

Training Fiche

Title	Data Journalism and Storytelling	
Keywords (meta tag)	Data – Journalism – Storytelling – Narrative – Data Visualization	
Language	English	
Objectives / Goals / Learnig outcomes	<ul style="list-style-type: none"> - Learn about data journalism and the skills required to be a data journalist - Understand what is data storytelling and how to build an effective data story - Learning how to exploit narrative techniques to disseminate insights from data 	
Training course:		
Data Science Literacy		
Data Visualisation and Visual Analytics Module		
Introduction to Data science for Human & Social Sciences		
Data Science for good		
Data Journalism and Storytelling		X
Description	<p>This course presents the concepts of data journalism and data storytelling. These concepts are described and explained in relation to the world of data. It is explained how to merge data science, a field of study characterised by hard skills, with soft skills and what the advantages of this combination are.</p>	
Contents arranged in 3 levels	<p>1. Data Journalism and Storytelling:</p> <p>1.1 Data Journalism:</p> <p>1.1.1 The new role of data</p> <p>Numerical data are playing an increasingly important role in the production and distribution of information. Data can be used to transform something abstract into something understandable and connectable to everyone. All sectors are adapting to this transformation, including journalism: more and more news organisations (New York</p>	



Times, Sky News, The Guardian...) are relying on data analysis and visualisation to produce and publish informative and engaging stories.

More than half of all news organizations in the US and Europe now have at least one dedicated data journalist working in their newsrooms.

For the average global citizen, more and more of our everyday lives are impacted by computers and data. In order to hold power to account, journalists should be empowered with the skills and tools to make sense of this data.

1.1.2 Definition

Data journalism is a type of journalism in which the use of data is used to tell complex stories. It is the entire process of deriving meaning from data to develop a story - not only the visual output. A data journalist is someone who uses statistics to facilitate the writing and reporting of news stories to provide insights based on relevant data. A written story that relies on data analysis and interpretation. The key ingredient is asking questions to our data just as if we were interviewing it. Data can be the source of data journalism or the tool used to tell the story, or both. This should not be seen as replacing, but rather as complementing traditional journalism.

Good data journalism helps readers understand and draw conclusions about their world. For example, it can bring scientific discoveries to the forefront of a narrative and make them accessible to readers.

1.1.3 The new ways of journalism

Today, news comes as it happens, from a variety of sources (eyewitnesses, blogs, etc.), so the main focus of journalists shifts from being the first to report to explaining what a certain development might actually mean. Reporters create stories using massive datasets. This reflects the growing importance of numerical data in the production and dissemination of information, the growing connection between journalists and professions like design, computer science, and statistics.

1.1.4 Journalists data skills



The main skills that a data journalist should have are:

- Search for news articles from an unlimited number of sources
- Interpret data
- The ability to read graphical representations of information from which to derive stories to tell.

Finding a dataset to examine is the first step in every data narrative. The findings section of any publication that you feel delivers an engaging tale is a natural source for scientific writers. Consider if the data offers a compelling story when evaluating a possible dataset for use in a project.

It takes seasoned journalists with the stamina to look at frequently complicated or uninteresting raw data and uncover the hidden story inside.

1.1.5 Good data-driven news' elements

- 1) **Good data:** It is necessary to search for high quality data, ensuring that the collection methods, research subjects and any analysis are valid and free from bias.
- 2) **Story from the data:** Identify the central narrative line and make sure it is solid and consistent.
- 3) **Storyboard and structure:** For the story to be coherent and engaging, it is important to organise the content and determine which to include and which to leave out. It can be helpful to sketch out a map of the structure of the data story, as well as the data, visualisations and written content.
- 4) **Clear narrative line:** Care must be taken not to present the data as a set of numbers without sufficiently contextualising it. The role of narrative is crucial in helping the audience make sense of the information and data.
- 5) **Interactivity:** "Any sense of animation that you can bring into a piece really helps: you can have the feeling of interacting with the content." (Ronan Hughes, Output Editor of Sky News)

1.1.6 Case study: Goalkeepers

Goalkeepers is an annual report on the progress of the 17 goals of the 2030 Agenda for Sustainable Development by Bill and Melinda Gates. See, for example, the 2019 report: "[Examining equality: How geography and gender stack the deck for \(or against\) you](#)".



This report is an example of an excellently presented data story. The solid data and information is embedded within a story featuring a little girl living in southern Chad, a Saharan country. Seeing the child's face helps the reader to better understand what the data presented in the report represents. The narrative line is clear and coherent, the story structure is solid, and the reading is made smooth and light thanks to the visualisation techniques and interactivity of the report: moving down while reading the page, images and diagrams appear on their own, zooming in or out according to the paragraph we are reading.

1.2 Data Storytelling:

1.2.1 Communicating data

Discovering key insights is one skill that requires a set of hard skills related to data analysis. Communicating these insights in a clear and compelling way requires other kinds of soft skills. Both are equally fundamental to deriving value from data. The ability to effectively communicate insights from a dataset using narratives and visualisations is called Storytelling. It can be used to contextualise data and inspire audience action.

1.2.2 From data analysis to data storytelling

The purpose of any data collection is to extract value from it. Once analysed, however, it is essential to be able to disseminate this value in order for it to be meaningful.

When narrative is combined with data, it helps explain to the general public what is happening in the data and why a particular insight is important.

In this sense, data storytelling is the tool that enables data analysts to translate information from the 'language of numbers' into a story and narrative that is accessible to users unfamiliar with data science.

1.2.3 Key elements



According to Brent Dykes, Author of *Effective Data Storytelling: How to Drive Change with Data, Narrative, and Visuals*—Data Storytelling is a combination of data, visuals, and narrative:

- **Data:** Analysis of data using descriptive, diagnostic, predictive and prescriptive analyses can enable understanding the full picture and extract knowledge and insights from the data.
- **Narrative:** Storyline is used to effectively communicate the insights gained from the data, the context surrounding them and the recommended actions; it is a key vehicle for conveying information because it enhances our ability to understand.
- **Visualisation:** Transforming data into graphs, charts, images or videos allows us to see the data more clearly; they provide snapshots at a glance of the data, but without the context needed to explain why something happened.

When you combine the right images and narrative with the right data, you get a data story that can influence and drive change. Data, when used and analyzed properly, can help clarify rumors and reveal facts.

Here are some guidelines for inserting the key elements:

Crafting effective visuals:

1. Choose the best visualization for your story: Line plot, bar pilot, scatter plot, histogram.
2. Keep visualizations minimal and avoid clutter
 - Use just enough white space to keep the visualization from looking busy
 - Remove chart borders when applicable
 - Remove or minimize grid lines or axes when applicable
 - Clean up axis labels when applicable
 - Label data directly (as opposed to using a legend)
 - Remove data markers when applicable



- Use special effects (bold, underline, italics, shadows) sparingly

3. Use text appropriately:

- When applicable, label axes and titles for clarity
- Label important data points when necessary
- Provide useful context around insights within the title or subtitle
- Adjust font size when highlighting specific messages within your labels
- When applicable, try to answer common audience questions with labels

4. Use colors effectively:

Color is one of the most powerful tools available for emphasizing different aspects of your data visualization.

5. Do not mislead with data stories:

- If you are visualizing times series data, make sure your time horizons are large enough to truly represent the data
- If the relative size of each value is important, then ensure that your axes start with zero
- Ensure that axes scales are appropriate given the data you are treating
- If you are sampling data for descriptive purposes, make sure the sample is representative of the broader population
- Use centrality measures such as mean or median to provide context around your data

Crafting effective narratives with data:

1. Know the audience:

- Executive: Prioritizes outcomes & decisions
- Data leader: Prioritizes rigor & insights



- Business Partner: Prioritizes tactical next steps

2. Choose the best medium to share your story

Presentations	<ul style="list-style-type: none"> • Ensure the length of your presentation is appropriate • Leave any highly technical details to the appendix • Ensure there is a narrative arc to your presentation
Long-form report	<ul style="list-style-type: none"> • Be extra diligent about providing useful context around data visualizations and insights • Leave any highly technical details to the appendix
Notebook	<ul style="list-style-type: none"> • Ensure that you provide useful context on how you arrived at a certain conclusion
Dashboard	<ul style="list-style-type: none"> • Make use of the dashboard grid layout • Organize data insights from left to right, top to bottom • Provide useful summary text of key visualizations in your dashboard

1.3 Data Story:

1.3.1 Why is story more effective?

The brain's preference for stories over pure data stems from the fact that the brain receives a large amount of information every day and has to determine what is important to process and remember and what can be discarded

When listening to a story, several parts of the brain are involved, including:



- Wernicke's area, which controls **language comprehension**;
- Amygdala, which processes **emotional response**;
- Mirror neurons, which play a role in **empathy** with others.

When more brain areas are involved, the hippocampus, which stores short-term memories, is more likely to convert the experience of hearing a story into a long-term memory.

1.3.2 The power of a story

Information obtained through data analysis, although logical and clearly reported, does not have the power to influence decisions and push the public to act.

Business decisions are thought to be based solely on logic and reason, but neuroscientists have confirmed that emotions play a decisive role in decision-making.

Narrative seems to be more effective in changing beliefs than writings specifically designed to persuade through arguments and evidence.

Building a story from data insights dignifies creating a bridge from data to the emotional and influential side of the brain.

People are moved by emotions, so attitudes, fears, hopes and values are strongly influenced by stories.

The story is a tool that enables the transmission of information, ideas and insights in an extremely effective way mainly for three reasons:

- ❖ **Memorability:** Stanford Chip Heath (author of Made to Stick) found that when students are asked to recall speeches, 63% of them are able to remember stories, but only 5% are able to remember a single statistic.
- ❖ **Persuasiveness:** In a study conducted to test two variants of a Save the Children organisation brochure, it was shown that



	<p>sharing life stories of African children is much more persuasive than reporting statistics on their living conditions.</p> <ul style="list-style-type: none"> ❖ Engagement: Green and Brock's study (2020) show that the more readers are absorbed by a story, the more the story has an effect on them and their beliefs: when listening to a story, we tend to lower our intellectual guard and be less critical and sceptical. The story has the power to move us emotionally and make us lose sight of rational considerations. <p>1.3.3 Key story elements</p> <p>Data storytelling uses the same narrative elements as any other type of story. The following is an example of a data story proposed by Harvard Business School.</p> <ul style="list-style-type: none"> ❖ Characters - The protagonists of our story are customers aged between 14 and 23, environmentally conscious consumers and your company team. ❖ Setting - The context: there's been a decline in sales among customers aged 14-23; to expose the setting of our story it could be very useful to exploit data visualisation techniques. ❖ Conflict - A viral social media post that highlighted the company's negative impact on the environment. Again, data visualisation and even the incorporation of research on consumers' growing environmental awareness and concern could be particularly useful here. ❖ Resolution - Presentation of a long-term goal to resolve the situation. In this case, the change to more sustainable production practices and a marketing plan to give visibility to this change. We can exploit data visualisation techniques to show the required investment and profit expectations.
<p>Self-assessment (multiple choice queries and answers)</p>	<p>1. Which of the following is not an element of good data-driven news'?</p> <ul style="list-style-type: none"> A) Storyboard B) Interactivity



	<p>C) Conflict</p> <p>2. Can visualisation techniques replace the role of narration in a given story?</p> <p>A) No, indeed visualisation techniques are superfluous. B) Yes, visualisation gives an accurate picture of the situation at a given time and is sufficient to explain the data. C) No, visualisation of data does not guarantee sufficient presentation of a context in which to place it.</p> <p>3. How is the data story more effective than the mere presentation of the results of data analysis?</p> <p>A) Because listening to a story activates parts of our brain linked to emotions. B) Because the story is structured in such a way that information is more easily remembered. C) Both of the above.</p>
<p>Resources (videos, reference link)</p>	
<p>Related material</p>	
<p>Related PPT</p>	
<p>Bibliography</p>	<p>https://insightsoftware.com/encyclopedia/data-journalism/</p> <p>https://www.analyticsvidhya.com/blog/2022/01/what-is-data-journalism-all-about/</p> <p>https://shorthand.com/the-craft/how-to-create-great-data-journalism/index.html</p> <p>https://online.hbs.edu/blog/post/data-storytelling#:~:text=What%20is%20Data%20Storytelling%3F,inspire%20action%20from%20your%20audience.</p> <p>https://www.forbes.com/sites/brentdykes/2016/03/31/data-storytelling-the-essential-data-science-skill-everyone-needs/?sh=3823af6152ad</p> <p>https://www.nugit.co/what-is-data-storytelling/</p> <p>https://institute.aljazeera.net/sites/default/files/2019/Data%20Journalism%20En%20-%20Web.pdf</p>



<https://www.datacamp.com/cheat-sheet/data-storytelling-and-communication-cheat-sheet>

Green, M. C. & Brock, T. C. (2000). The Role of Transportation in the Persuasiveness of Public Narrative. *Journal of Personality and Social Psychology*. 79, 701-721.

Heath, C. & Heath, Dan. (2007). *Made to Stick: Why Some Ideas Survive and Others Die*. New York: Random House.

Guber, P. (2011). *Tell to Win: Connect, Persuade, and Triumph with the Hidden Power of Story*. Sidney: Currency.

Nancy Duarte. (2019) *DataStory: Explain Data and Inspire Action Through Story*.

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

Scott, David Meerman. (2014) *The New Rules of Sales and Service: How to Use Agile Selling, Real-Time Customer Engagement, Big Data, Content, and Storytelling to Grow Your Business*

Provided by

Internet Web Solutions

