

# The story behind the numbers

An introduction to data visualisation

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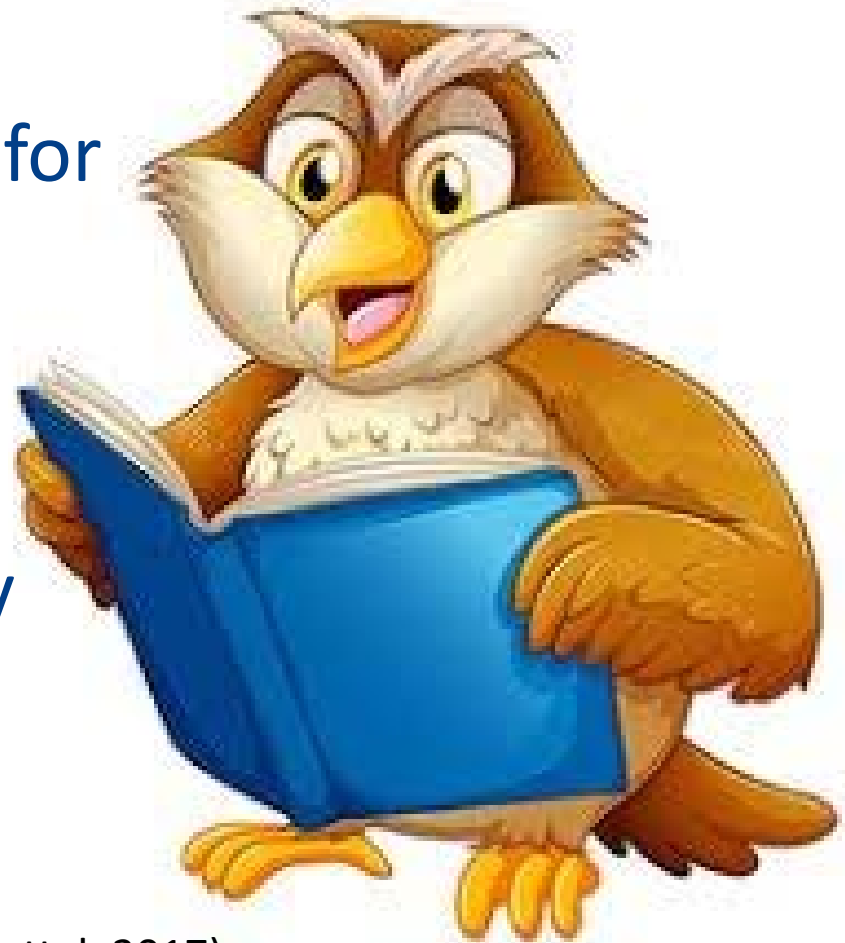
**HSRC**  
Human Sciences  
Research Council

**eRKC**  
eResearch Knowledge Centre



# Why tell a story?

- Discover meaning
- Conveying information for
  - Informing
  - Understanding
  - Convincing
- Data as a basis for story telling



(“tools of visual thinking” Kuttel, 2017)





# What is a visualisation?

Data representation

=

Translate textual and numeric values into  
quantitative and qualitative meaning through  
visual means





# Why a visual story?

Because a “picture” is worth a thousand words!

Size

Pattern

Relationship

facilitate understanding by highlighting



(Kirk 2016)



# Processing a visualisation

## Perceive

### What does it show?

- Where is big, medium, small?
- How do things compare?
- What relationships exist?

## Interpret

### What does it mean?

- What is good and bad?
- Is it meaningful or insignificant?
- Unusual or expected?

## Comprehend

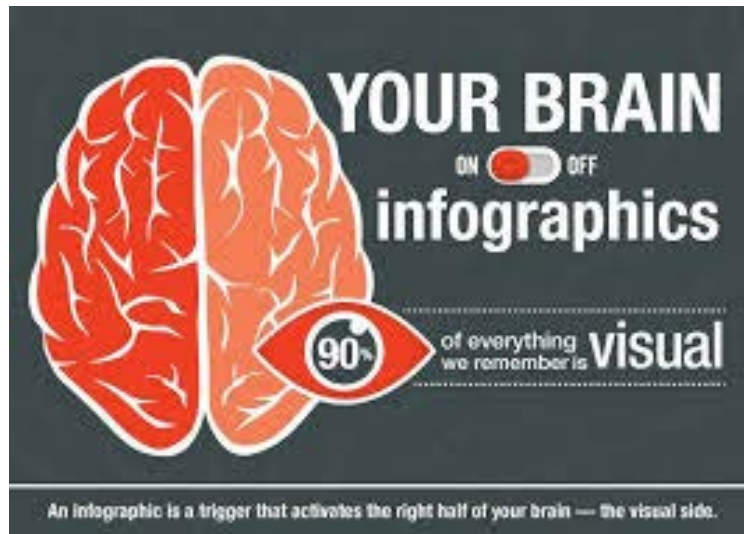
### What does it mean to me?

- What are the main messages?
- What have I learnt?
- Any actions to take?





# Visual processing



Kuttel (2017)







# The development process

- Analysing the data
  - Discovering the story
    - Analyze and interpret (What can I see in this image? Is it what I expected?)
    - Are there any interesting patterns?
    - What does this mean in the context of the data?
    - What themes and questions are arising?
    - Identify outliers: good stories, or perhaps errors in your data
    - Is this a typical example?
    - What are the gaps?
    - Triangulate findings with other data sets and literature
  - Make use of data adjustments: zooming, aggregation, filtering



Gray, Bounegru, & Chambers (2012)



# The Good

# The Bad

# And the Ugly



# The Good



- Support the “story”
- Easy to read
- Easy to understand
- Informative
- Accurate
- Visually appealing

# The Bad



# And the Ugly



Kelleher & Wagener (2011), Evergreen (2016)



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- ✓ Wrong choice of data visualization – inappropriately complex
- ✓ Inconsistent scales
- ✓ Misrepresentation of data – misleading visuals that do not convey the message well

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# And the Ugly



- Excessive use of colour
- Use of “colour blind” colours
- Too much information
- Unnecessary dimensions
- Boring

Kelleher & Wagener (2011), Evergreen (2016)



# An appetizer!



<https://www.youtube.com/watch?v=jbkSRLYSojo>



# Exercises

- Download a copy of

**“Data visualisation workshop Exercises.docx” in**

[https://drive.google.com/drive/folders/1eN1BVUM00\\_HYJQbcPg8g1o8-6N5AzePX?usp=sharing](https://drive.google.com/drive/folders/1eN1BVUM00_HYJQbcPg8g1o8-6N5AzePX?usp=sharing)

- Record your answers in this document and save this file with a new filename.
- When you have completed the exercises, save this file with a new unique filename and upload it to the NeDICC Google drive.





# References and resources

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# Thank you



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