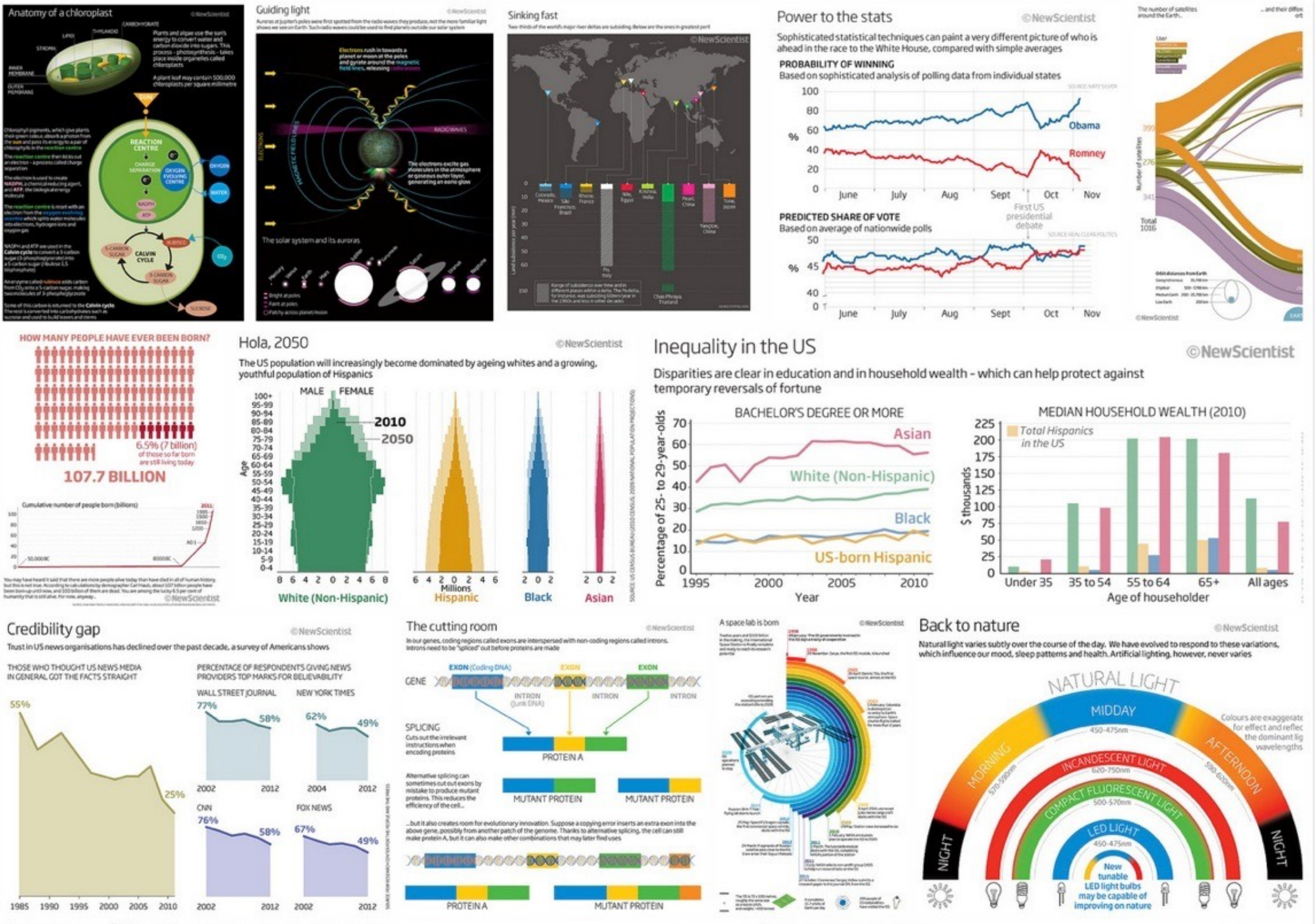# What does that mean?

Getting your message across **more effectively** in visual form

Where to start...
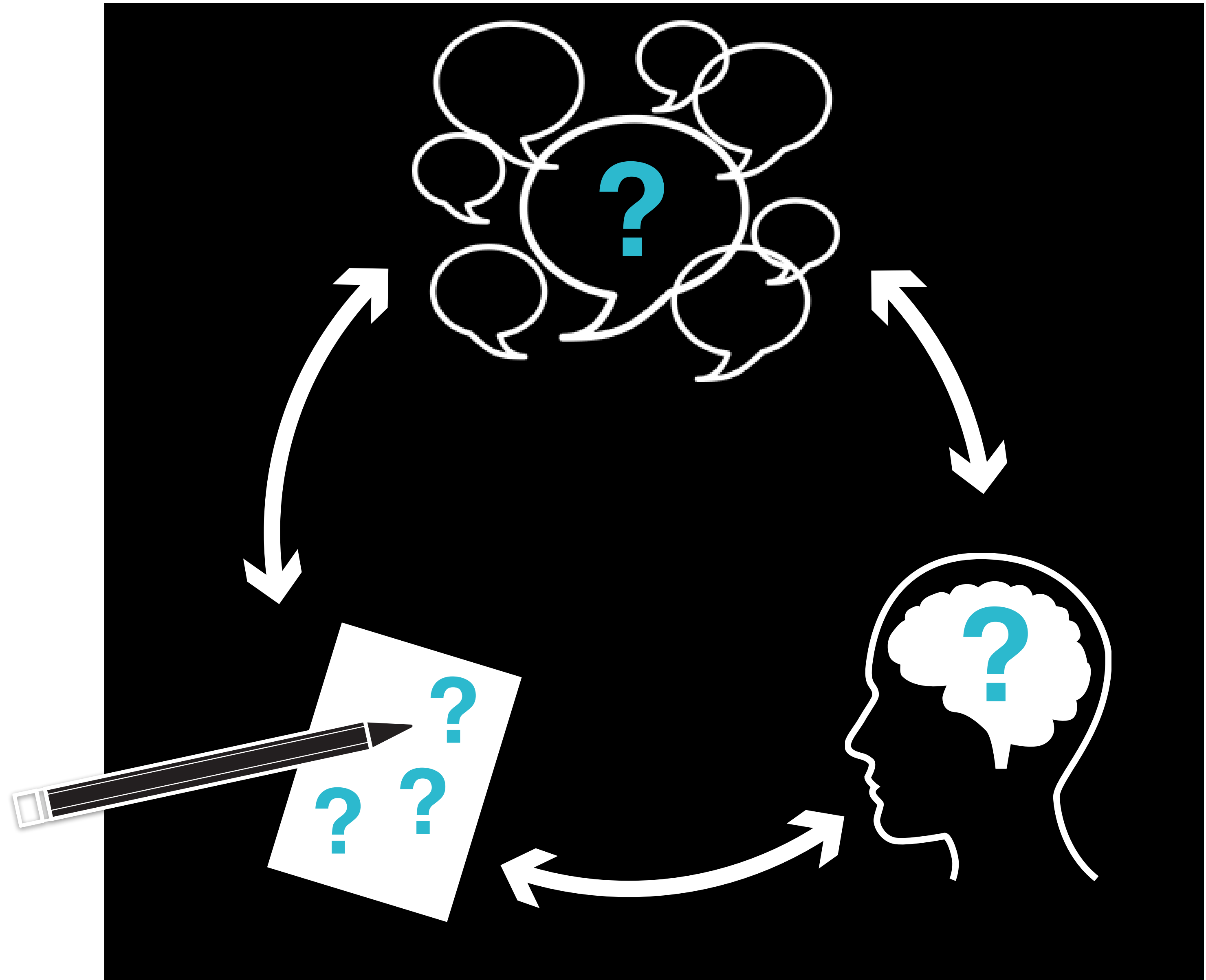
What is the point?

Who are the audience?

Where will they be viewing it?

Do I understand it well enough
to be able to draw and explain it?
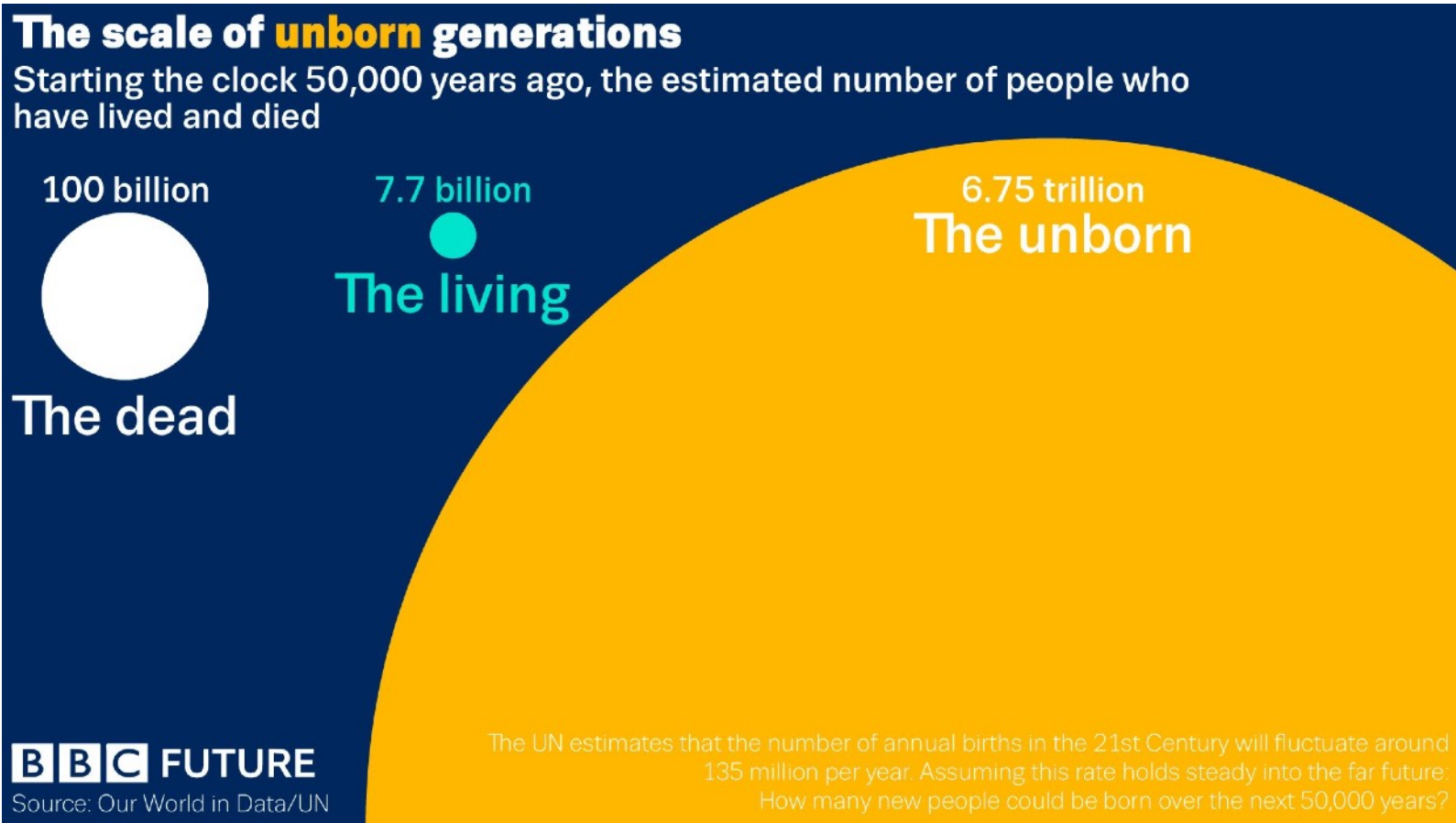
Ideas & preparation
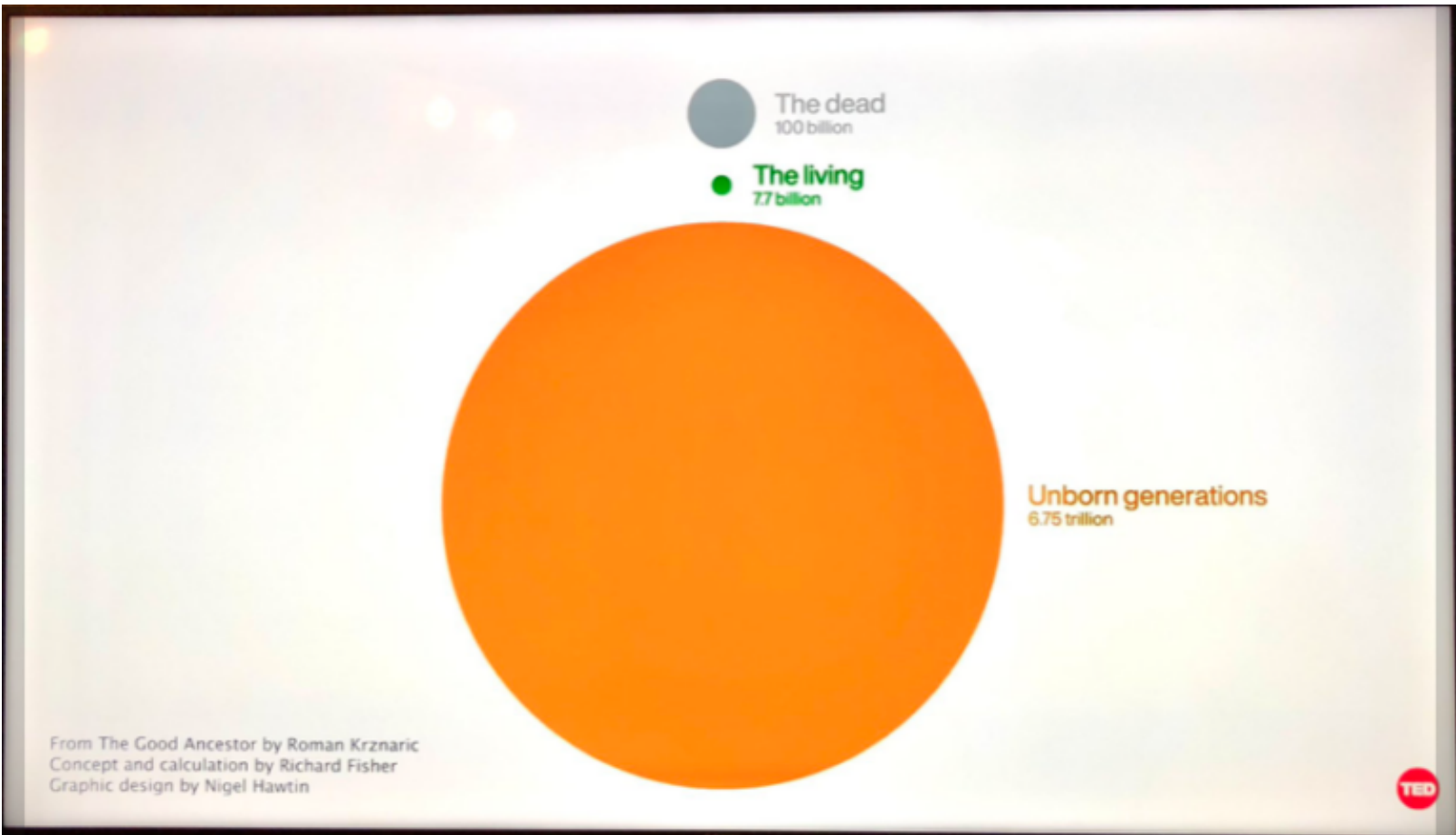
Medium…

think of the audience
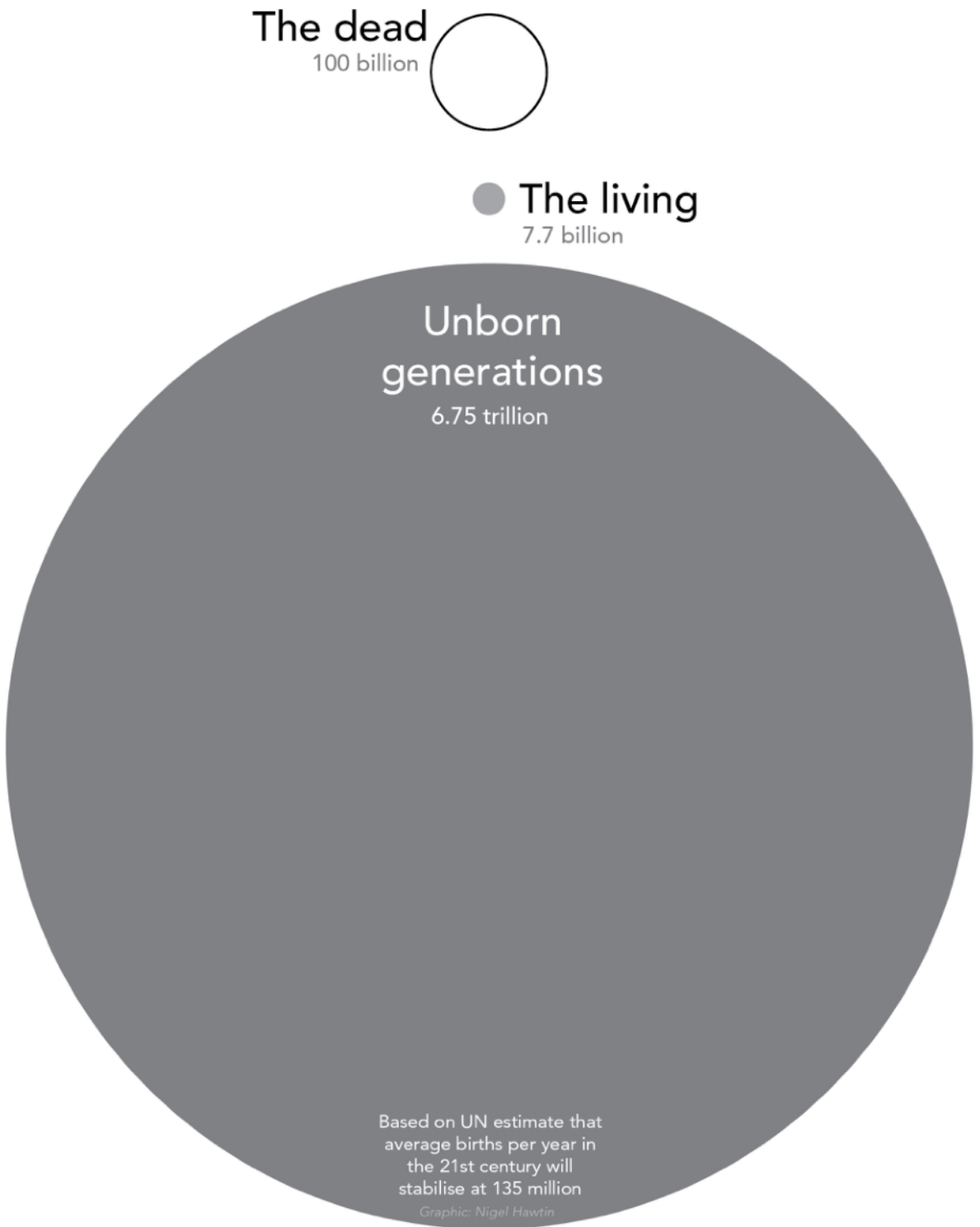
design for the medium it will be seen on

Online

Presentation

Print/book

Sketch, develop, refine…
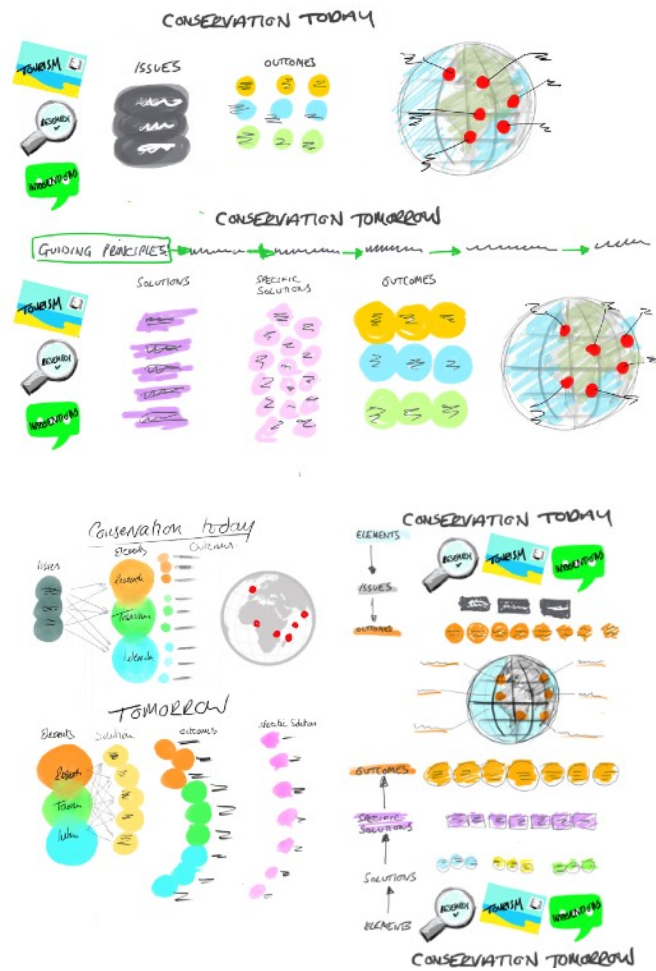
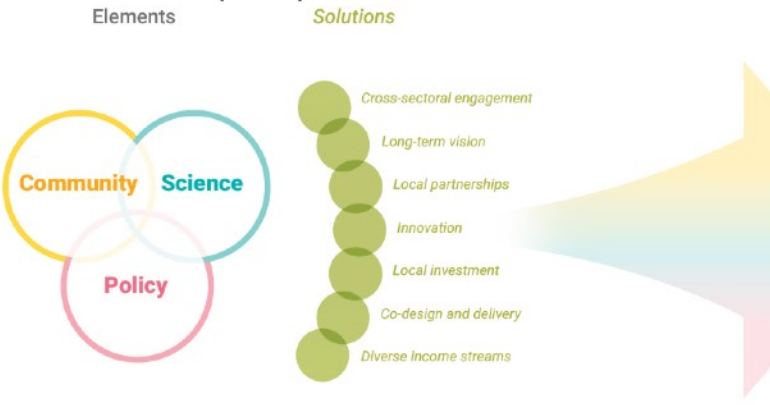## Delivering biodiversity conservation in a post-pandemic future

Conservation during the COVID-19 pandemic

Elements — Cross-cutting issues — Outcomes

Community · Science · Policy
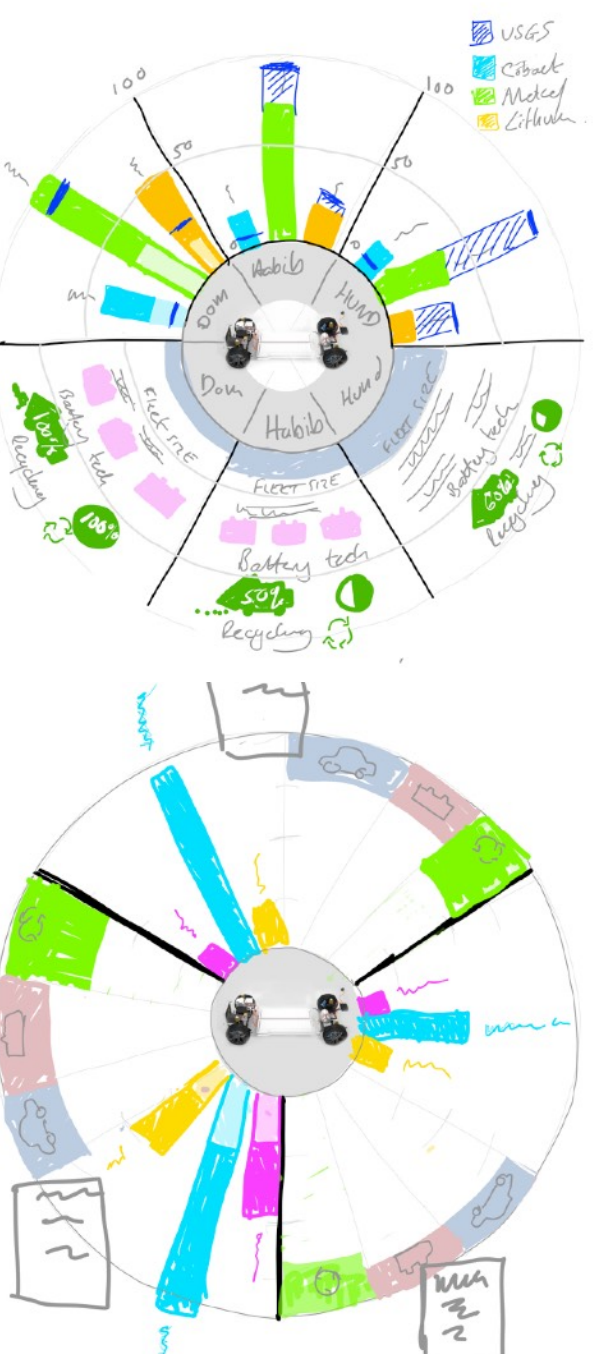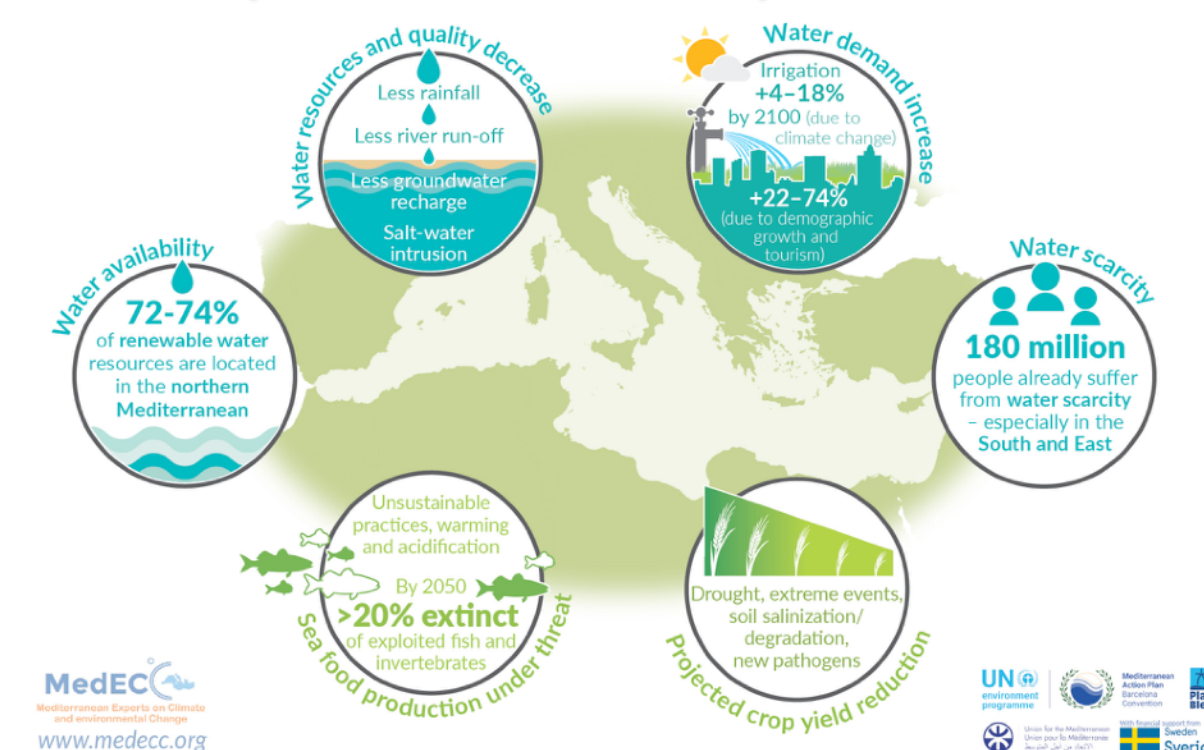
How do we achieve conservation goals and promote positive outcomes for conservation under increased rates and scales of perturbation?
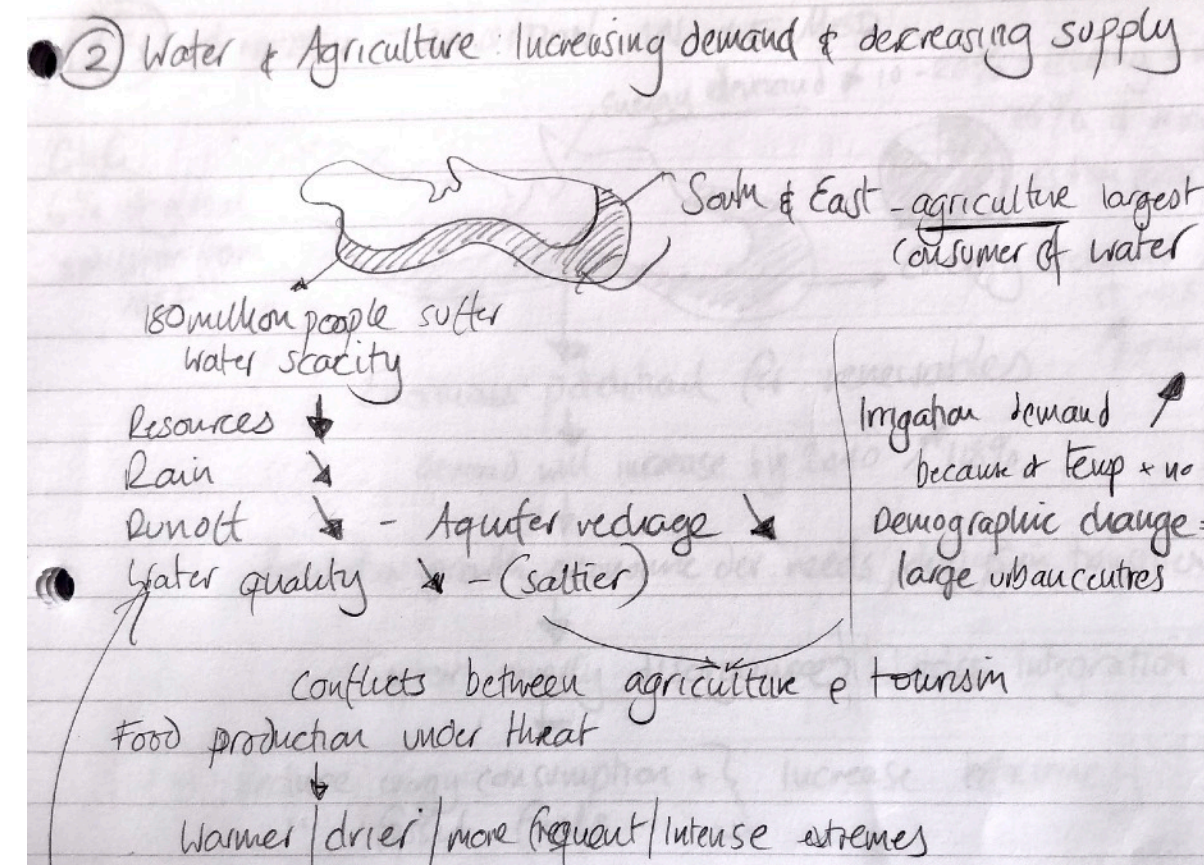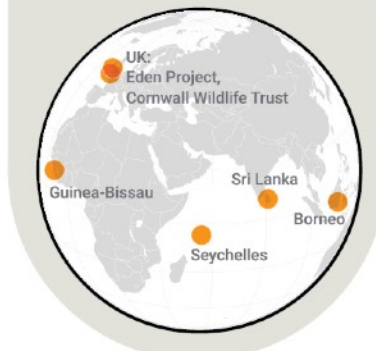
UK: Eden Project, Cornwall Wildlife Trust
Guinea-Bissau · Sri Lanka · Borneo · Seychelles

Conservation post-pandemic

Elements — Solutions — Outcomes

Community · Science · Policy

Cross-sectoral engagement · Long-term vision · Local partnerships · Innovation · Local investment · Co-design and delivery · Diverse income streams

Broad benefits · Sustainable actions · High adaptability · Local capacity building · High local involvement · Sustainable funding model · Co-management · High engagement · Action across scales

Time to park the deep-sea mining plan

Estimates that quantify the metals needed to make electric vehicle batteries are underpinned by assumptions and surrounded by uncertainties. The warnings are stark; if material consumption continues to increase, the transition from fossil to clean energy could lead to a natural resources crisis. But there is an alternative road that leads to a sustainable future.
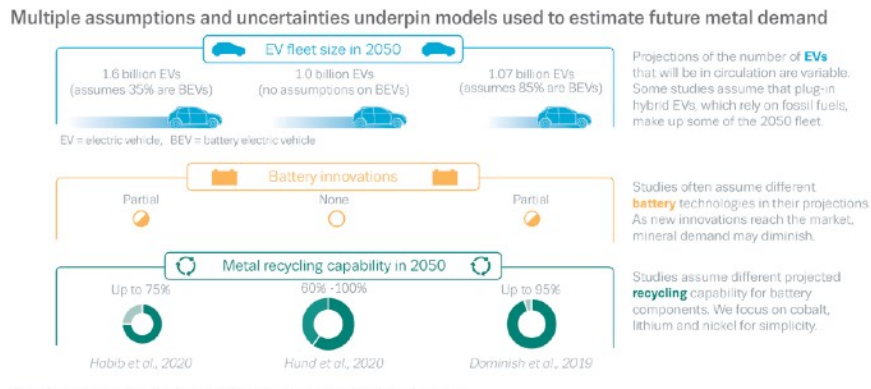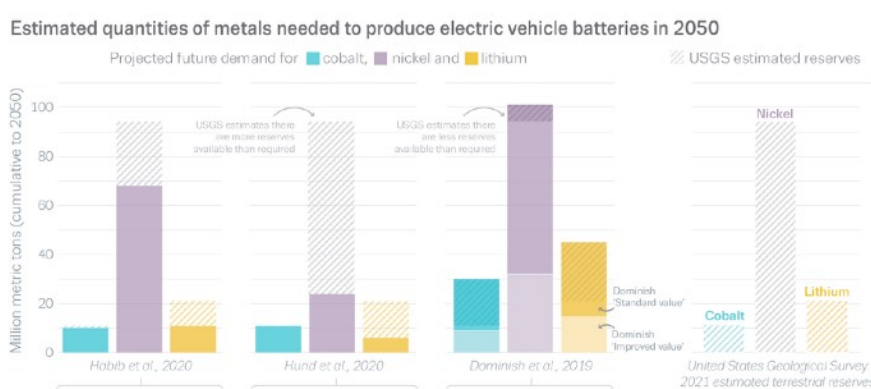
A well managed future

Global dispersal of low-carbon technology
Battery disposal/recycling by 2030
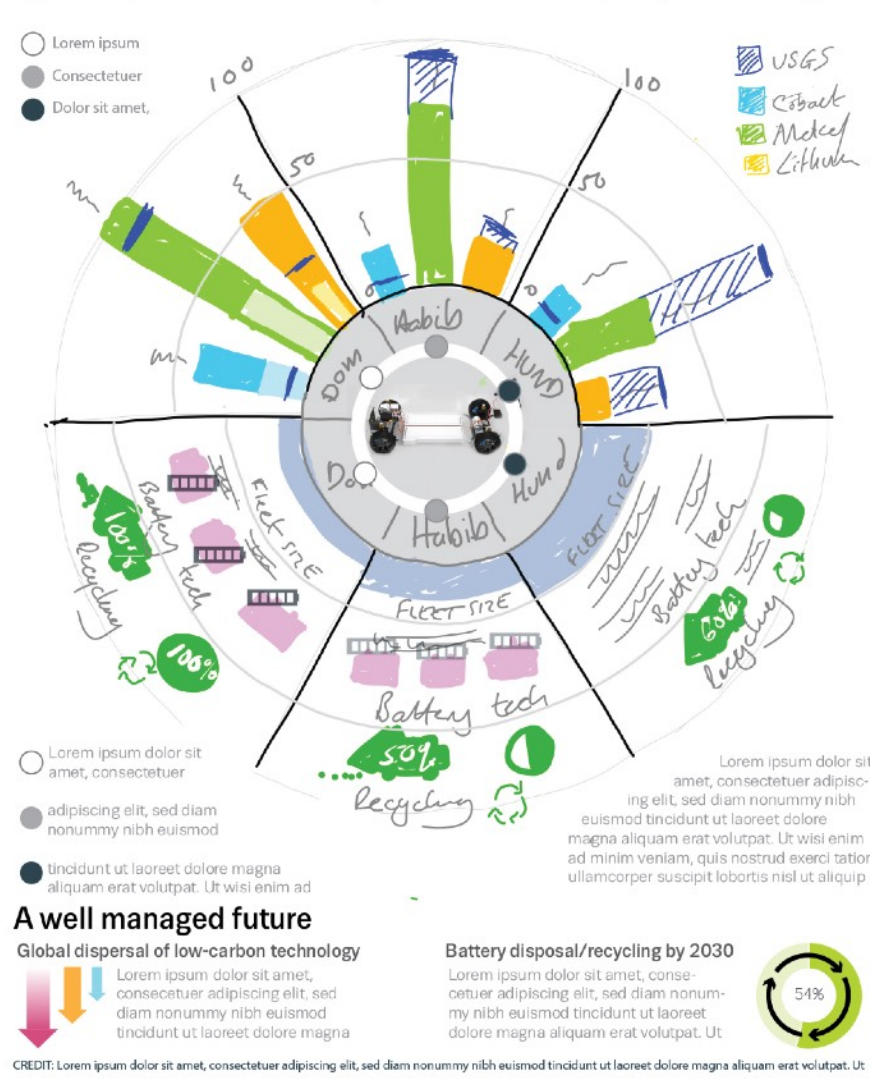
Time to park the deep-sea mining plan:
Battery technology and the mineral crisis

If production and consumption of technological devices increases as projected by models, the need for minerals increases and this transition to clean energy could lead to a natural resource crisis by 2050. We examine three studies that use different underlying assumptions to reach different conclusions on future mineral demands, and we urge a re-evaluation of plans to extract deep-sea minerals.

The green energy future will require batteries. As new designs emerge, it is likely that future energy storage will be very different to today's batteries.

Electric vehicle (EV) batteries are heavily dependent on certain key metals and minerals, some of which have potential availability constraints.

Estimates of the quantity of raw materials needed to manufacture electric vehicle batteries are underpinned by assumptions and uncertainties.

Estimated quantities of metals needed to produce electric vehicle batteries in 2050

Multiple assumptions and uncertainties underpin models used to estimate future metal demand

Setting the wheels in motion for a sustainable future

Water & Agriculture: increasing demand & decreasing supply

180 million people suffer water scarcity

1st Mediterranean Assessment Report (MAR1) published by MedECC
Water and food in the Mediterranean:
increasing demand & decreasing supply

72–74% of renewable water resources are located in the northern Mediterranean

180 million people already suffer from water scarcity – especially in the South and East

MedECC · www.medecc.org

Nigel Hawtin | nigelhawtin.com
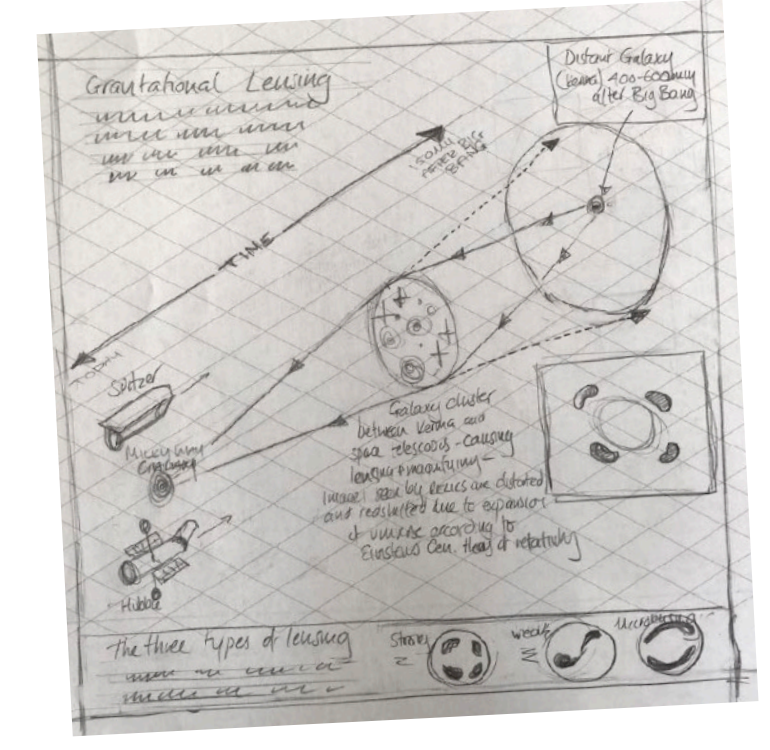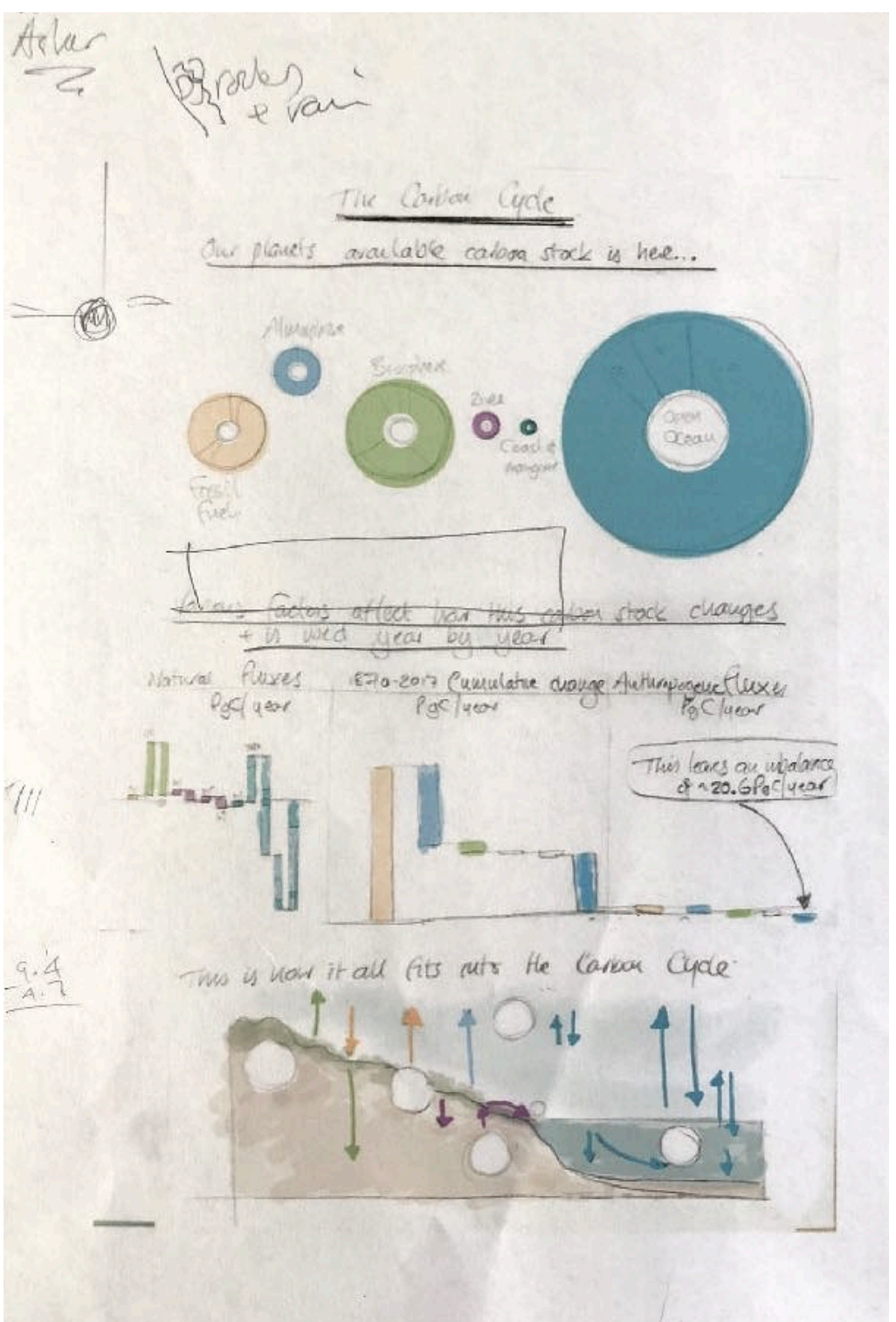
Best titles are short…shorter and snappier

Maritime trafficking

What is your best decade?

The scale of unborn generations

FROM GRAPE TO GLASS

How we raised the money in 2016
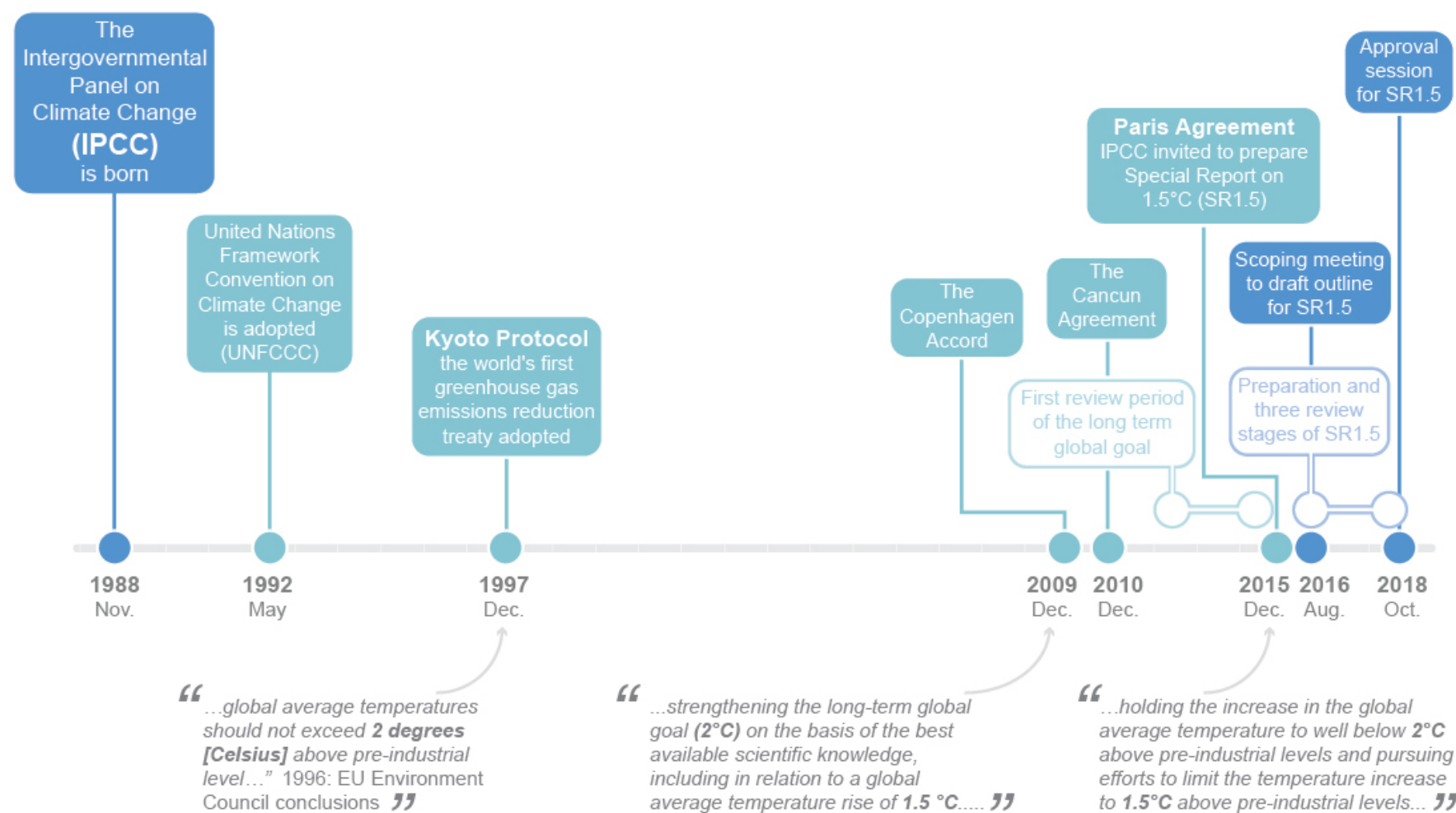(for every £1 raised)

How we spent your money in 2016
(for every £1 spent)

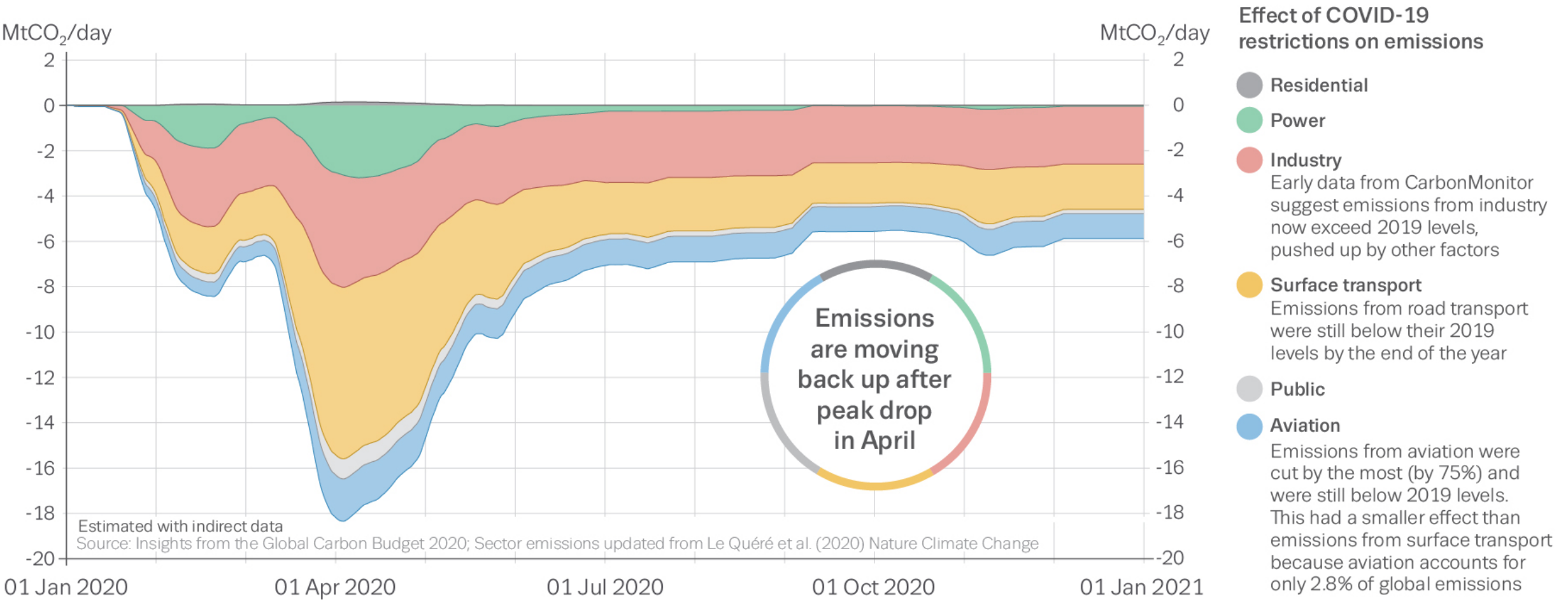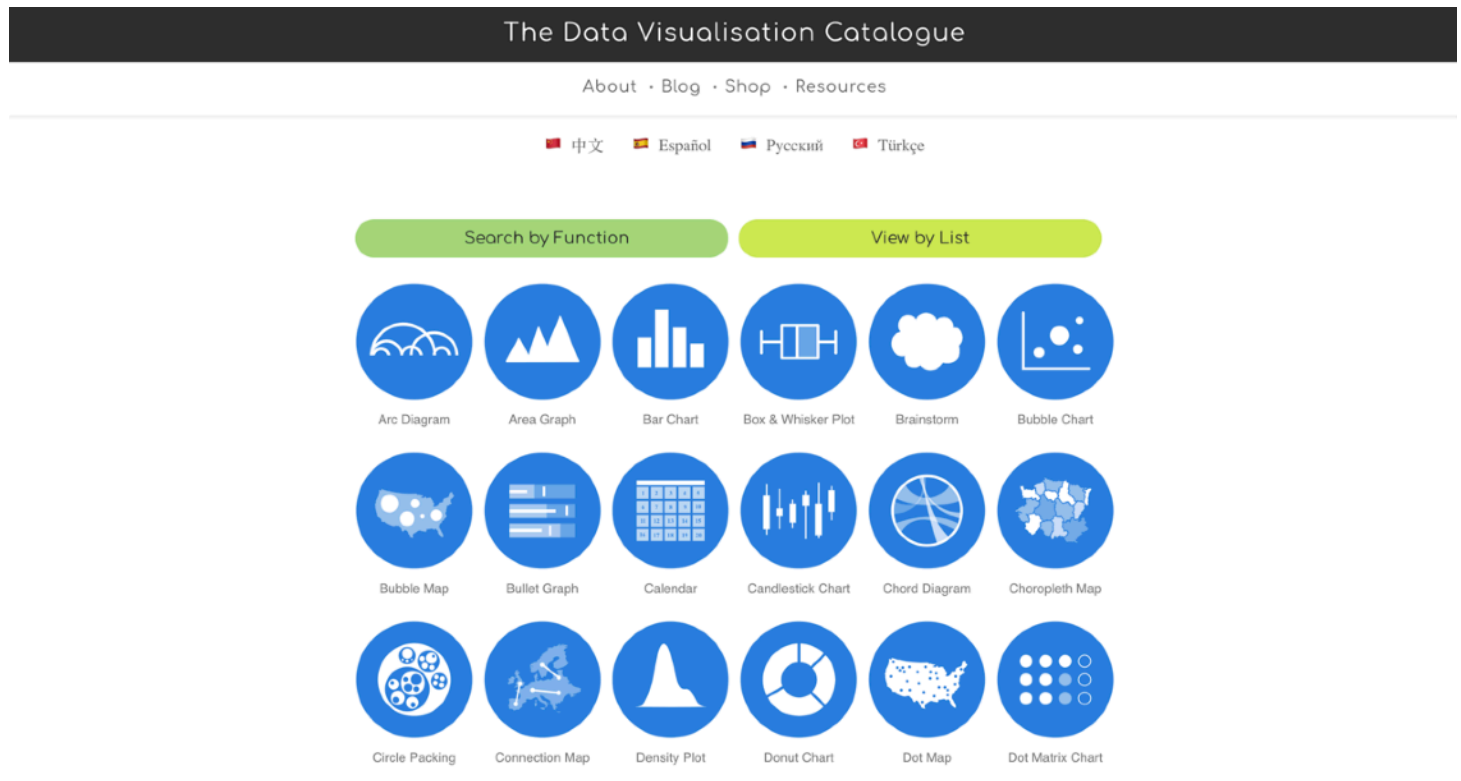# Use titles to explain

FAQ1.1: **Timeline of 1.5°C**
Milestones in the IPCC's preparation of the Special Report on Global Warming of 1.5°C and some relevant events in the history of international climate negotiations

The Intergovernmental Panel on Climate Change (IPCC) is born

United Nations Framework Convention on Climate Change is adopted (UNFCCC)

Kyoto Protocol
the world's first greenhouse gas emissions reduction treaty adopted

The Copenhagen Accord

The Cancun Agreement

Paris Agreement
IPCC invited to prepare Special Report on 1.5°C (SR1.5)

Scoping meeting to draft outline for SR1.5

First review period of the long term global goal

Preparation and three review stages of SR1.5

Approval session for SR1.5

| 1988 Nov. | 1992 May | 1997 Dec. | 2009 Dec. | 2010 Dec. | 2015 Dec. | 2016 Aug. | 2018 Oct. |

"…global average temperatures should not exceed 2 degrees [Celsius] above pre-industrial level…" 1996: EU Environment Council conclusions "

"…strengthening the long-term global goal (2°C) on the basis of the best available scientific knowledge, including in relation to a global average temperature rise of 1.5 °C….. "

"…holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels… "

Use colour to help guide…

Emissions from road transport cause the largest share of the global 2020 decrease

MtCO₂/day

Effect of COVID-19 restrictions on emissions

Residential

Power

Industry
Early data from CarbonMonitor suggest emissions from industry now exceed 2019 levels, pushed up by other factors

Surface transport
Emissions from road transport were still below their 2019 levels by the end of the year

Public

Aviation
Emissions from aviation were cut by the most (by 75%) and were still below 2019 levels. This had a smaller effect than emissions from surface transport because aviation accounts for only 2.8% of global emissions

Emissions are moving back up after peak drop in April

Estimated with indirect data
Source: Insights from the Global Carbon Budget 2020; Sector emissions updated from Le Quéré et al. (2020) Nature Climate Change

01 Jan 2020 | 01 Apr 2020 | 01 Jul 2020 | 01 Oct 2020 | 01 Jan 2021

Nigel Hawtin | nigelhawtin.com

Improving…inspiration

The Data Visualisation Catalogue

http://datavizproject.com/

…some websites to look at…

https://www.nytimes.com

https://www.theguardian.com/uk

https://www.ft.com

https://graphics.reuters.com

https://www.nationalgeographic.com

Life around you…

Species of birds on the bird feeder during the day

Morning

Lunchtime

Afternoon

Evening

Ring-necked parakeet · Magpie · Crow · Stock Dove · Robin · Wood Pigeon · Blue Tit · Great Tit · Coal Tit · Tree Sparrow · Collared Dove · Blackbird · Long-tailed Tit · Goldfinch

nigelhawtin.com

Improving…critique your own work

Got 10 minutes?

Step back and look…

Is the message as clear as possible?

Is there a take away? If so is it clear?

Is there an effective and clear headline and subhead?

Is the annotation as clear as can be?

Are you using colour effectively?

Are the colours hindering or helping?

Are the colours appropriate?

Are the colours helping the hierarchy?

More than 10 minutes?

…Keep looking

Is there **anything else** you can **delete?** Axis, lines, elements, text, colours

Are **labels and annotations** in the best possible location and as **clear as possible?**

Is there enough **space** in-between elements?

Is there overall enough **'white space'?**

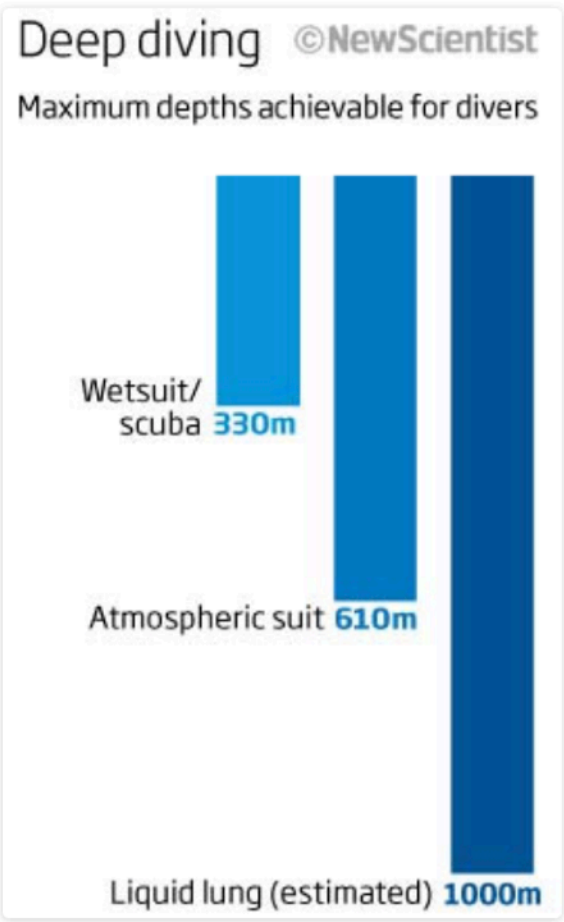Is the graph or chart type in the best **orientation** and **best chart type?**

Will the graphic work on other **mediums?**

http://nigelhawtin.com/10-years-ago/

This is atrocious…how not to do a time line! I can see where to start and where we end up but in-between!!! a total failure. Confusing, frustrating and unnecessarily complex – try again!
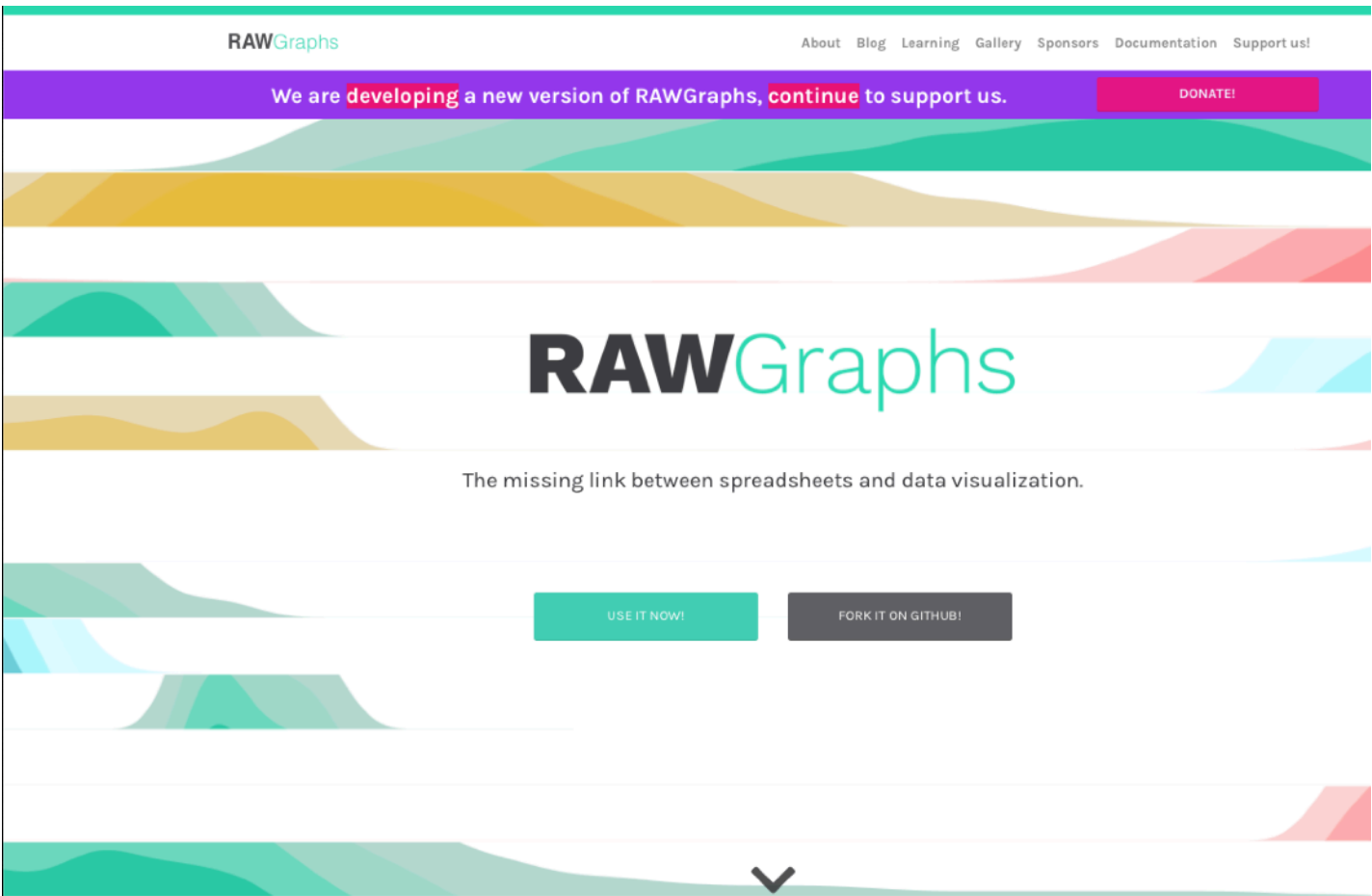

A short history of web search
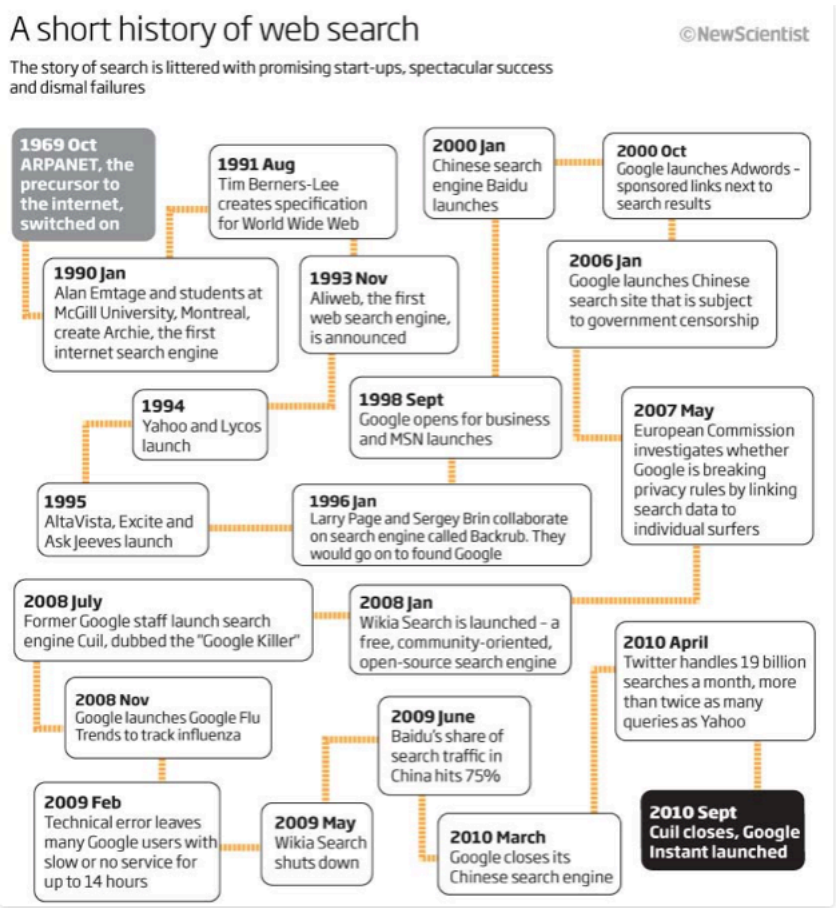
Let us start with a simple, small bar chart looking at maximum depths achieved by divers. Not much to say about this, the bars dive down from the horizontal and are shades of blue to signi-fy water. Simple, clear and easy to take on board information. Maybe it would have been better and easier to remember if we drawn icons for each bar as there are only 3 bars – a scuba diver, a deep diver with atmospheric suit and a liquid lung – all these things matter when it comes to information retention.
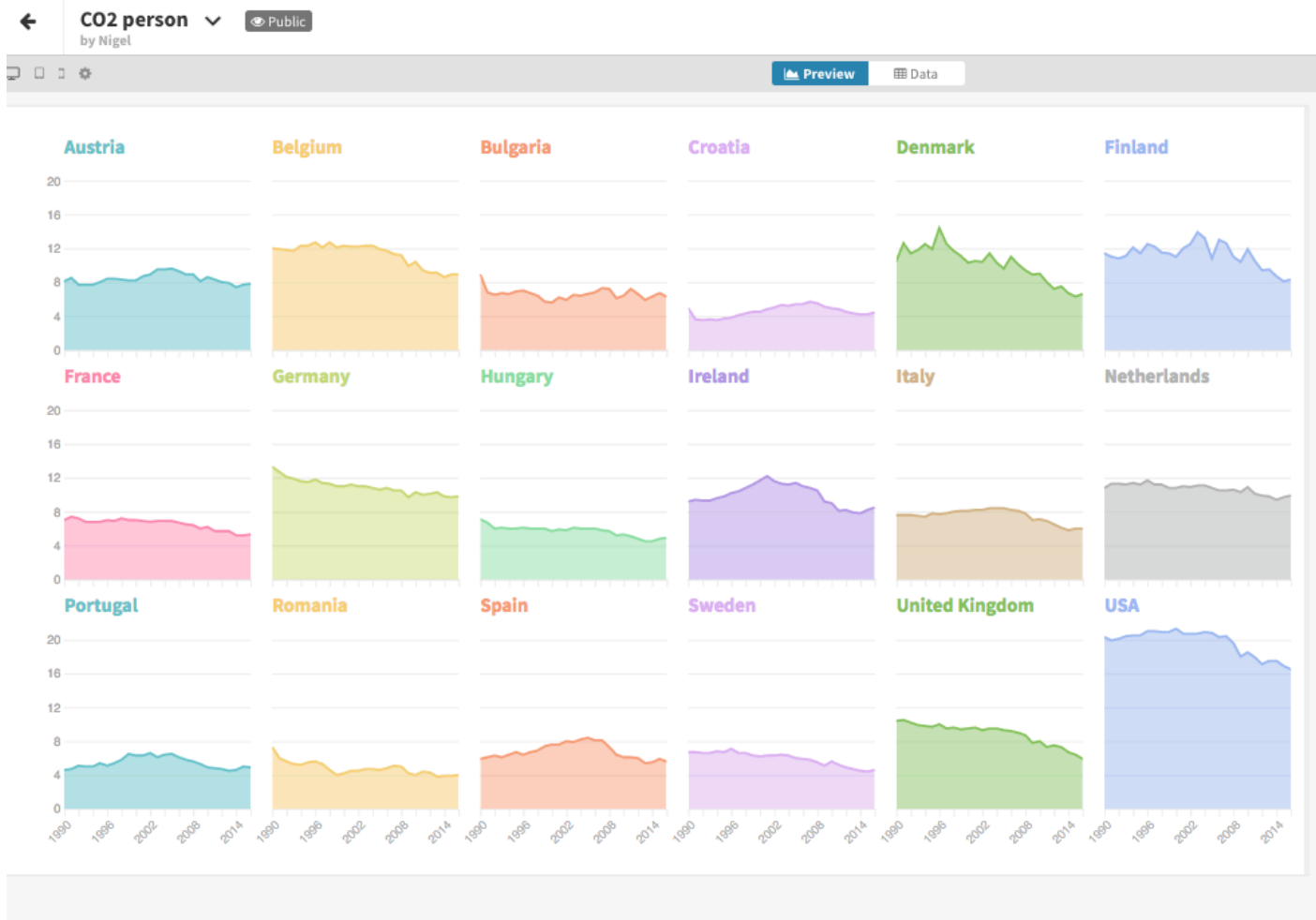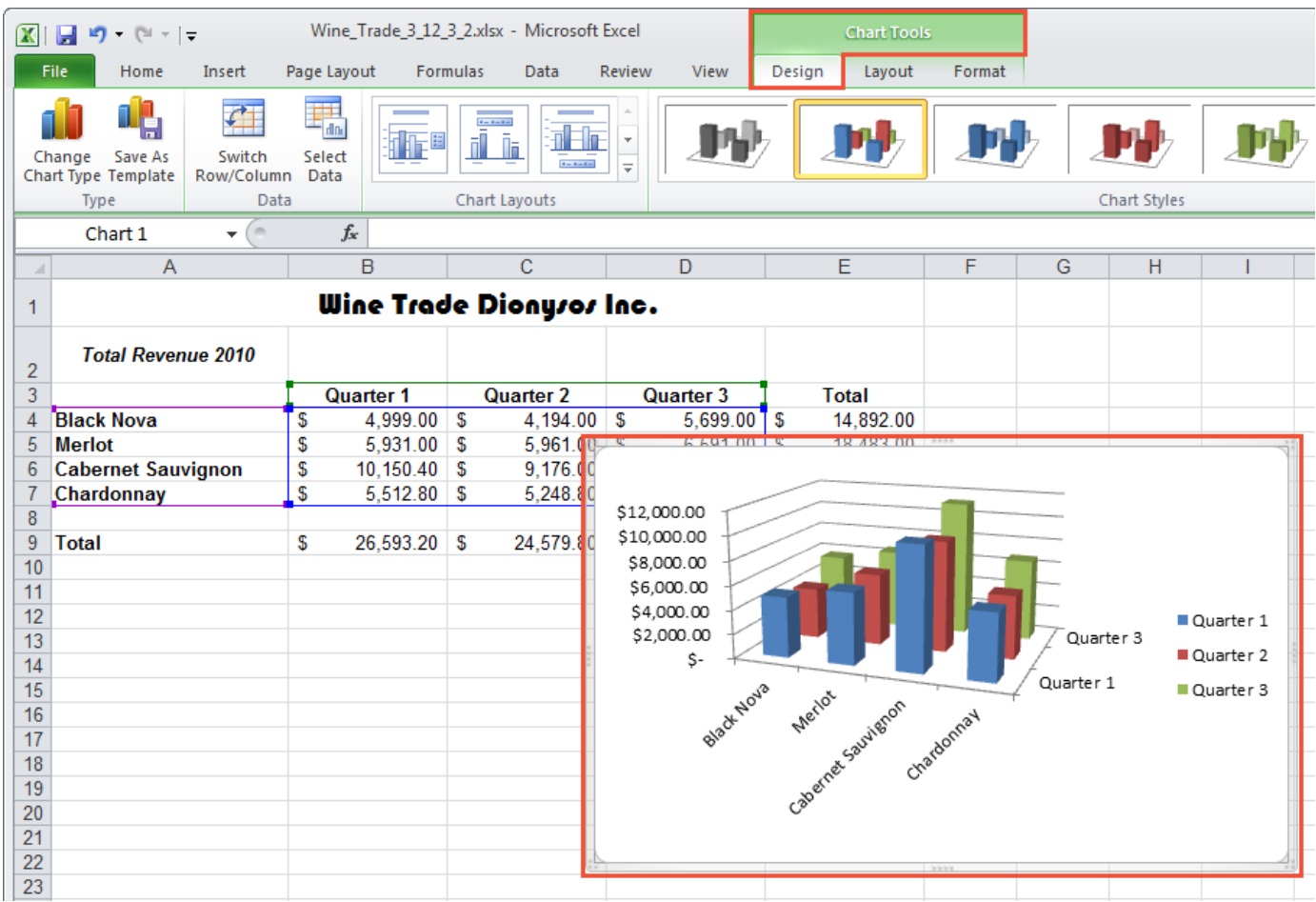

Deep diving ©NewScientist
Maximum depths achievable for divers

Some apps to look at...

https://datawrapper.de

http://app.raw.densitydesign.org

https://app.flourish.studio

Adobe Illustrator CC 2018

Beware! Default settings…

Shoe color Frequency

Beware, colour…no rainbow scale

Full colour

Deuteranopia

Sequential/convergent

Much higher
Higher
Average
Lower
Much lower

Divergent

Much higher
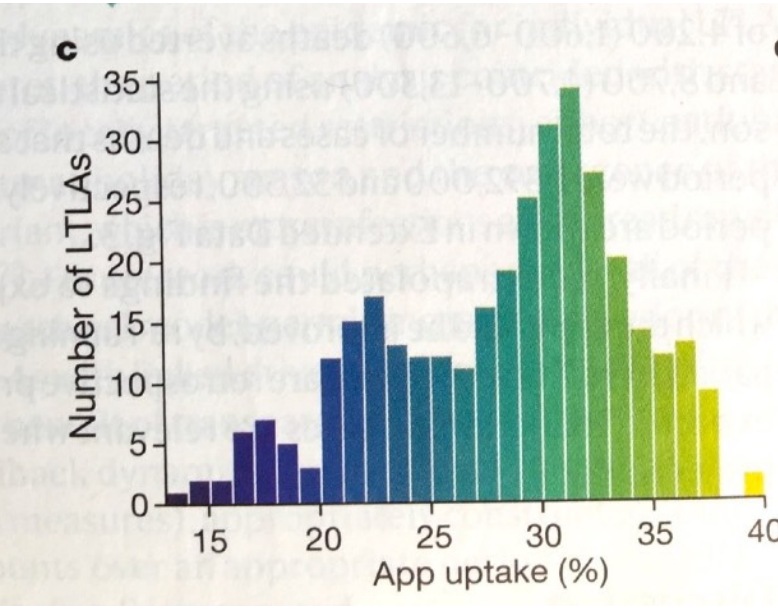Higher
Average
Lower
Much lower

Viridis (https://waldyrious.net/viridis-palette-generator/)
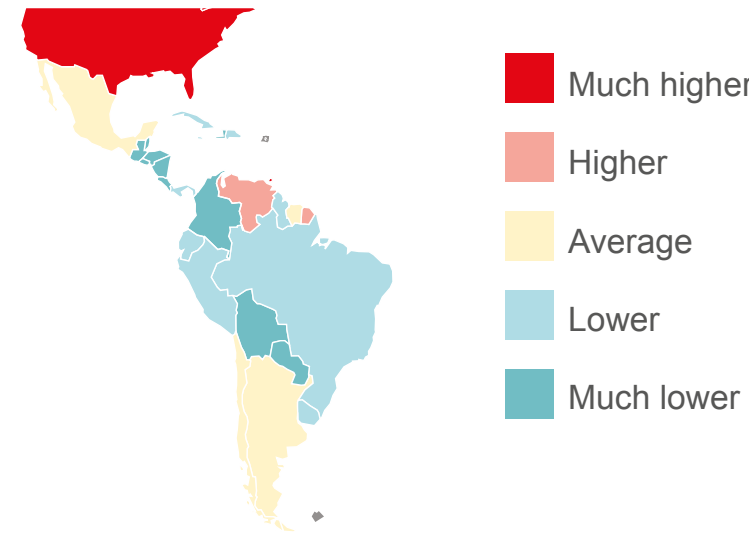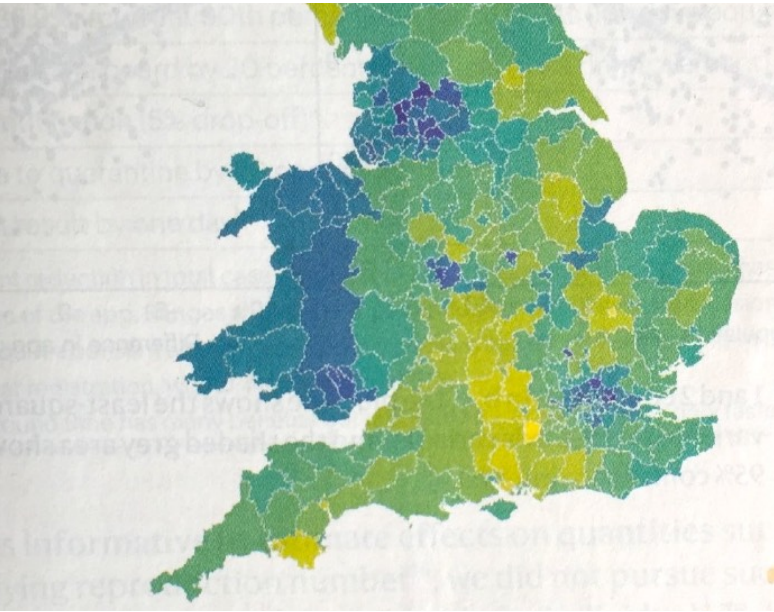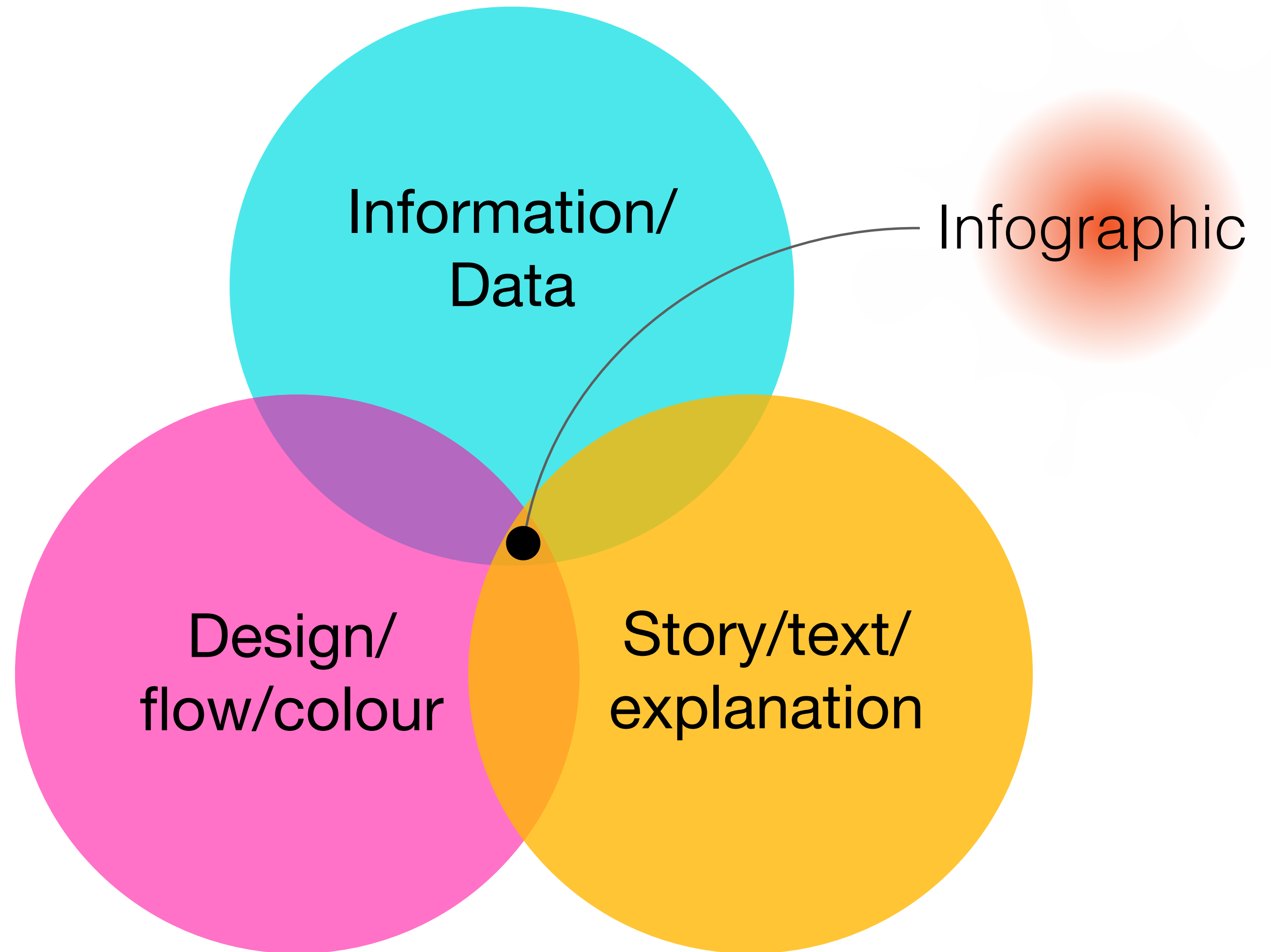
Information graphics for many purposes

Show the information
Inform
Explain
Guide the viewer
Understandable
Appropriate
Useful
Visually attractive
Accurate

Information/
Data

Infographic

Design/
flow/colour

Story/text/
explanation

= an effective information graphic