



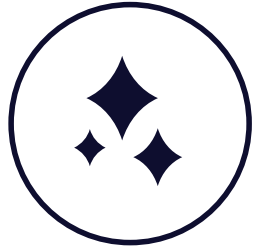
CLARITY IS TRUTH

A FRAMEWORK FOR DATA VISUALISATION

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Principal Consultant



Company Overview



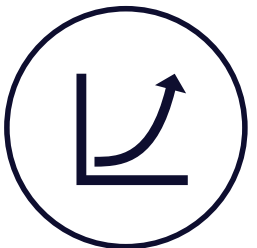
Established in 2020



80 employees, growing to 95 by the end of 2024



Sirius Analysis Inc incorporated in Virginia, USA September 2024



Turnover more than trebled in the past 2 years





Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813.

Dessinée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite. Paris, le 20 Novembre 1869.

Les nombres d'hommes présents sont représentés par les largeurs des zones colorées à raison d'un millimètre pour dix mille hommes; ils sont de plus écrits en travers des zones. Le rouge désigne les hommes qui ont péri en Russie; le noir ceux qui ont survécu. Les renseignements qui ont servi à dresser la carte ont été puisés dans les ouvrages de M. M. Chiers, de Fozensac, de Chabot, de Jacob, pharmacien de l'Armée depuis le 28 Octobre. Le Maréchal Davout qui avait été détaché sur Minsk marchait avec l'armée.

422,000 French Troops Started March to Russia.

2.37% of Napoleon's army survived the battle.

10,000 French Troops Returned from Russia.

Les Cosaques passent le Niémen gelé.

Autog. par Rognier, 8. Par. 5^e Marie St O^{me} à Paris.

1 Captures **multivariate complexity** (size of army, location, direction, temperature, and time).

4 Illustrates **high quality content** comprised of complete and accurate data, presented to support Minard's argument against war.

5 Integrates **text and graphic** into a coherent whole.

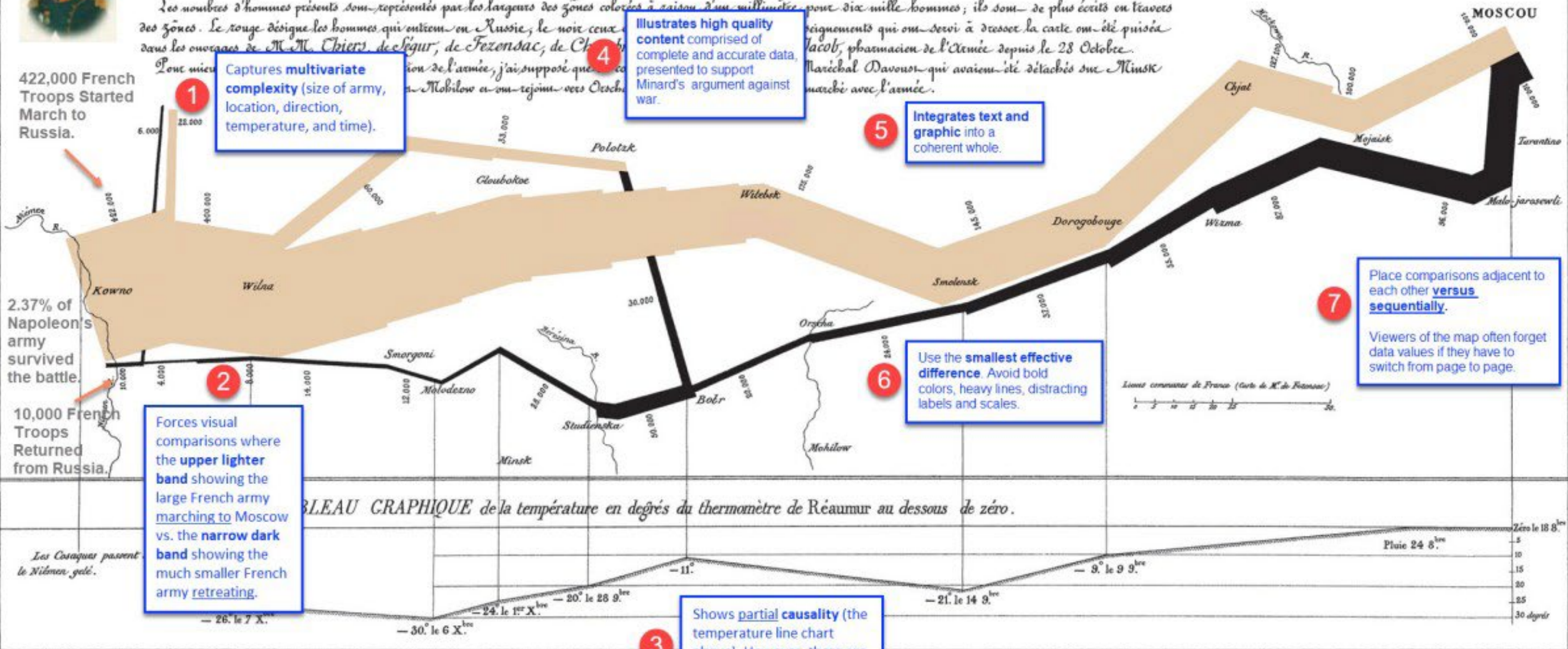
7 Place **comparisons** adjacent to each other **versus sequentially**. Viewers of the map often forget data values if they have to switch from page to page.

2 Forces visual comparisons where the **upper lighter band** showing the large French army marching to Moscow vs. the **narrow dark band** showing the much smaller French army retreating.

6 Use the **smallest effective difference**. Avoid bold colors, heavy lines, distracting labels and scales.

3 Shows **partial causality** (the temperature line chart above). However, there are more reasons than temperature why Napoleon lost the battle.

HEX: E6C7AD RGB: 230/199/173
HEX: 000000 RGB: 000/000/000



What is Data Visualisation (Data Viz with an "s")?

"The visual representation and presentation of data to facilitate understanding"

Estimating and Cost Analysis Professionals:

1. Data reliance: often tasked with analysing and interpreting data.
2. Decision impact: often directly inform decisions within organisations.
3. Audience engagement: Routine reporting requires accuracy and clarity. Strategic analyses delivered to key stakeholders require engagement and persuasion.

What is Data Visualisation (Data Viz with an "s")?

How do we do that:

09:33 - 09:58 25 min
09:44 from Bond Street £2.70

09:33 Marylebone, London

Walk
0.4 mi (11 minutes)

09:44 Bond Street (Platform 4)

Jubilee towards Stratford
Departs in 12 min 5 sec

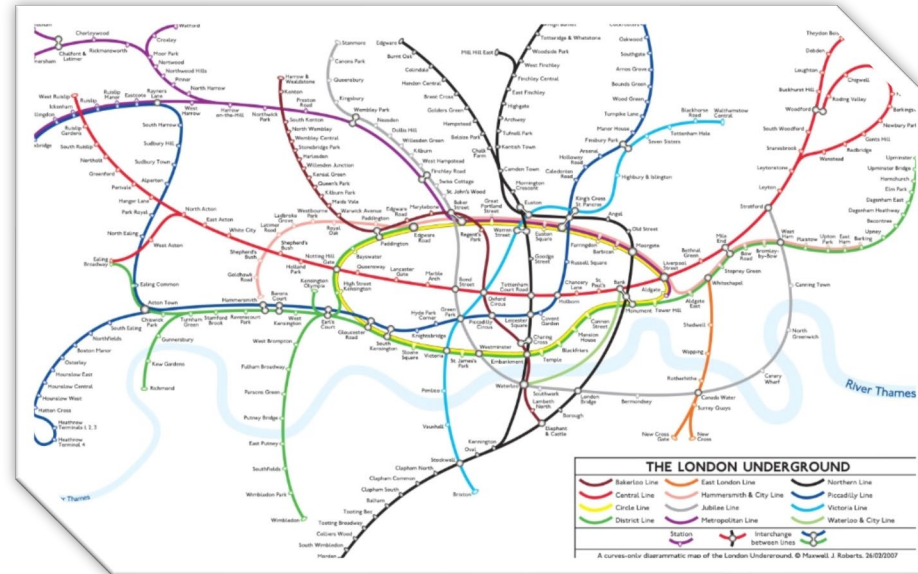
Information
Bond Street Station: Mini ramps are available at this station on the Jubilee line platforms. They are designed to cover the small remaining step / or gap between the platform and the train on step-free to train platforms. They make it easier for customers people to get on and off the train, in particular for people whose mobility aids have small or swivel wheels. The ramps are quick and easy to use. Staff are trained to use them and will be happy to provide one for you to use. If you would like to use a mini ramp, please ask for help from staff or press the information button on a help point.
Transport for London
tfl.gov.uk · <https://tfl.gov.uk/tube-dir-overground/status/>

Information
Westminster Station: Mini ramps are available at this station on the Jubilee line platforms. They are designed to cover the small remaining step / or gap between the platform and the train on step-free to train platforms. They make it easier for customers people to get on and off the train, in particular for people whose mobility aids have small or swivel wheels. The ramps are quick and easy to use. Staff are trained to use them and will be happy to provide one for you to use. If you would like to use a mini ramp, please ask for help from staff or press the information button on a help point.
Transport for London
tfl.gov.uk · <https://tfl.gov.uk/tube-dir-overground/status/>

09:49 Westminster

Walk
0.3 mi (8 minutes)

09:58 Queen Elizabeth II Centre, Broad Sanctuary, London SW1P 3EE



What is Data Visualisation (Data Viz with an "s")?

A design process, within a data analysis process, within an estimating process

1. Context
2. Visual Flow
3. Colour
4. Typography
5. Appeal



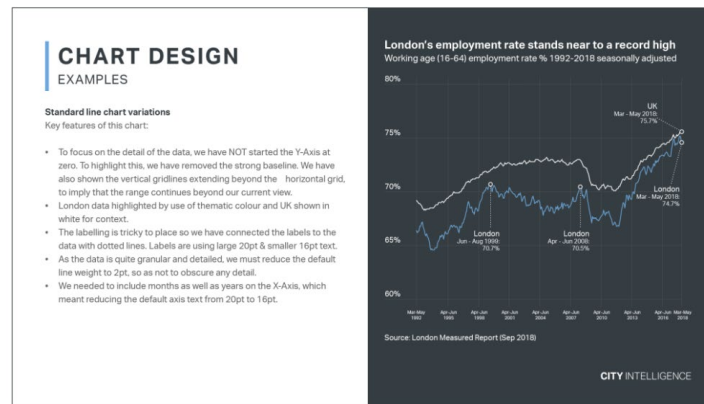
"Z" pattern, logical eye flow

Project Status	RAG
Overall	R
Scope	A
Schedule	G
Budget	G
Changes	R
Issues	G
Risks	G

Colour Blind Awareness

Technical	G
Change Management	G

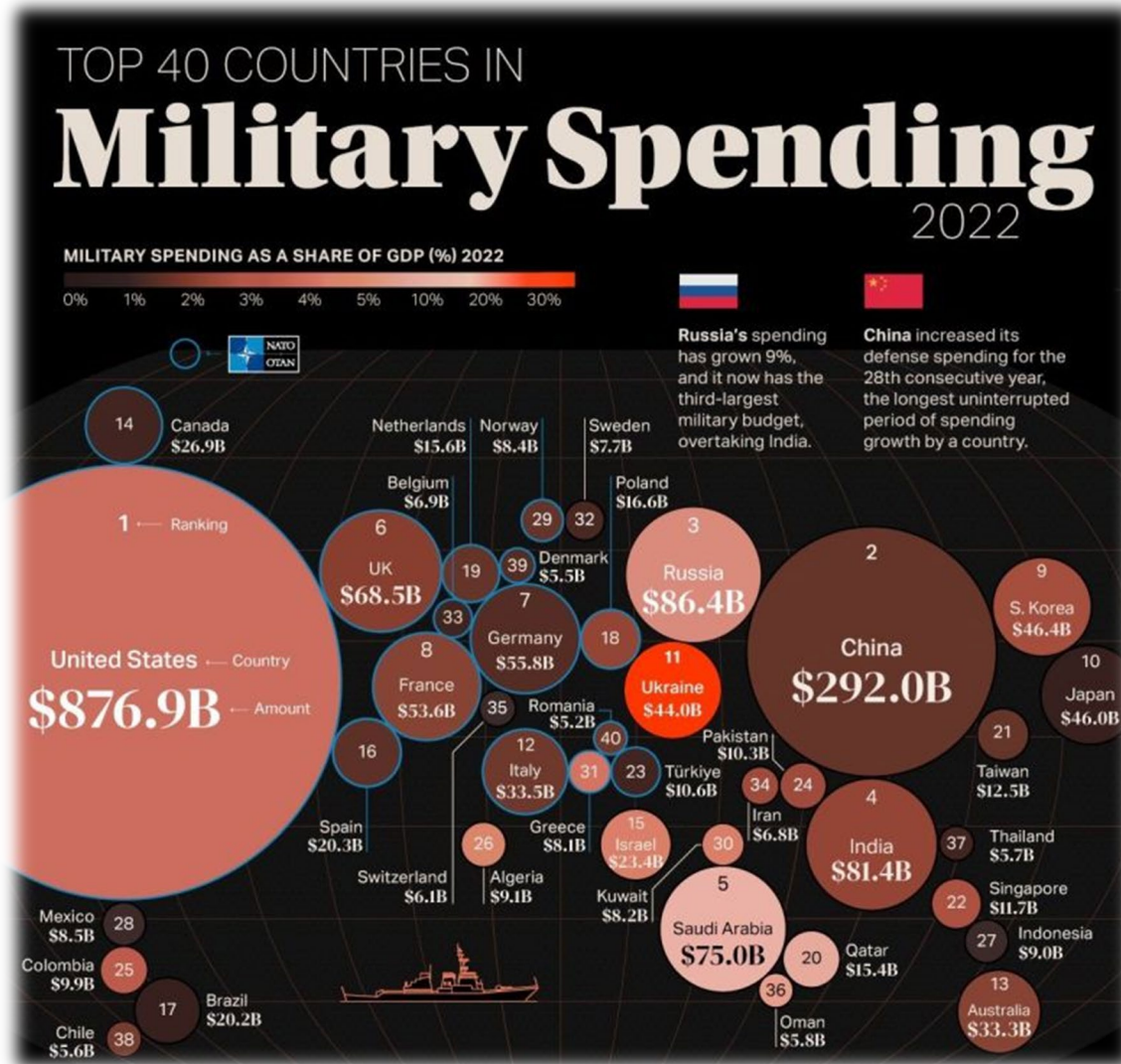
Organisational guidelines



Line Chart example from the Data Design Guidelines PDF.

City Intelligence Data Design Guidelines - London Datastore

Formulating the Framework

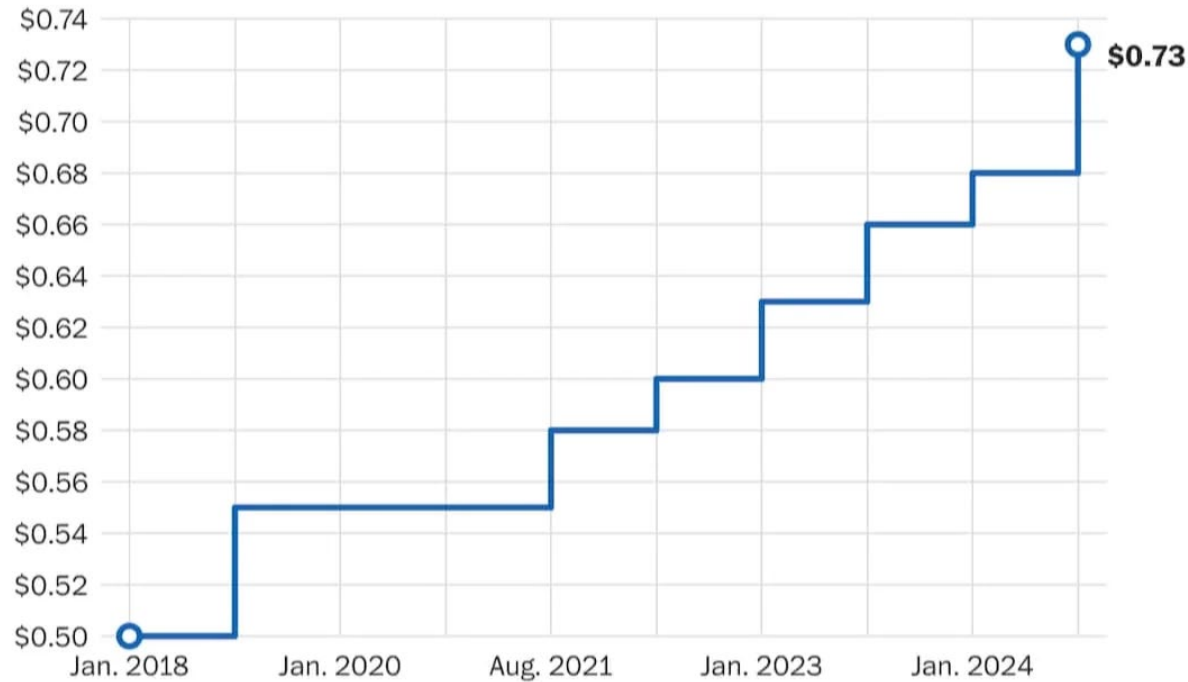


WIIFM – “What’s In It For Me”

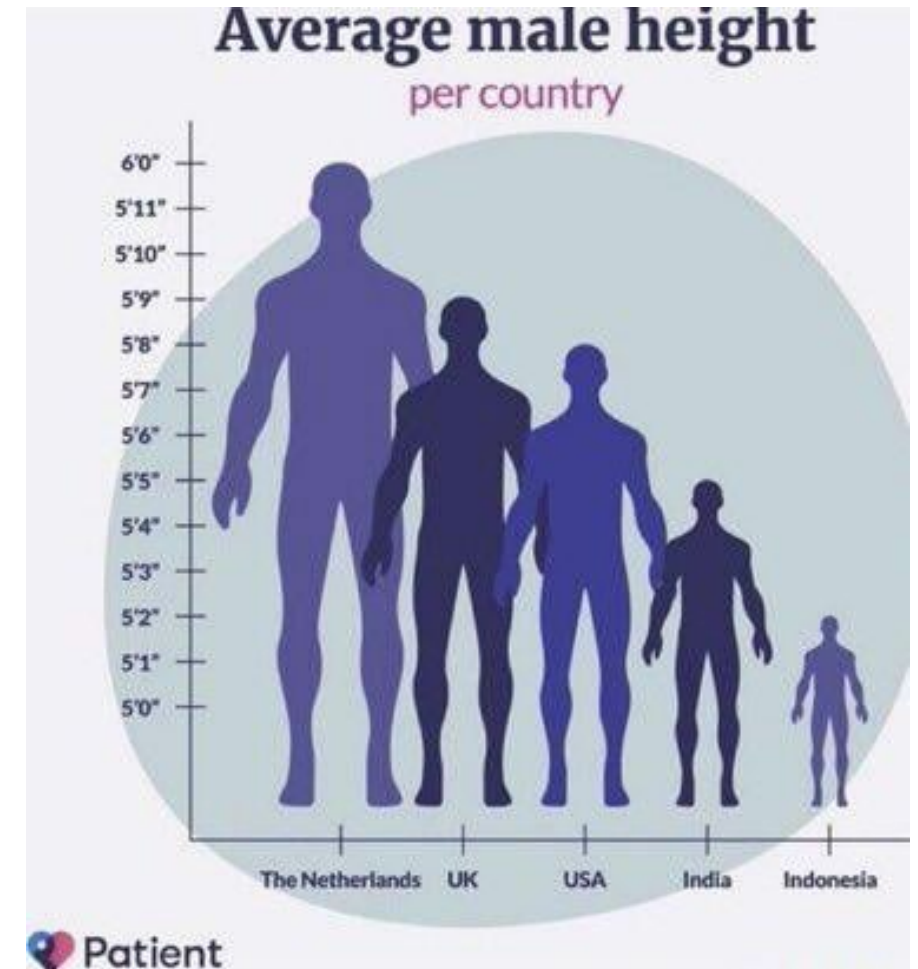


Formulating the Framework - Trustworthiness

U.S. Postal Service first-class stamp price



Source: USPS



Patient



Formulating the Framework - Accessible

A screenshot of the Sirius Analysis website interface. At the top, a dark blue header contains the text "Climate Disasters" and a search bar labeled "Search Monitoring Products". Below this is a blue navigation bar with the breadcrumb "Home / Climate Monitoring / Billions" on the left and the release date "August U.S. Release: Tue, 10 Sep 2024, 11:00 AM EDT" on the right. A white navigation menu is positioned below the blue bar, with "Disaster Mapping" highlighted in blue. Other menu items include "Overview", "Risk Mapping", "Time Series", "Climatology", "Summary Stats", "Events", "FAQ", and "References". The main content area is mostly blank, featuring a large blue circular logo with a white globe in the center. The bottom of the screenshot shows a white footer area.

Formulating the Framework - Elegant

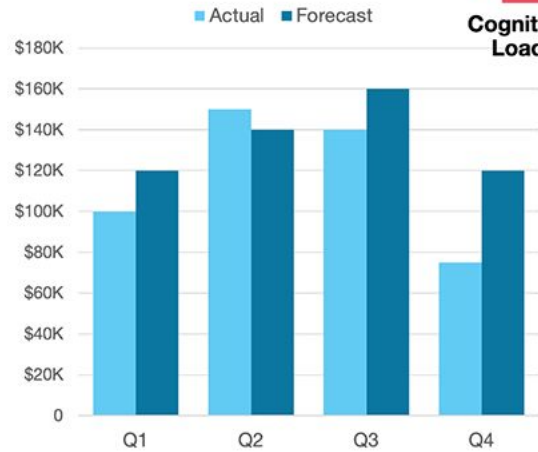
Data Viz: Grouped bar vs. Bars with markers

Grouped bar chart

Actual sales vs. forecast



Cognitive Load

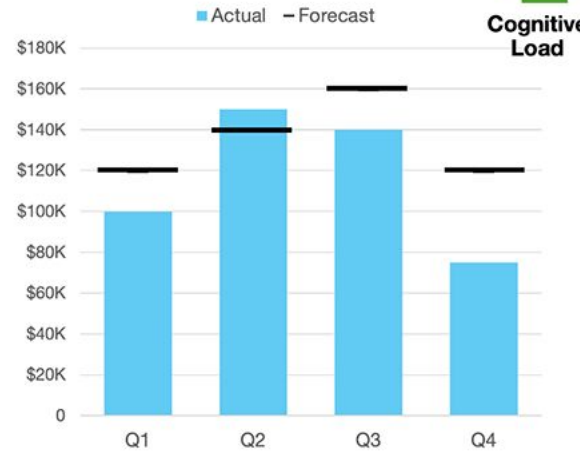


Bar chart with markers

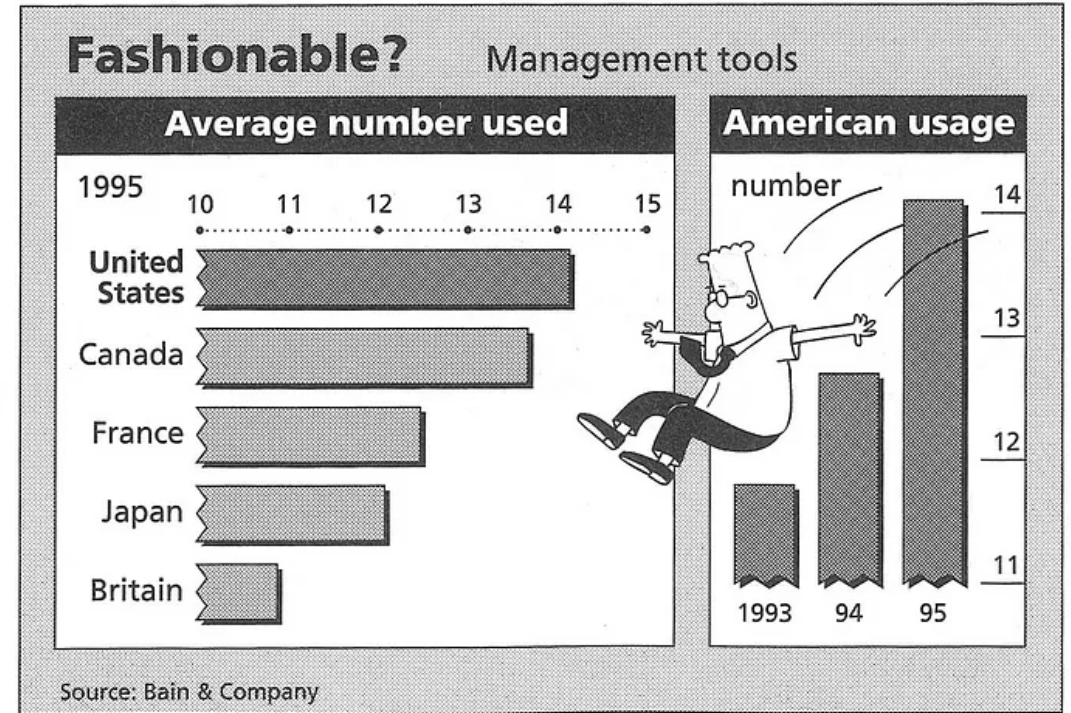
Actual sales vs. forecast



Cognitive Load



Effectivedatastorytelling.com



[From data to Viz | Find the graphic you need \(data-to-viz.com\)](https://data-to-viz.com)

Editorial Thinking

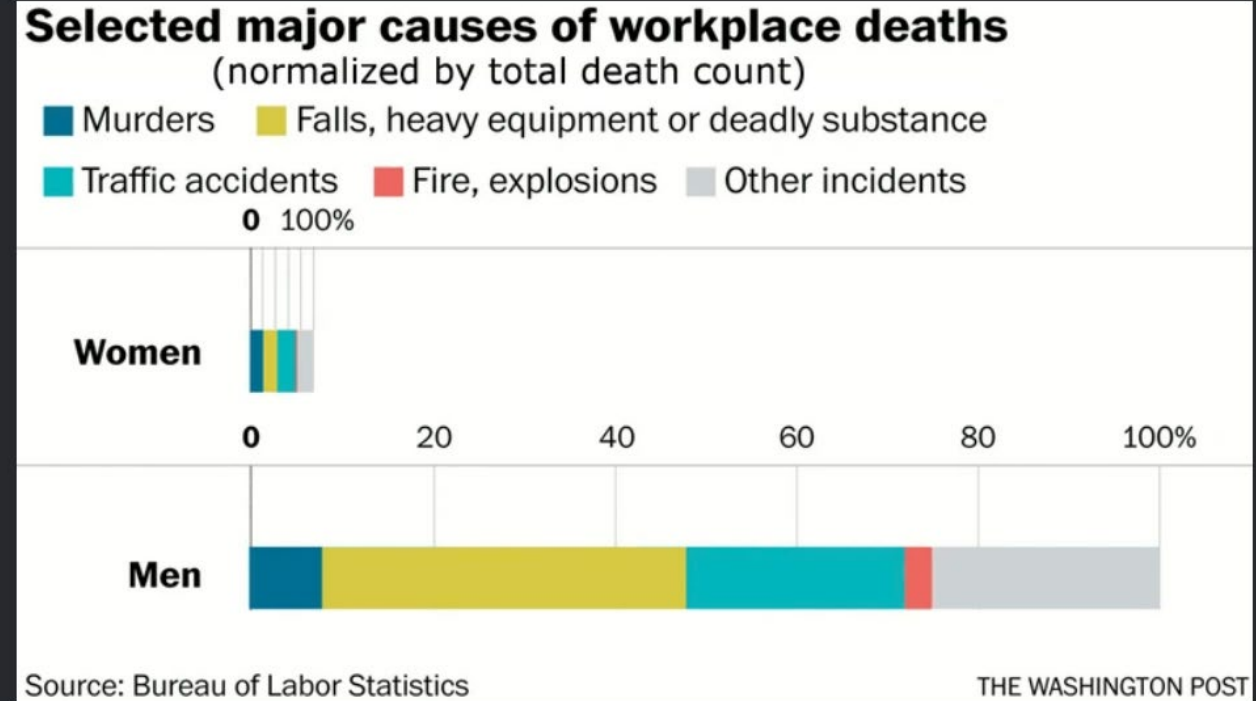
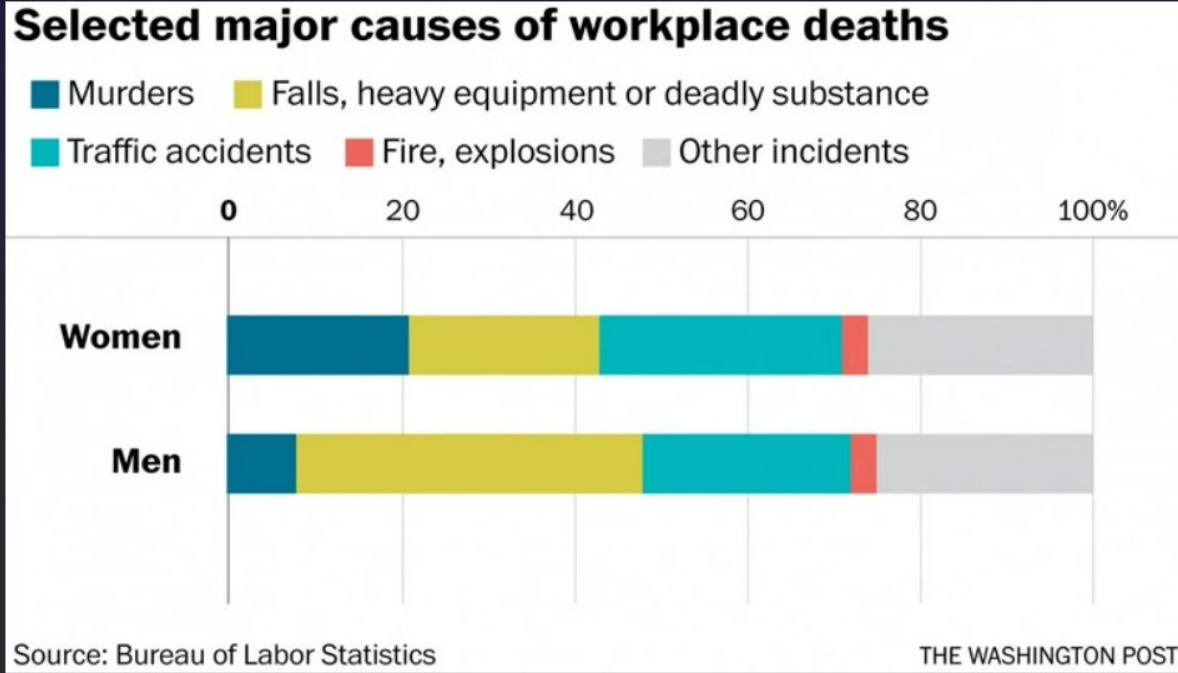
- You choose:
- Simplicity v Complexity
- Colour use and Consistency
- Data overload, misleading visuals



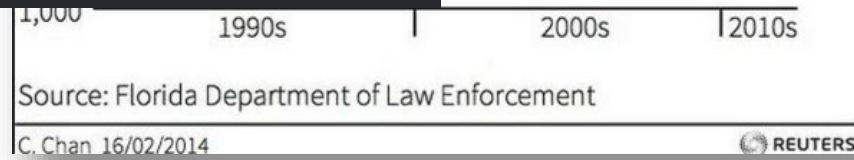
We **can** show everything, but we **shouldn't** show everything.

Representation, ethics, challenges

Gun deaths in Florida



From this Washington Post article:
<http://www.washingtonpost.com/news/wonkblog/wp/2015/08/27/murder-is-second-most-likely-way-for-women-to-die-at-work/>



General Framework

1. Define the Purpose:

- Identify the Objective: Clearly define the business question or problem the cost data visualisation is intended to address.
- Determine the Decision-Making Context: Consider how the visualisation will assist stakeholders in making informed decisions.

2. Understand the Data:

- Data Assessment: Review the available cost data
- Initial Visual Exploration: explore and understand the data structure and key trends.

3. Identify Key Messages:

- Data Interpretation: uncover key insights
- Indicator Development: Develop relevant indicators that will clearly communicate these insights

4. Choose the Appropriate Visualisation:

- Selection of Visual Type: type that best represents the cost data and its intended message.
- Level of Interactivity: Determine the appropriate level of interactivity for your audience:
- Consider Accessibility: Ensure that the visualization is accessible to all potential users.

5. Verification and Validation:

- Data "accurate representation" evaluation: Cross-check the data, ensure that the visualisations accurately represent the data
- User Testing for Clarity: Conduct testing with end-users to ensure understandability and messaging.

General Framework – Supporting Considerations

- Bias Mitigation – Awareness, neutrality, or transparency
- Remember your editorial thinking – Contextualise data, determine storytelling approach, manage cognitive load
- Ongoing review and feedback – Iterative refinement
- Adaptability and updates

