
- It can resonate with them long after the story is over

Three I's: Data story maturity

- Informative
 - Example: "We sold 250,000 cars"
- Interesting
 - Example: "We sold 30,000 more cars this year"
- Insightful
 - Example: "The most lucrative sales came from hatchback vehicles"



Why learn storytelling?

- Accessible and inclusive
 - Simplifies complex information
 - Easy-to-follow
 - Engaging
- Convey value
 - Impact
 - Data-driven decisions



¹ 1. What is data storytelling? (n.d.). Microsoft Power BI. <https://powerbi.microsoft.com/en-us/data-storytelling/> 2. Holland, Taylor (2019). From Stats to Stories: The Evolution of Data Storytelling. Skyword.

Why?

Data story distinctions

- Easier to understand
- Inspire action
- Retain information

Pair visualizations with written communication



Engagement

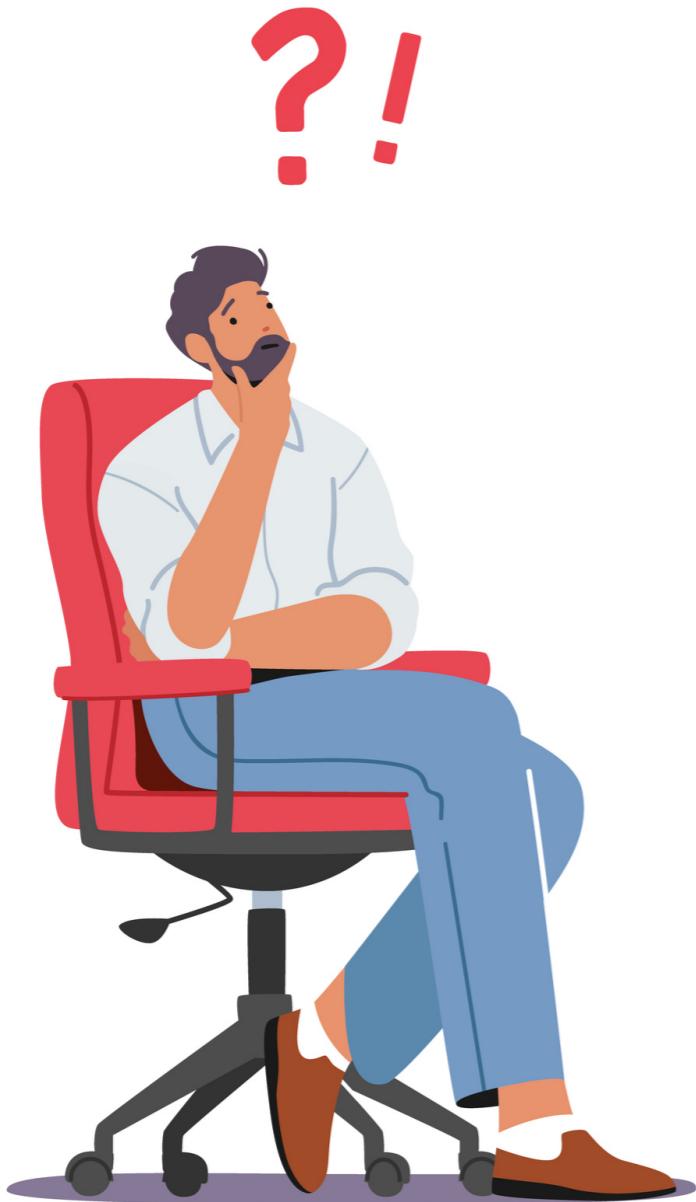
Stories increase engagement over raw data.



| Method | Donation amount |
|------------|-----------------|
| Data only | \$1.14 |
| Data story | \$2.38 |

¹ Small, D. A., Loewenstein, G., & Slovic, P. (2007). Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims.

Sticky situation



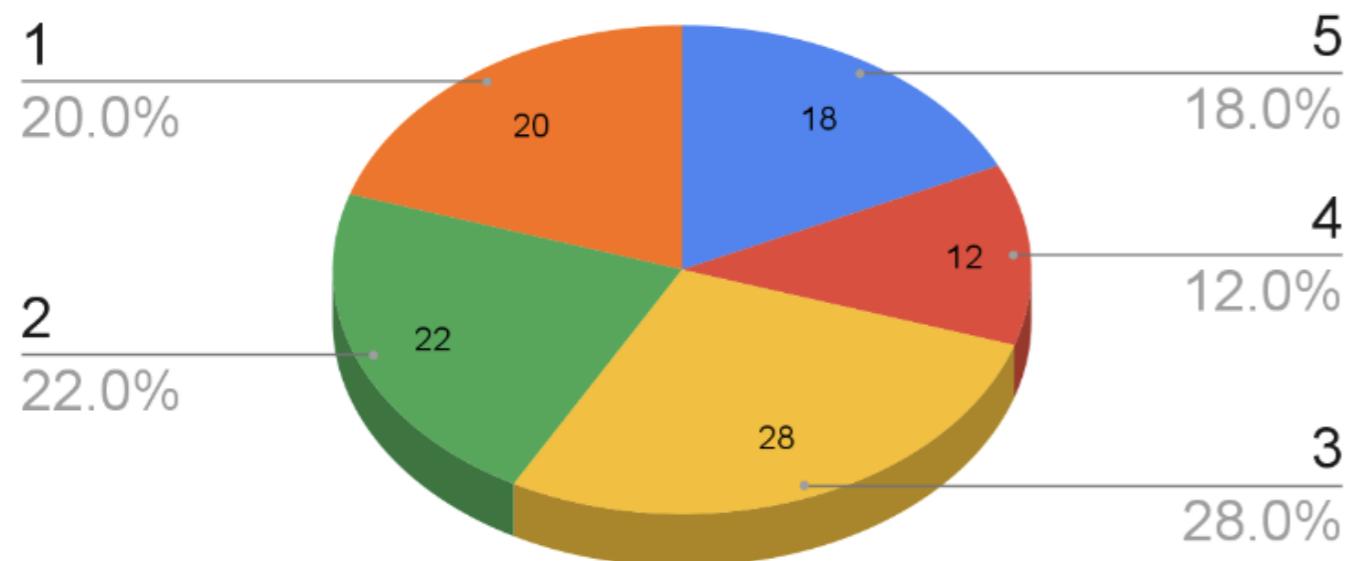
Remembering individual numbers is hard

Retaining the impact of stories is much easier

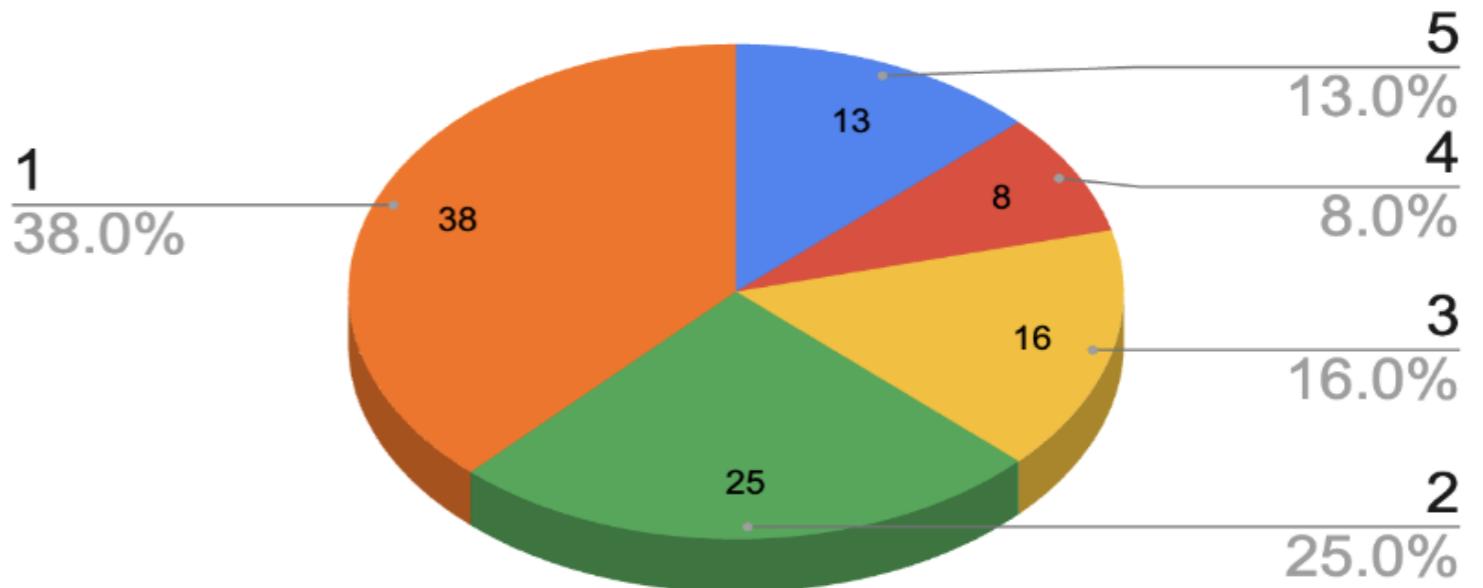
¹ Heath, C., & Heath, D. (2010). *Made to stick: Why some ideas survive and others die.*

A picture tells a thousand words?

Patient pre-treatment pain index

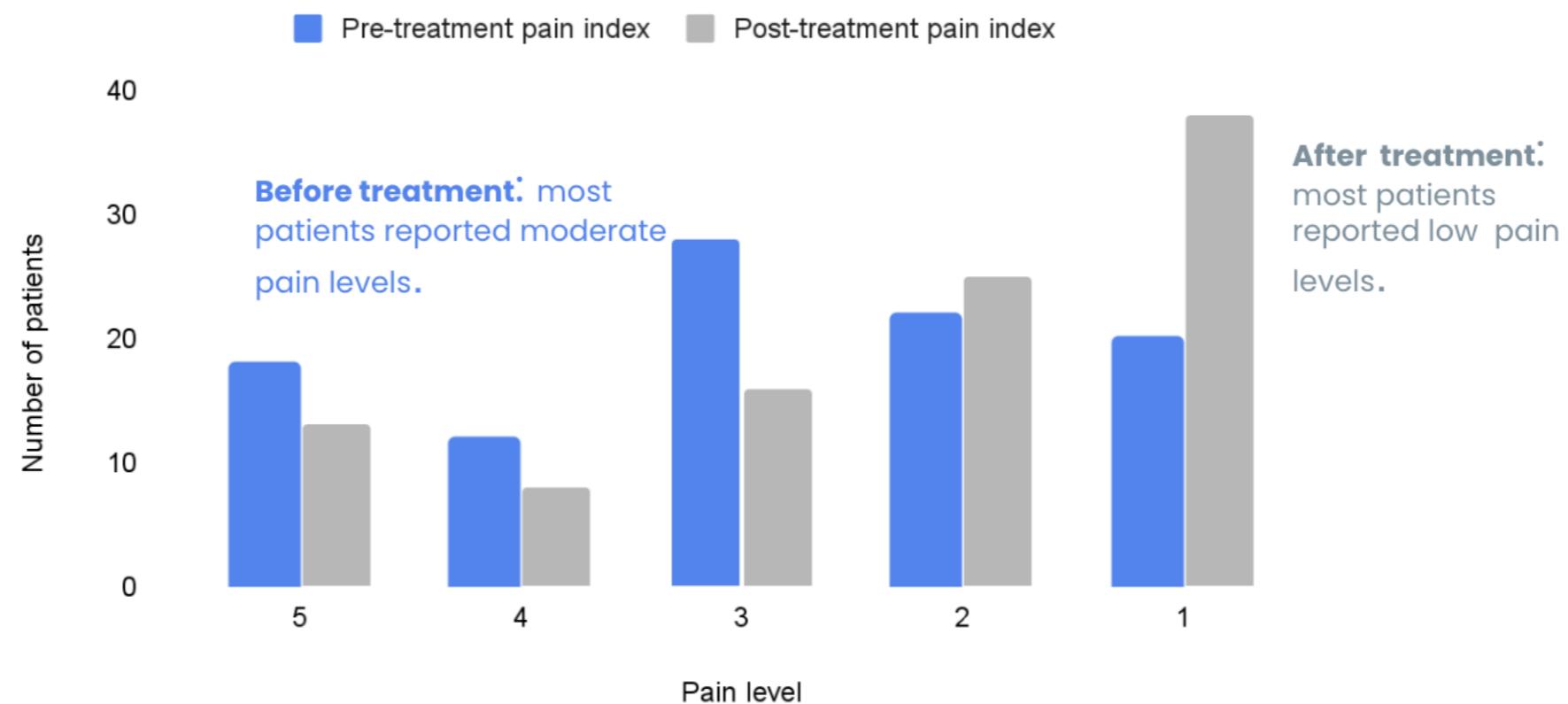


Patient post-treatment pain index



A story tells a single insight

Pain reduction treatment is a success.

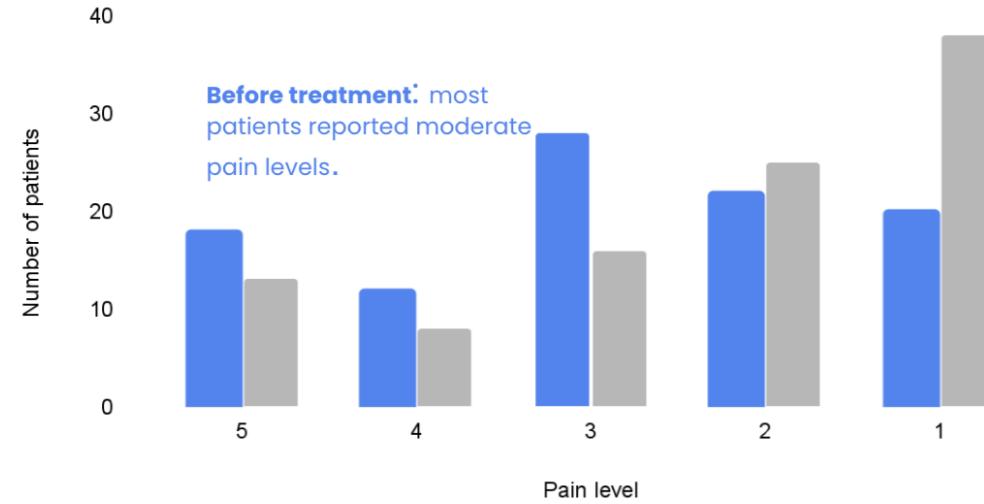


Chronic pain patients received an experimental treatment regimen resulting in a large improvement in reported pain levels. This treatment should become the new standard for pain management among chronic patients.

Spot the difference

Pain reduction treatment is a success.

Pre-treatment pain index Post-treatment pain index

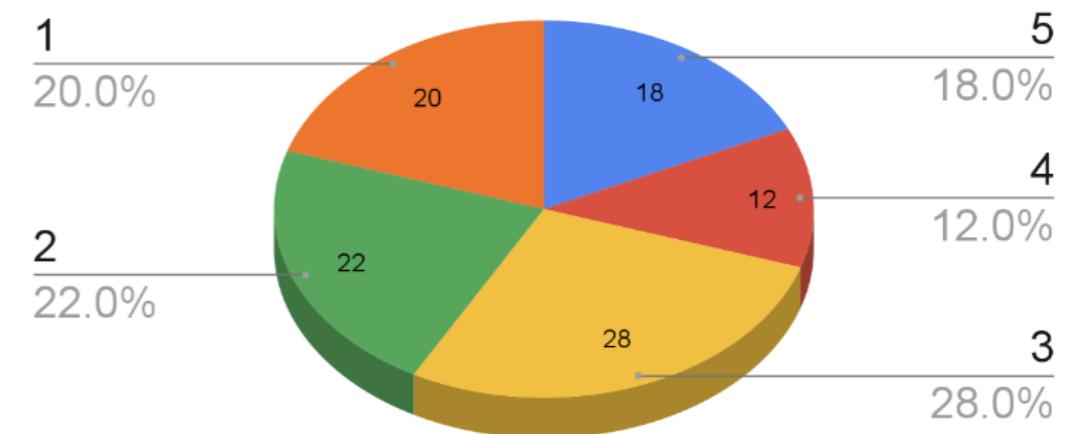


Before treatment: most patients reported moderate pain levels.

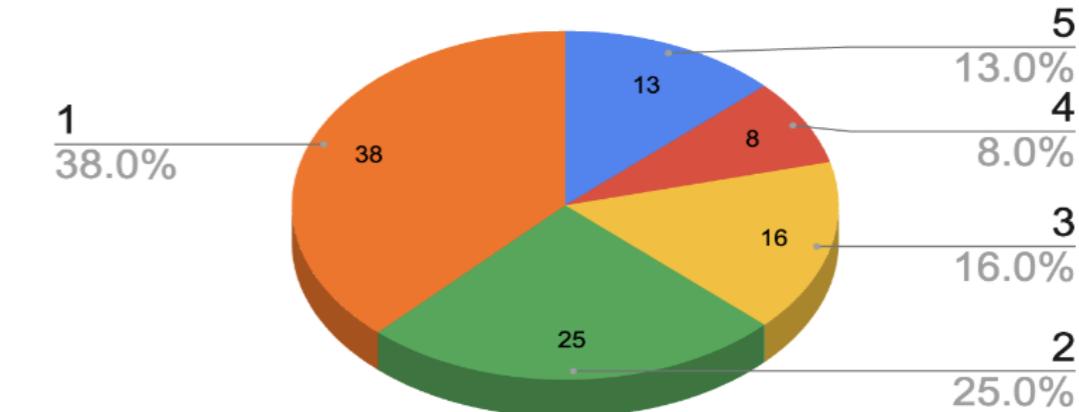
After treatment: most patients reported low pain levels.

Chronic pain patients received an experimental treatment regimen resulting in a large improvement in reported pain levels. This treatment should become the new standard for pain management among chronic patients.

Patient pre-treatment pain index



Patient post-treatment pain index



Data storytelling elements

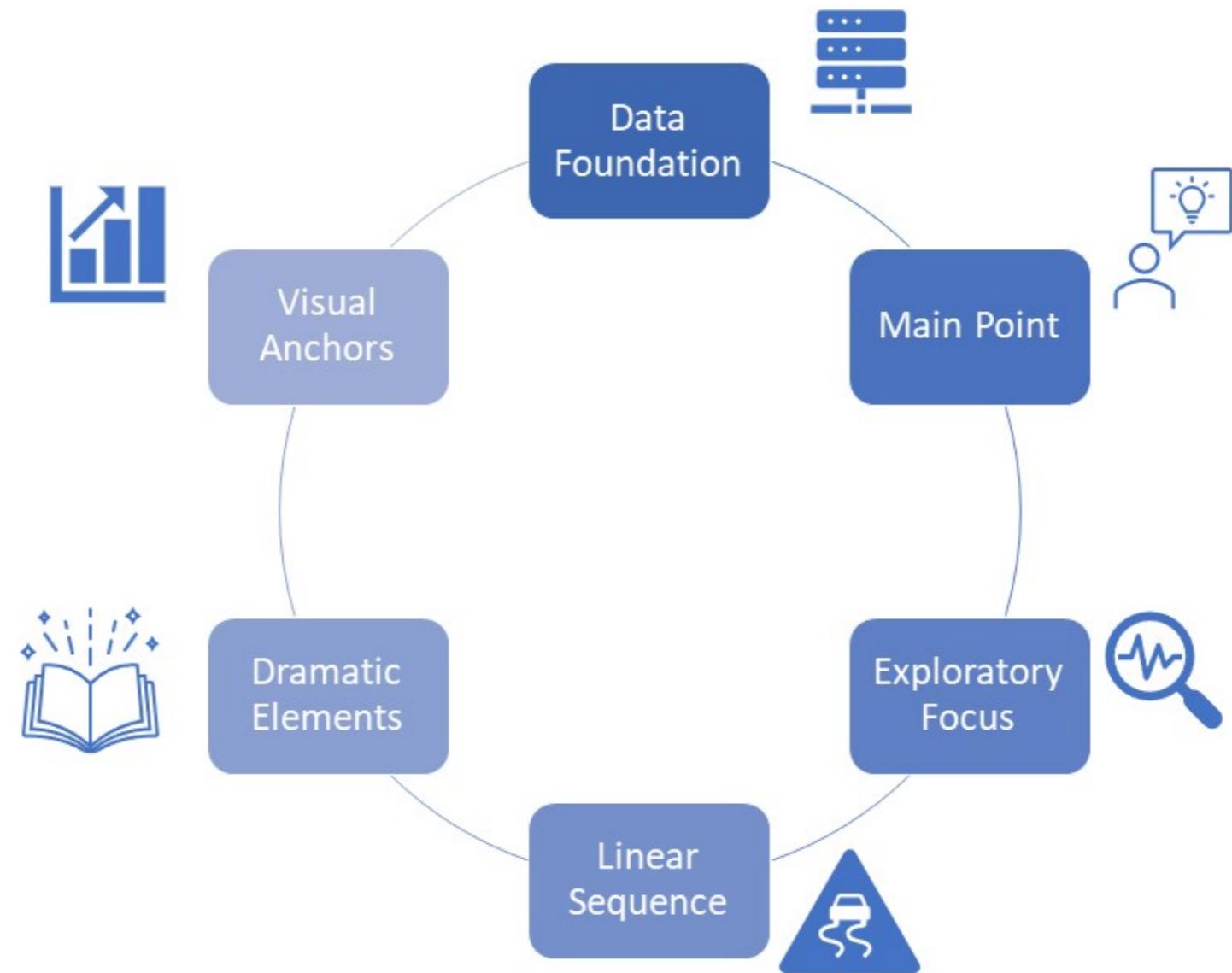
DATA STORYTELLING CASE STUDY: COLLEGE MAJORS



Leondra R. Gonzalez

Sr. Data & Applied Scientist, Microsoft

Six data story elements



¹ Dykes, Brent (2019). Effective Data Storytelling: How to Drive Change with Data, Narrative and Visuals. Wiley.

Data foundation

- Fact-based foundation
- Credibility
- Story setting
 - Domain of truth
 - Project scope



¹ Avildsen, John G. (Director). (1976). Rocky [Motion Picture]. United States: Chartoff-Winkler Productions.

Main point

- Central insight
 - "So what?"
 - "Why should I care?"
- Message
 - "What did we learn?"
- Argument



¹ Stallone, Sylvester (Director). (1985). Rocky IV [Motion Picture]. United States: Chartoff-Winkler Productions; United Artists.

Explanatory focus

- Data detective work
 - Uncover clues
 - Explore the data
 - Identify trends
 - Supportive evidence
- Building the case for the main point



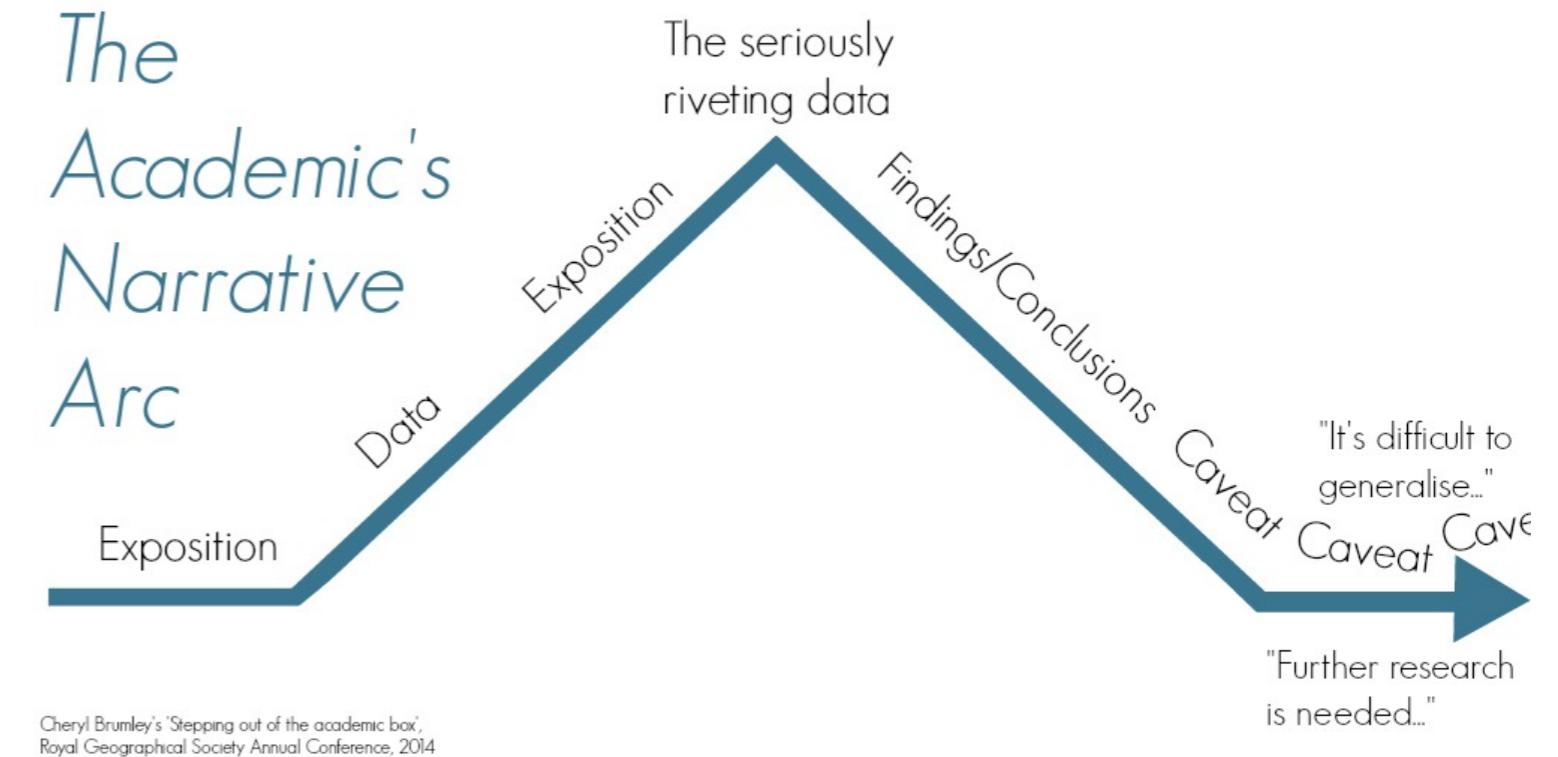
Explanatory analysis and exposition

- Identify measures of success
- Identify views or angles of measure
- Develop relevant KPIs
- Determine which KPIs to highlight and how



Linear sequence

- Sequential
- Narrative Arc
 - Exposition
 - Data
 - Exposition
 - Riveting Data (Aha Moment)
 - Findings
 - Caveat (Disclaimers and What Next)



¹ Cheryl Brumley's "Stepping out of the academic box", Royal Geographical Society Annual Conference, 2014.

Dramatic elements

- Story != sequence of events
- Dramatic insights
- Lesser known facts
- Unprecedented conclusions



¹ Stallone, Sylvester (Director). (1985). Rocky IV [Motion Picture]. United States: Chartoff-Winkler Productions; United Artists.

Visual anchors

- Simplify complex ideas
- Easier to understand and recall
- Show, not tell



¹ 1. Dewan, Pauline (2015). Words Versus Pictures: Leveraging the Research on Visual Communication. Partnership: The Canadian Journal of Library and Information Practice and Research, Vol. 10, No.1. 2. Avildsen, John G.

Keys to a good story

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Building a definition



Challenging definition without universal consensus.

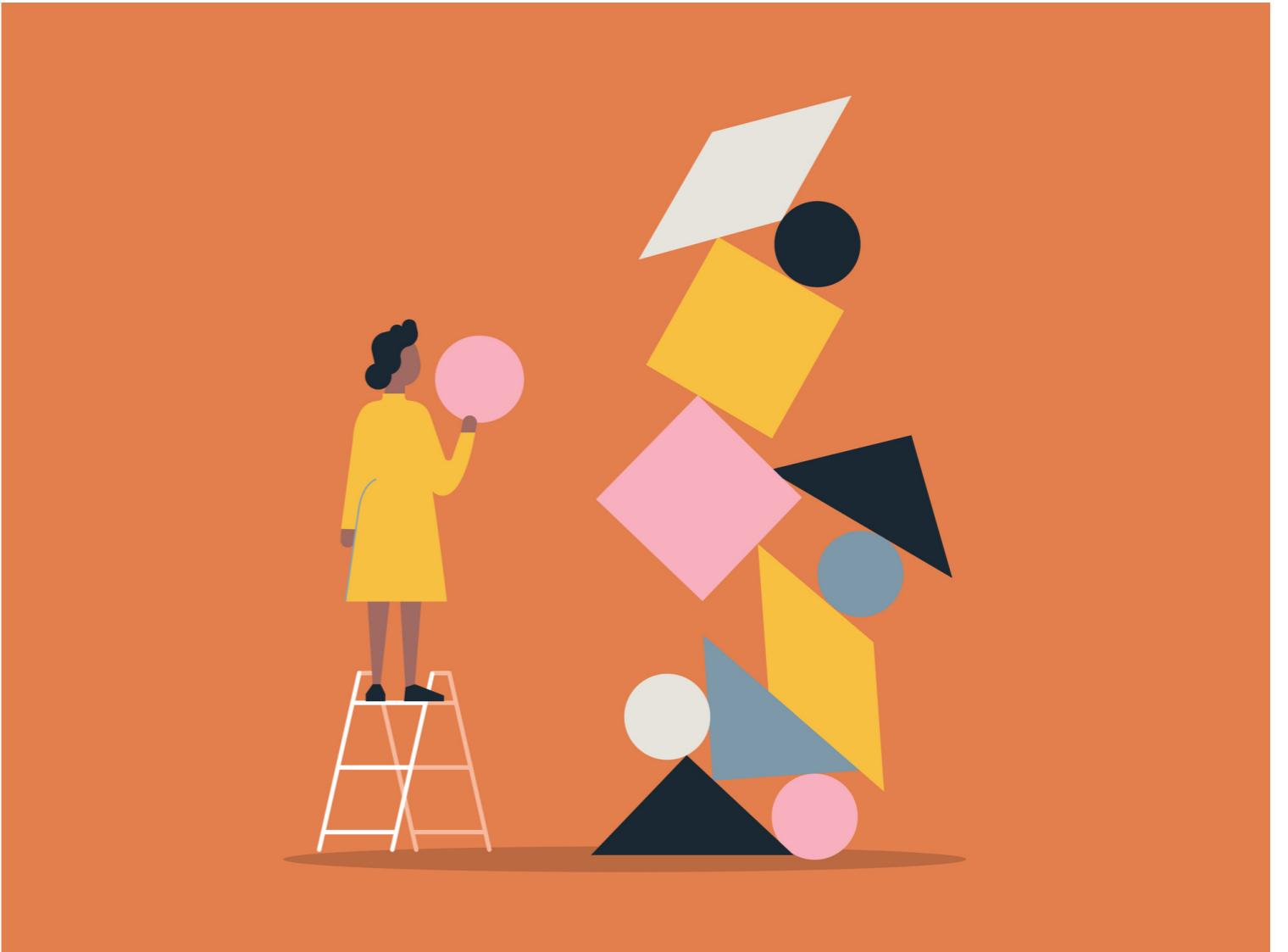
Data Storytelling - Method of communicating data insights tailored to a specific audience with an overarching narrative

Parts of a story

Visualization - Share story familiar format.

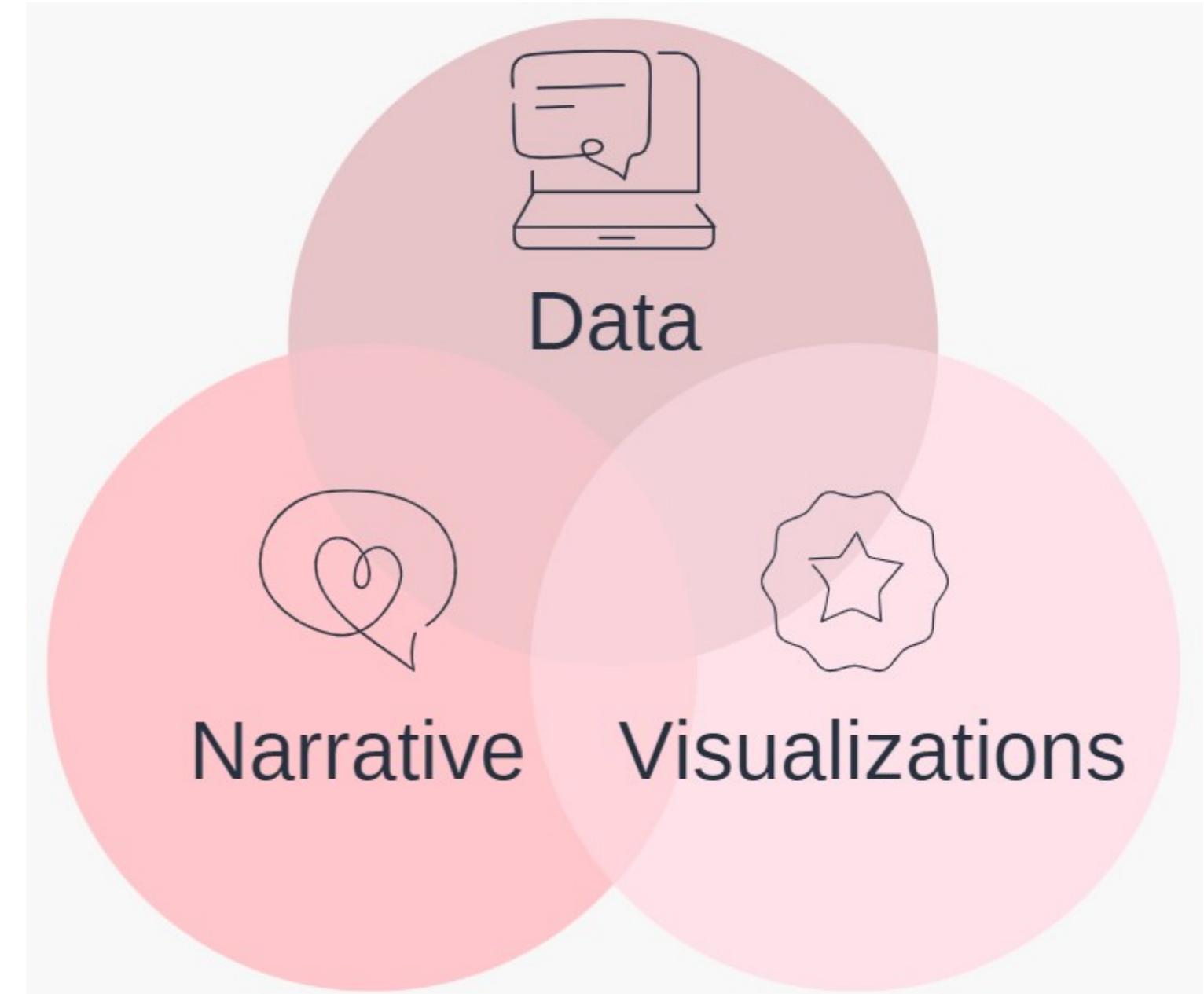
Context - Shows story as part of larger effort.

Narrative - Gives the data a voice.



Why do a storyboard?

- If you have a written narrative, it is still beneficial to storyboard
- Data stories blend data, a narrative, and visuals
- Narrative and storyboards both tell a meaningful and memorable story and inspire change



Visualizations

Share information quickly that is easy to understand and action.

Focus on trends and patterns over specific details.

Visualizations are the core of a data story.



Context is king

Objectives:

- Show audience broader picture
- Focus on what is essential to understand
- Unifies data story with business objectives and outcomes



Weaving a narrative

People need to connect with the message to make decisions.

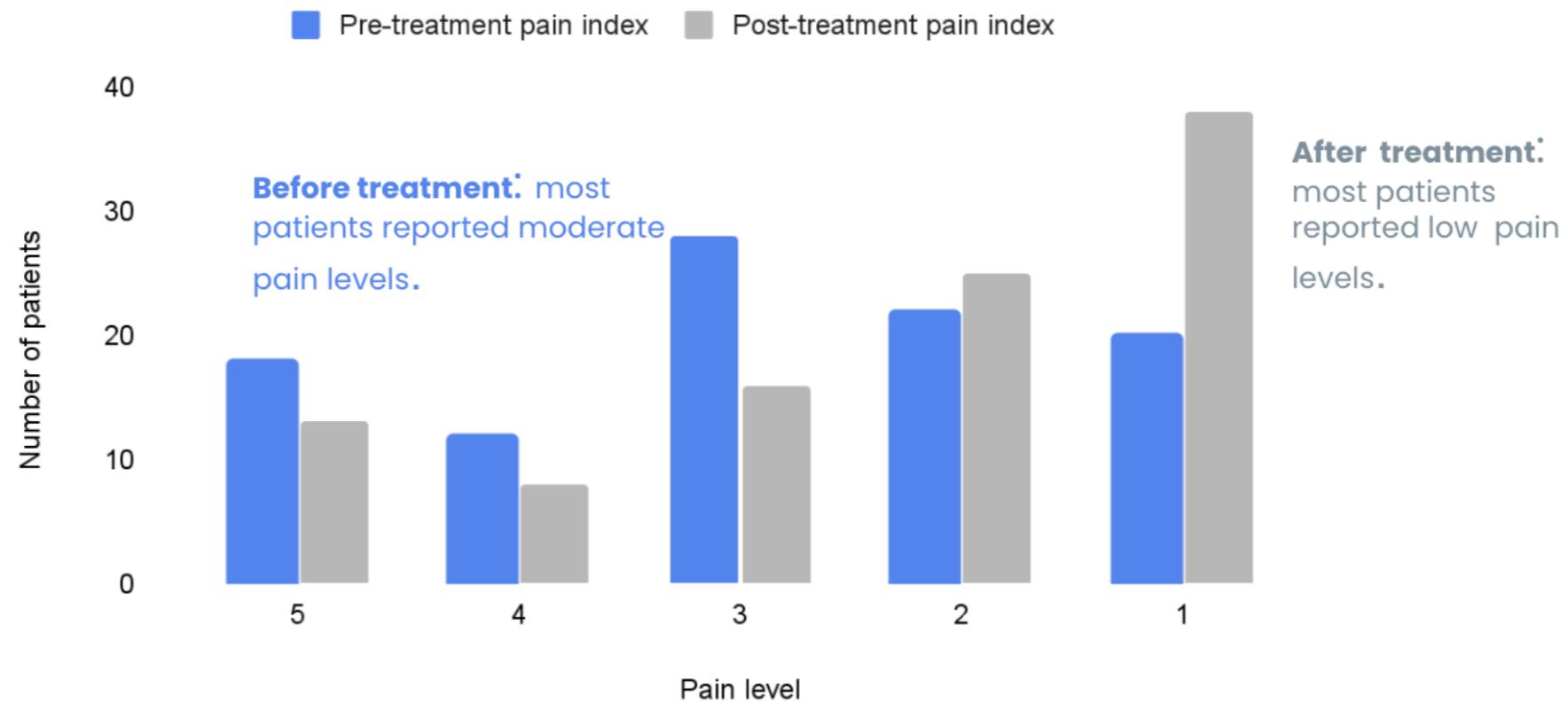
Narrative objectives:

- Give data a clear and convincing voice
- Explain why insights are significant
- Clearly outline next steps and inspire action



Bringing a story together

Pain reduction treatment is a success.



Chronic pain patients received an experimental treatment regimen resulting in a large improvement in reported pain levels. This treatment should become the new standard for pain management among chronic patients.

Starting line



1. What are we trying to say
2. What visualization is best to share our message

Buildingsway

| Category | Buildingsway | Competitors |
|----------------------------------|--------------|-------------|
| Exclusive Options | 0.75 | 0.55 |
| Appealing Atmosphere | 0.8 | 0.65 |
| Latest Treehouse Accessories | 0.55 | 0.4 |
| Showroom is arranged nicely | 0.42 | 0.35 |
| Wide Selection | 0.39 | 0.35 |
| Fast sales experience | 0.35 | 0.34 |
| I can find what I'm shopping for | 0.38 | 0.45 |
| Knowledgeable Sales Staff | 0.45 | 0.55 |
| Friendly Associates | 0.45 | 0.6 |
| Quick Builder Feedback | 0.4 | 0.6 |

Leveling up



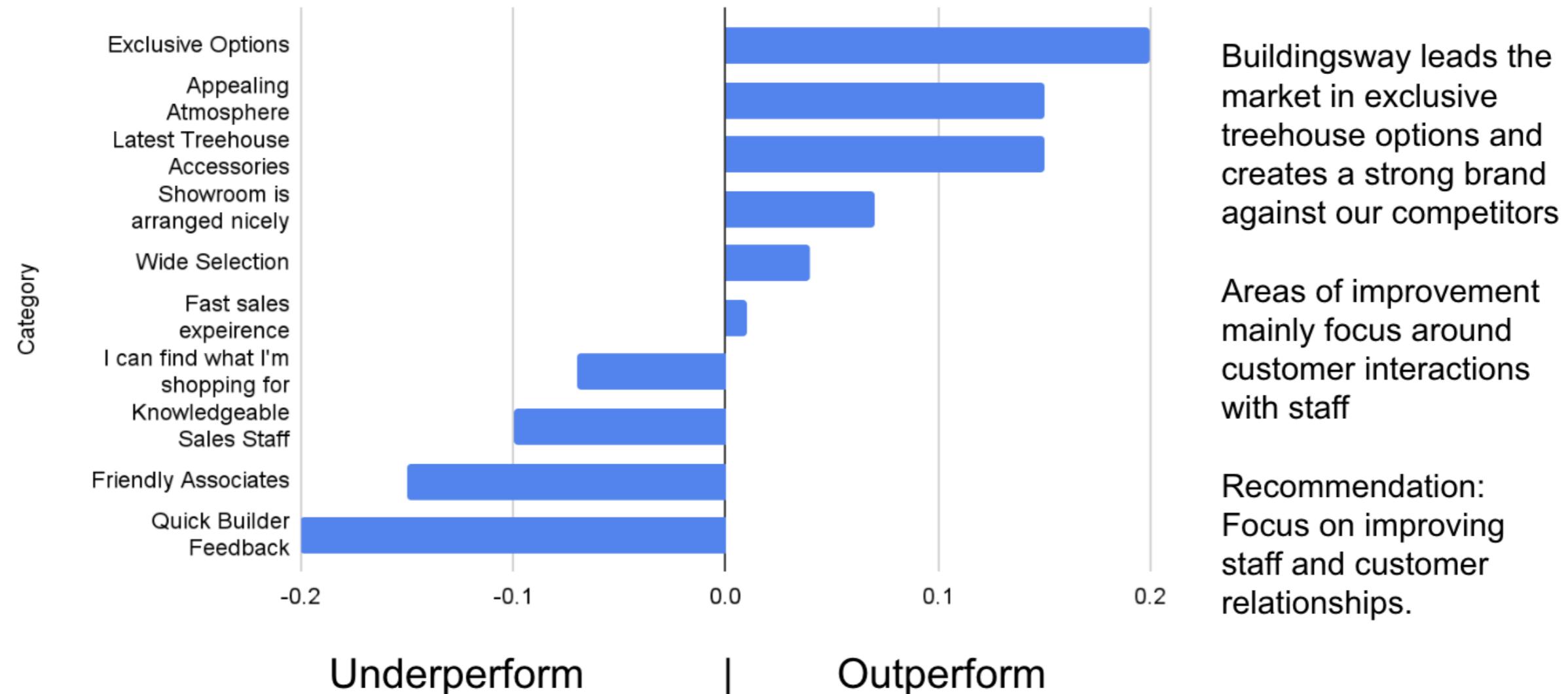
Strong interaction presentation

Universal Principles

- Incorporate text
- Utilize color
- Simplify visual elements

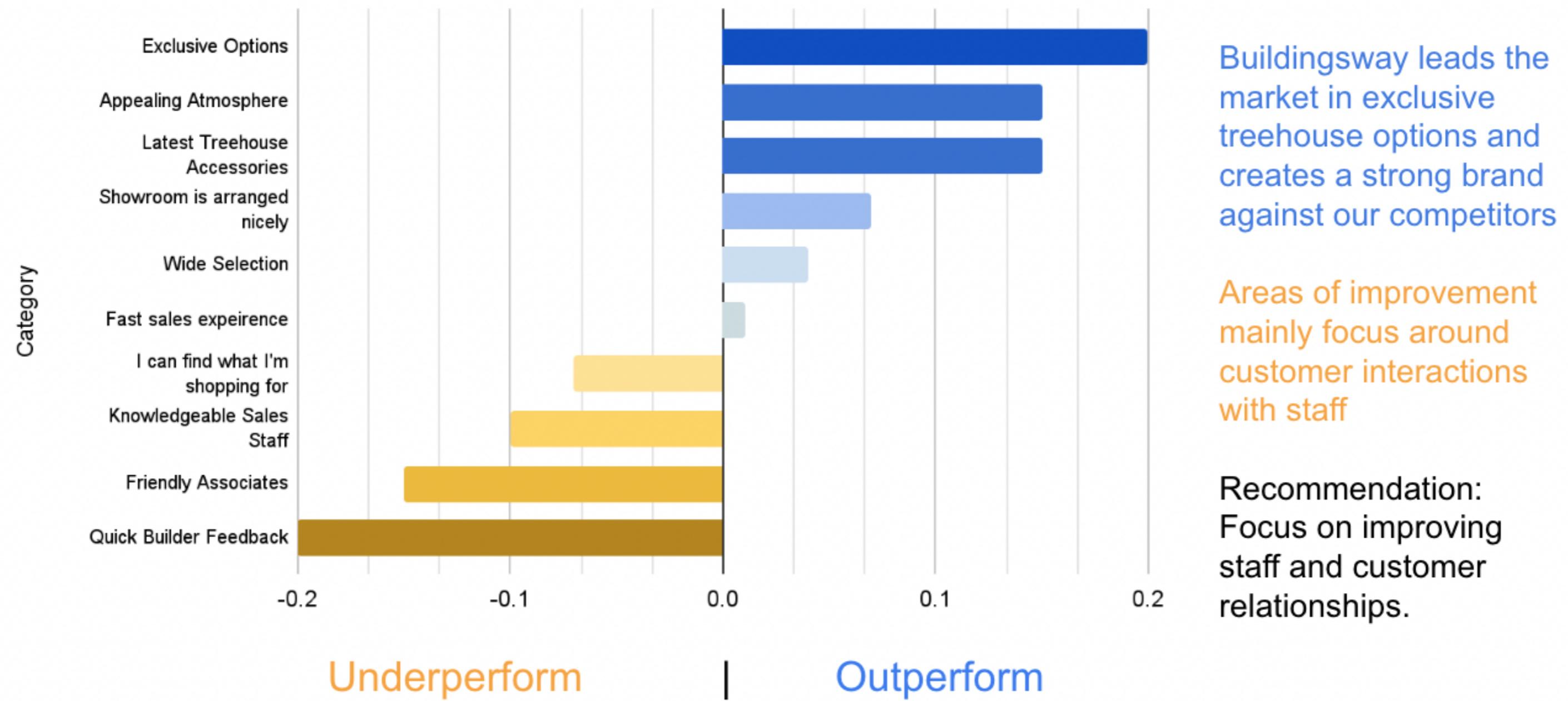
Getting wordy

Buildingsway vs Competitors Difference



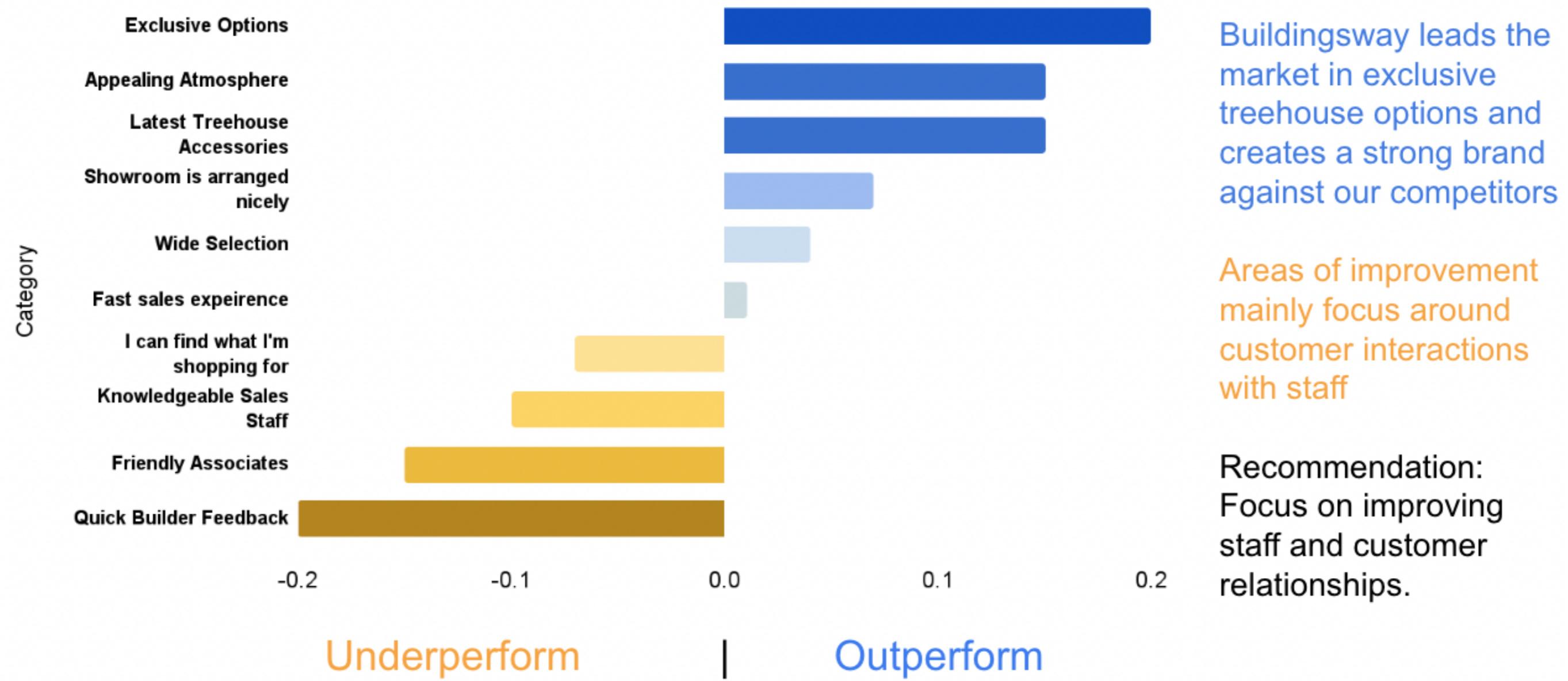
Coloring between the lines

Buildingsway vs Competitors Difference



Simplifying the journey

Buildingsway vs Competitors Difference



Ask me how do I feel

Your storyboard is your graphic organizer

- Ask yourself how the visuals make you feel
- Ask yourself if you are better informed after looking at the visuals
- Ask yourself what you want your audience to think and feel



Storyboard construction

- Sort your visuals in terms of beginning, middle, and end
- There is one challenge and the main message
- Feel free to explore different timelines
- The final result should be a clear, cohesive story and message



Cue the theme music

- Example themes
 - Sales must improve soon
 - Better hiring and retention practices are needed
 - Our rebranding efforts have succeeded beyond our expectations
- Describing your visuals aloud feels silly but is actually very smart



Data storytelling group framework

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Teamwork makes the dream work



Getting the band back together

Major Roles

- Subject Matter Expert
- Analyst
- Visualizer
- Reviewer



Subject matter expert (SME)



Subject matter expert

Responsible for knowing the business problem completely

Group objectives:

- Develop narrative, giving data story a voice
- Build context, relate data story to organizational efforts

Art and science



Visualizer

Blends art and science to create compelling visuals

Group objectives:

- Craft stunning visualizations
- Ensure insights are properly showcased

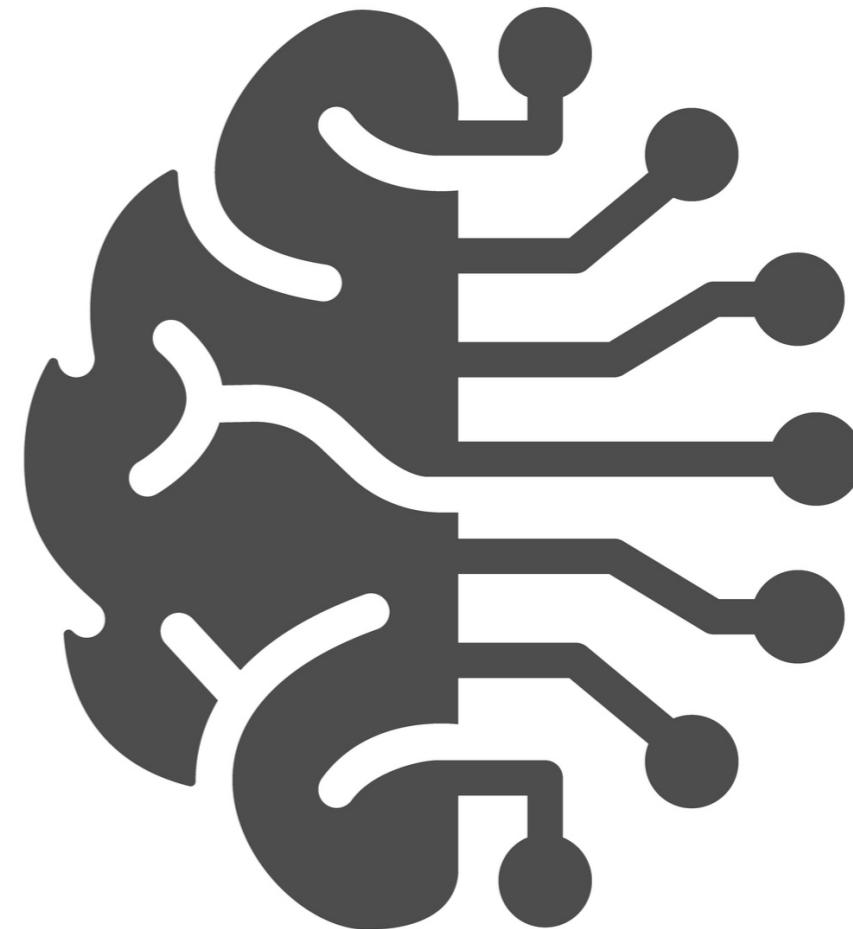
Analyze this

Analyst

Technical expert in charge of uncovering and supporting insights

Group objectives:

- Support other roles
- Answer analytical questions
- Does not require business expertise



Focus the story

Reviewer

Evaluates the overall data story

Group objectives:

- Verifies assumptions
- Gives overall impression of data story
- Acts as a sample audience



Remain flexible

- Within a group, someone can serve more than one role
- Start with any amount of members
- Rotate roles and learn collectively

