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Data Visualisation: Principles

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In this section...

AIM: Understand the principles of data visualisation

- Key principles
- 10 tips to take away

Principles of Data Visualisation

1. Data Integrity is key
    - Your visualisation can only be as good as the underlying data. If the data are incomplete or if there is poor internal and external validity then you visualisation will mislead.

    - *Sometimes it is not until you do the visualisation that the issues of data integrity become clear but checking your data and understanding where it came from and the quality is very important*

Principles of Data Visualisation

2. Good data visualisation needs you to be immersed in your data
   - In exploring and trying to understand your data [whether using traditional statistical techniques, computing analytics or emerging visualisation techniques] takes time and is essential if meaningful visualisations are to achieved.
   - *Understanding the context of the data is an important part of this and is how you translate the information about limitations or validity of your data into 'knowledge' in terms of how to analyse and interpret your data effectively*

Principles of Data Visualisation

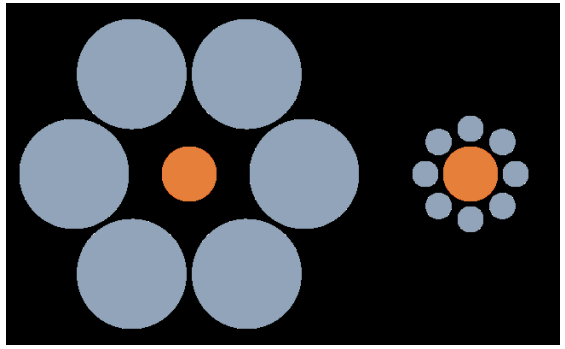
3. Purpose is important
    - Critical analysis of your data can be purely for discovery but is often based on testing hypotheses. Either way, understanding who you are going to tell about your findings is fundamental to how you approach the visualisation
    - *People often need to see layers of information to feel they understand enough and they need to have confidence in the data and your analysis of it.*

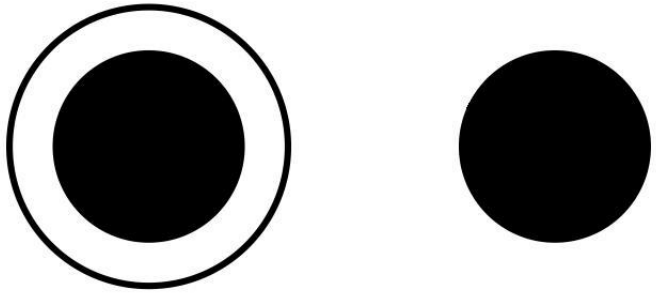
Principles of Data Visualisation

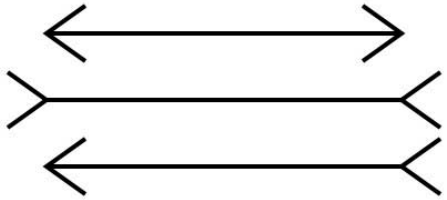
4. Designing your final representation of the data and the story that you aim to tell requires careful consideration
    - Design skills are specialist and if you want to make a big impact, get the right team to support you.
    - *However you can do a lot your self to improve how you communicate with data – simply remembering to give it time and thought will help a lot.*

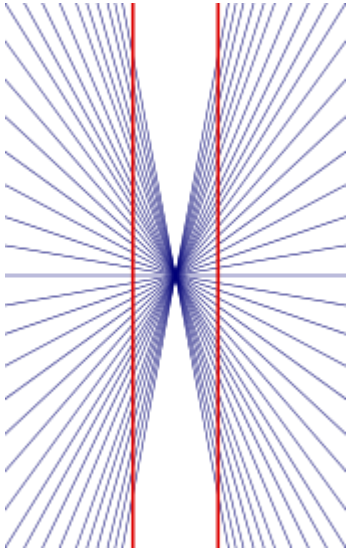
Some common pitfalls

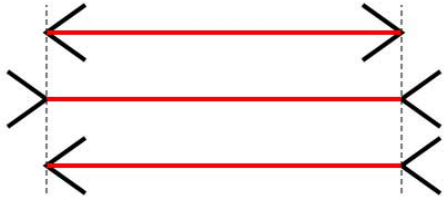
- Visual tricks





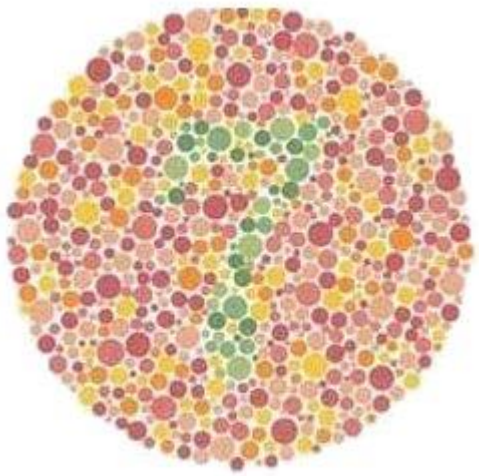






Some common pitfalls

- Colour matters



RED
GREEN
BLUE
YELLOW

Some common pitfalls

- Caution with comedy and cartoons.

  Getting a cartoon correct for a factual visualisation is an art form. It is very easy to offend or send the opposite message from that intended.

https://thenounproject.com/ Is a great resource of free and well designed icons

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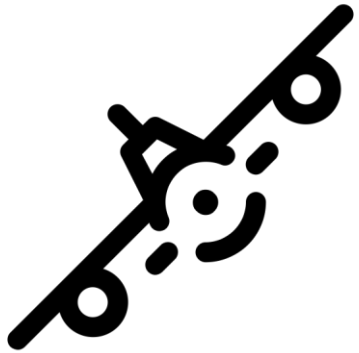
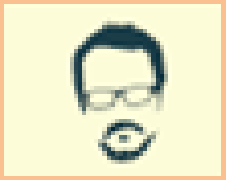
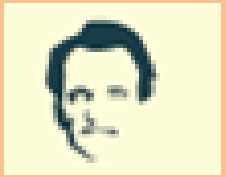


Created by Dream Icons from Noun Project

10 Take Away Tips-Data Visualisation

- No short cut for understanding the data
- Make every dot of ink count
- Does not stop at analysis
- No point if no body looks
- No point if no body understands
- Levels of data presentation build integrity
- One size does not fit all
- Get help – good data vis is a team sport
- Use the well evidenced guides
- Take time to understand the story

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Understand and applying the principles of data visualisation

- *Principles*
- *Styles*
- *Critical thinking*