YOU ARE THE REVOLUTION.
STORIES RULE THE WORLD:
HOW TO TELL A BETTER STORY WITH DATA

Brent Dykes
Director of Data Strategy, Domo
@analyticshero
DATA STORYTELLING AGENDA

1. Why Tell Data Stories?
2. The Psychology of Data Storytelling
3. What is Data Storytelling?
4. Data: The Foundation of Your Data Story
5. Narrative: The Structure of Your Data Story
6. Visuals: The Scenes of Your Data Story
1. Run for cover?
2. Inform?
3. Tell a story?
“The ability to take data—to be able to understand it, to process it, to extract value from it, to visualize it, to communicate it—that’s going to be a hugely important skill in the next decades.”
As human beings, we love stories.

“After nourishment, shelter, and companionship, **stories** are the thing we need the most in the world.”

Philip Pullman
Author
As analytics experts, we love data.

“Numbers have an important story to tell. They rely on you to give them a clear and convincing voice.”

Stephen Few
Data Viz Expert
@analyticshero
"Storytelling is the most powerful way to put ideas into the world today."

Robert McKee
Professor
TWO WAYS STORIES BEAT STATISTICS

1. More Memorable
   - 5% statistics vs 63% stories

2. More Persuasive
   - $1.43 statistics vs $2.38 story
THE PSYCHOLOGY OF STORYTELLING
WHAT INFLUENCES DECISIONS?

LOGIC

EMOTION

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“Feelings are not just the shady side of reason . . . they help us to reach decisions as well.”

Antonio Damasio
Neuroscientist
WHY MERGE DATA WITH STORIES?

Data  Story

LOGIC  EMOTION

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We **hear** statistics, but we **feel** stories.
AUDIENCES ARE MORE RECEPTIVE TO STORIES

Shields Up
“When we read dry, factual arguments, we read with our dukes up. We are critical and skeptical...”

Shields Down
“...But when we are absorbed in a story we drop our intellectual guard. We are moved emotionally and this seems to leave us defenseless.”

Jonathan Gottschall
Author, The Storytelling Animal

@anlyticshero
DATA STORYTELLING DEFINED

A structured approach for communicating data insights more effectively to an audience using narrative elements and data visualizations.
3 Keys to Data Storytelling

- Narrative
- Visuals
- Data
Explain: Narrative + Data
Enlighten: Data + Visuals
Engage: Narrative + Visuals
Influence change with data stories
DATA STORYTELLING WITH DOMO?

Automated

Story Framing

Relevant points

Information

Curated

Story Telling

Main point

Insight
STORY FRAMING TO STORYTELLING

Form Fill to Lead Creation by Day (Minutes)

11.5 minutes on average today

Goal

STORY FRAMING

STORIES!
DOMO TOOLBOX FOR DATA STORYTELLING

**STORY FRAMING**
- Data Visualizations
- Title & Descriptions
- Collections
- Note cards
- Alerts
- Report Scheduler

**STORYTELLING**
- Buzz
- Annotations (New)
- Curated Dashboard
- Export to PowerPoint
DATA: FOUNDATION OF YOUR DATA STORY

- NARRATIVE
- VISUALS
- CHANGE

Engage

Explain

Enlighten
THE TWO SIDES OF INDIANA JONES

Field Archaeologist

Professor

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EXPLORATORY

I am the audience.
I know the data.
Flexibility & speed are critical.
I don’t know what the story is.

EXPLANATORY

I am NOT the audience.
They don’t know the data.
Clarity is critical.
I have a story to tell.
DATA STORIES VS. DATA FORGERIES

DATA STORY

[Diagram showing a cycle with Data, Explore, Insight, and Audience, with a 43% statistic]

DATA FORGERY #1

[Diagram showing a cycle with Data, Explore, Insight, and Audience, with a 43% statistic]
DATA STORIES VS. DATA FORGERIES

DATA STORY
- Data
- Explore
- Insight
- Explain
- Audience

DATA FORGERY #2
- Data
- Select
- Story
- Support
- Audience

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DATA STORIES VS. DATA FORGERIES

DATA STORY

D N V

DATA FORGERY #3

Data | Explore | Insight | Explain | Audience
---|---|---|---|---
Data | Data | Data | Data

No clear takeaways | Visualize
FOCUS ON DATA STORIES, AVOID FORGERIES

DATA STORY

DATA CUT

DATA CAMEO

DATA DECORATION
MATCH THE NARRATIVE TO THE AUDIENCE

Who is the **right audience** for my data story?

How do I **adjust my data story** to my audience?
How well do you know your audience?

- Goals & priorities?
- Beliefs & preferences?
- Specific expectations?
- Topic familiarity?
- Data savvy?
- Seniority level?
- Audience mix?
“If the statistics are boring, you’ve got the wrong numbers.”

Edward Tufte
Data Viz Expert

...or the wrong audience!
TURNING YOUR FINDINGS INTO A STORY

Data Storytelling Arc

**Set-up**
Background on current situation, character(s), and the hook

**Rising Insights**
Share findings that reveal deeper insights into the problem or opportunity

**Aha Moment**
Present major finding or key insight

**Solution & Next Steps**
Share recommendations and discuss next steps

**Audience’s insights into the business are expanded**

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**Beginning**

**Middle**

**End**

Gustav Freytag (1816-1895)

**TURNING YOUR FINDINGS INTO A STORY**

Gustav Freytag (1816-1895)
DATA STORYTELLING ARC IN ACTION

Set-up & Hook

What is status quo? What unexpectedly changed?

Rising Insight #1

What influenced or contributed to the change?

Rising Insight #2

What other supporting evidence is needed or helpful?

Aha Moment

What is the impact if nothing changes?

Solution & Next Steps

What are the options? What is the best course of action?
DATA STORIES HAVE HEROES TOO

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UNCOVER THE HEROES IN YOUR DATA STORY

1. Determine which user segment matters to your story

2. Build a rich, data-driven profile of your hero

3. Give your hero an identity

4. Give your hero a voice

5. Show their journey

Stock photos

Qualitative data

Screenshots
VISUALS: SCENES OF YOUR DATA STORY

NARRATIVE

CHANGE

VISUALS

DATA

Engage

Enlighten

Explain
### WHAT PATTERNS DO YOU SEE?

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<tr>
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<th>II</th>
<th>III</th>
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# Ancombe's Quartet in Action

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Graphs I, II, III, and IV illustrate the Ancombe's Quartet, showing different datasets with similar statistics but different patterns and relationships.
Data storytelling is mostly about comparisons.
5 STEPS FOR BETTER VISUAL STORYTELLING

1. Identify the right data
ALIGN YOUR DATA TO YOUR MESSAGE

**Mistake:** Use convenient but less effective data to convey a key point.

**Tip:** Carefully choose the data that best illustrates and supports your point.

Revenue per visit (RPV)
5 STEPS FOR BETTER VISUAL STORYTELLING

1. Identify the right data
2. Choose the right visualizations
Graphical methods vary in effectiveness. More accurate comparisons involve 2D position along common but unaligned scales. More generic comparisons include direction, area, curvature, and color hue. Length, angle, volume, and shading are used in common, aligned scales. This concept is based on Graphical Perception: Theory, Experimentation, and Application to the Development of Graphical Methods (Cleveland & McGill, 1984) and The Functional Art (Alberto Cairo, 2013).
Mistake: Pie charts are generally less effective for comparisons.

Tip: Bar charts don’t necessarily need value labels to convey differences.
5 STEPS FOR BETTER VISUAL STORYTELLING

1. Identify the right data
2. Choose the right visualizations
3. Calibrate visuals to your message
**Mistake:** Don’t force your audience to make awkward comparisons.

**Tip:** Ensure your visuals easily support the comparisons they’re expected to make.

**Orders**

<table>
<thead>
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<th></th>
<th>New Customers</th>
<th>Return Customers</th>
<th>Premium Customers</th>
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Not so easy to compare

**Orders**

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Much easier to compare

@analyticsherog
5 STEPS FOR BETTER VISUAL STORYTELLING

1. Identify the right data
2. Choose the right visualizations
3. Calibrate visuals to your message
4. Remove unnecessary noise
STRENGTHEN SIGNAL BY REMOVING NOISE
DON’T OVERWHELM YOUR AUDIENCE NEEDLESSLY

Mistake:
Don’t include unnecessary detail such as multiple values in a line chart.

Tip:
Try to limit the number of lines to no more than four.
**Mistake:**
Donut and pie charts with a high number of slices generate noise.

**Tip:**
Avoid using more than five slices and aggregate lower values when possible.

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**USA**
**UK**
**Germany**
**Japan**
**Canada**
**France**
**Spain**
**Mexico**
**Brazil**
**China**

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19,631 units sold

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0x0
5 STEPS FOR BETTER VISUAL STORYTELLING

1. Identify the right data
2. Choose the right visualizations
3. Calibrate visuals to your message
4. Remove unnecessary noise
5. Focus attention on what’s important
**Mistake:**
Choose not to use colors strategically.

**Tip:**
Use color to draw attention to your focus area while still providing context.
HIGHLIGHT WHAT MATTERS WITH COLOR

Mistake:
Choose not to use colors strategically.

Tip:
Use color to draw attention to your focus area while still providing context.

Page Views
February 2017

Page Views
February 2017

Hover + screen capture
Mistake:
Provide too much content at one time within a single chart or multiple charts.

Tip:
Use animations to break up the content into manageable portions.
Ignaz Semmelweis
“Savior of Mothers”
1818-1865

Childbed Fever Mortality Rates

First Clinic (Doctors)
- 1841: 9.9%
- 1845: 3.9%

Second Clinic (Midwives)
- 1841: 3.9%
- 1845: 5.0%

Average
- First Clinic: 9.9%
- Second Clinic: 3.9%
SEMMELEWIS'S IMPACT ON MORTALITY RATES

Childbed Fever Mortality Rates in Clinic #1

Handwashing policy introduced mid-May

Strict controls enforced on negligent students

Semmelweis dismissed

1846
1847
1848
1849
Ignaz Semmelweis
“Savior of Mothers”
1818-1865

WHY WASN’T HE SUCCESSFUL?

- Accurate
- Valuable
- Actionable
- Adopted

@analyticshero
"Those who tell the stories rule the world."

Hopi Indian Proverb
THANK YOU.

QUESTIONS & ANSWERS?

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