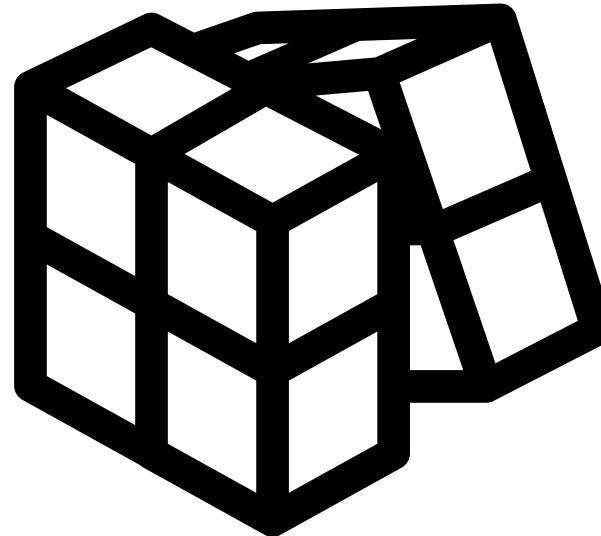


VISUALIZAR'17

Open Source Technologies for Data Visualisation

Hannah Williams | Graphic Designer, Cape Town, South Africa

What is open source?



The term "open source" refers to something people can **modify and share** because its **design is publicly accessible**.

What is open source?

The idea of open source comes from software development where open source software means:



You can **access the source code, modify the source code** and **distribute** your own version.

You can **distribute** as many copies of the original program as you like.

Anyone can use the program for **any purpose**.

There are **no licensing fees** or other restrictions on the software.

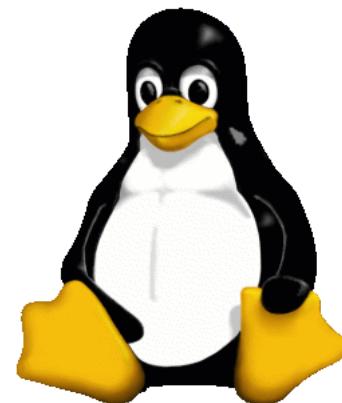
What is open source?

Examples of **open source** software:

Firefox, Chrome, OpenOffice, Linux, Android, Wordpress, ...



Apache
OpenOffice™



What is open source?

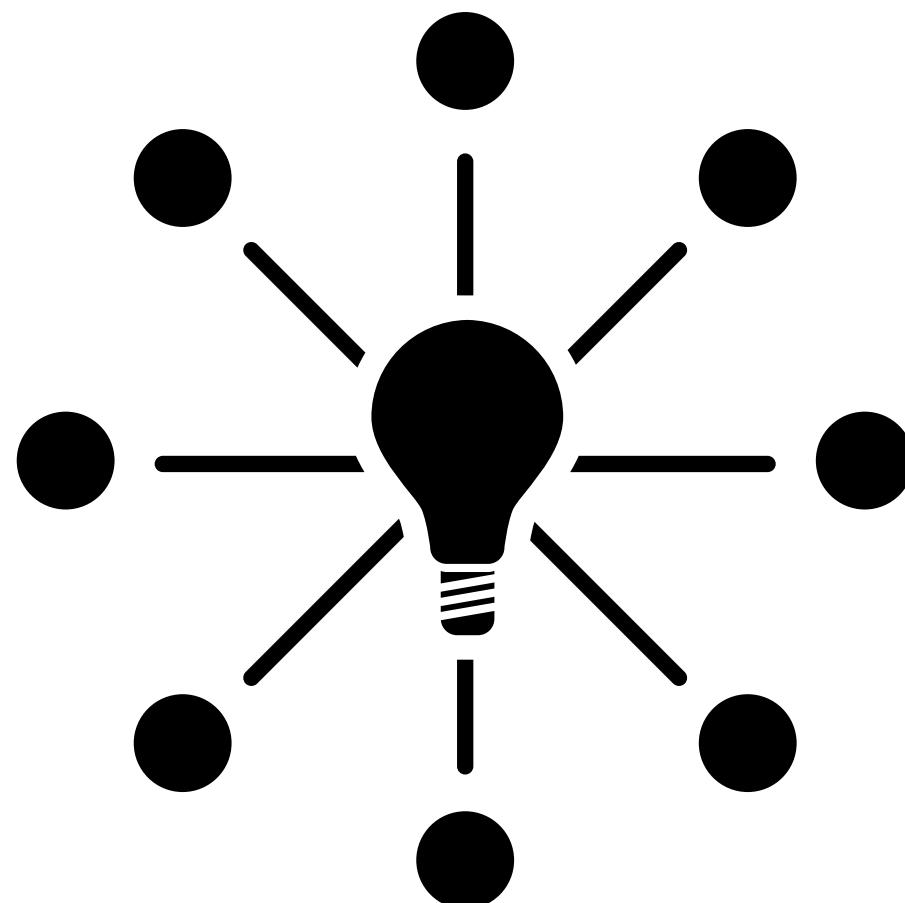
Examples of '**closed**' or **proprietary** software:

Microsoft Windows, Microsoft Office, Adobe Creative Suite, Internet Explorer, iOS



What is open source?

The Open Source Way



OPEN EXCHANGE

Free sharing of ideas = faster learning

PARTICIPATION

Solve problems that no one person can solve on their own

RAPID PROTOTYPING

Rapid failures = learn by doing

MERITOCRACY

The best ideas win

COMMUNITY

Together we can do more

Why open source?

It's **free** so you don't have to pay for it

It's **flexible** - you can adapt it to suit your needs
“stand on the shoulders of giants”
No need to reinvent the wheel

It's **good quality** - many developers are working to make it better.

There's **active community support** if you need any help

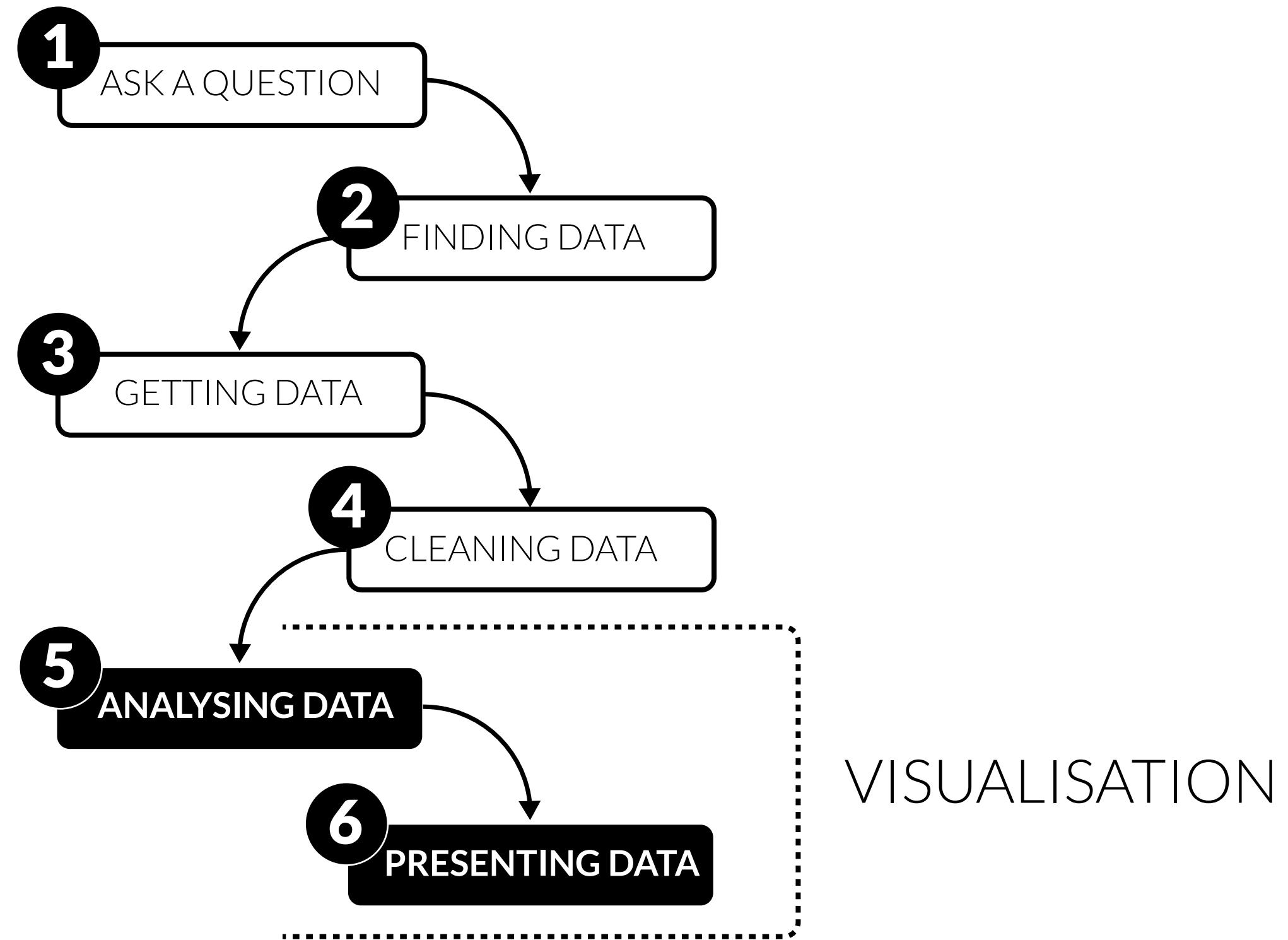
Bugs are usually **fixed quickly**

Interoperability - you're not limited by proprietary data formats

It's usually **more secure** as vulnerabilities are identified quickly by the community because the source code is accessible.

Open source is the future with private sector companies, like IBM, participating in open source communities and recently companies like Uber and Air BnB releasing their in-house software as open source.

The Data Pipeline



Open source software for data visualisation

There is a wide variety of open source software for data visualisation.

Some are better for creating **simple graphs with no programming skills**

Some are better for creating **dashboards for analysing data**

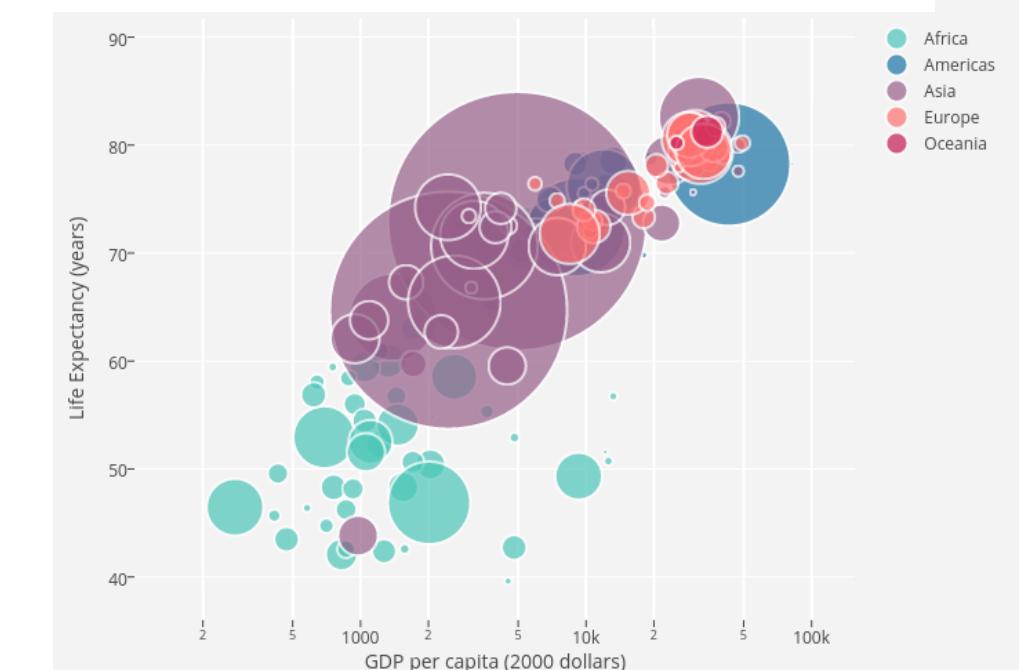
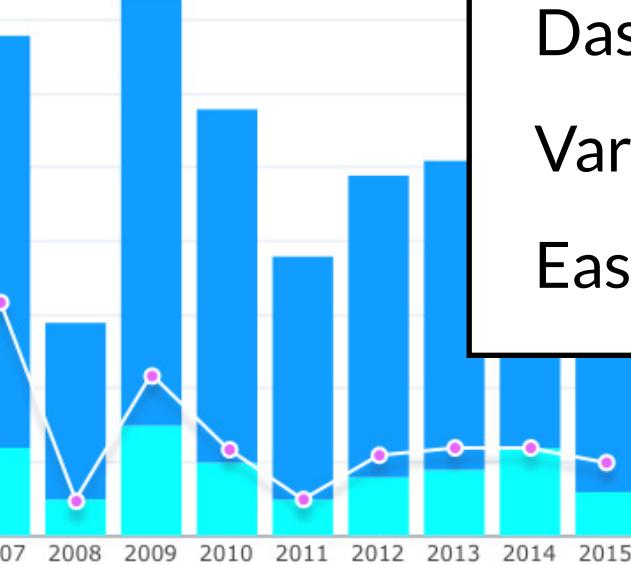
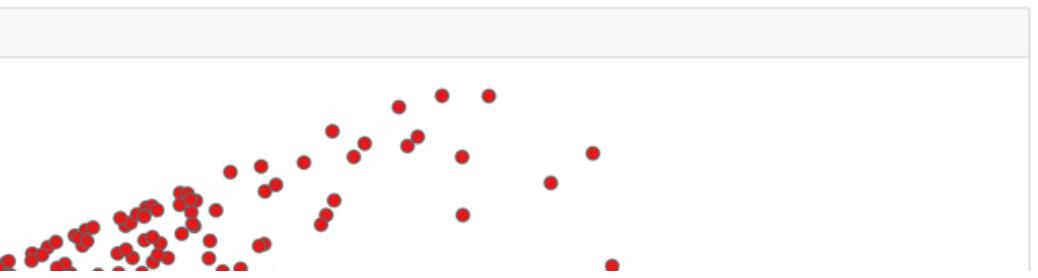
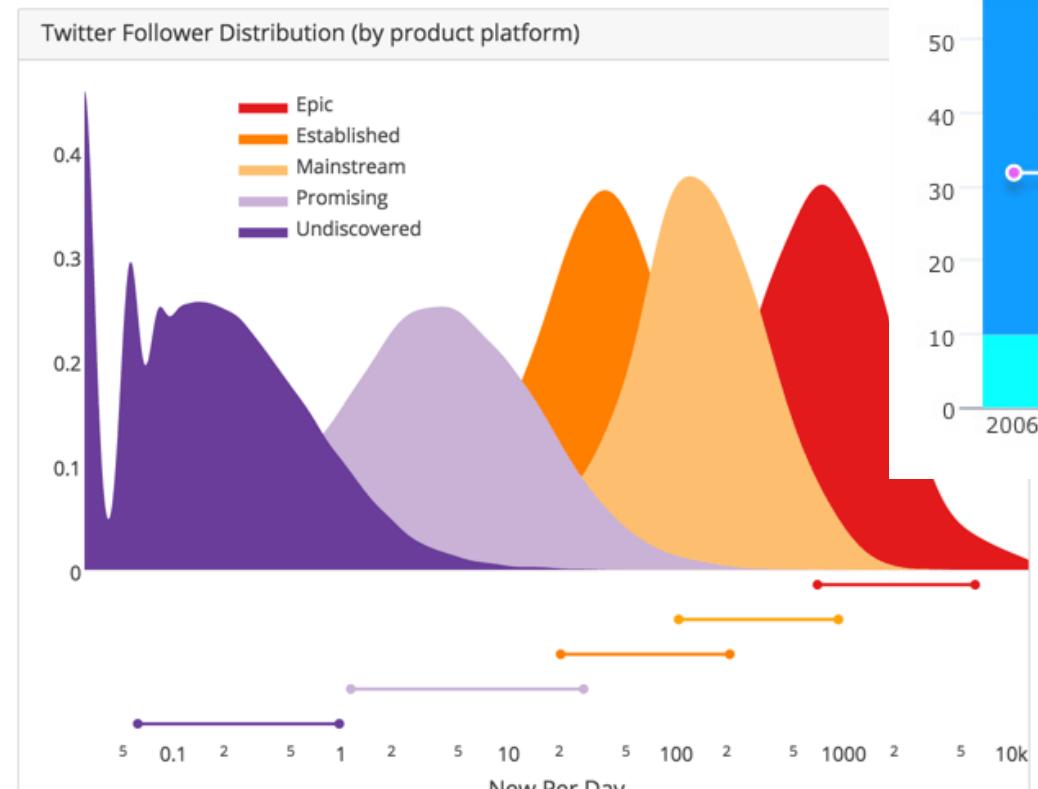
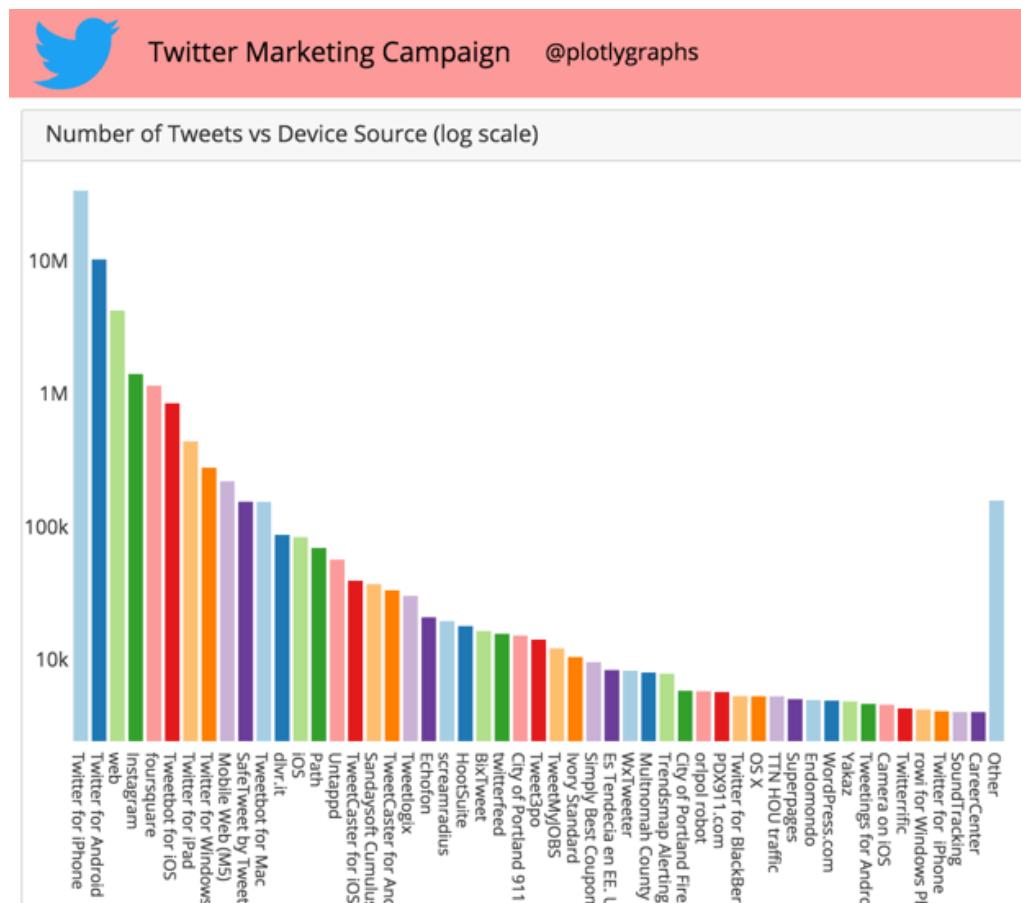
Some are better for making **maps** (geo data)

Some are better for visualising **networks and relationships**

etc, etc

Open source software for data visualisation

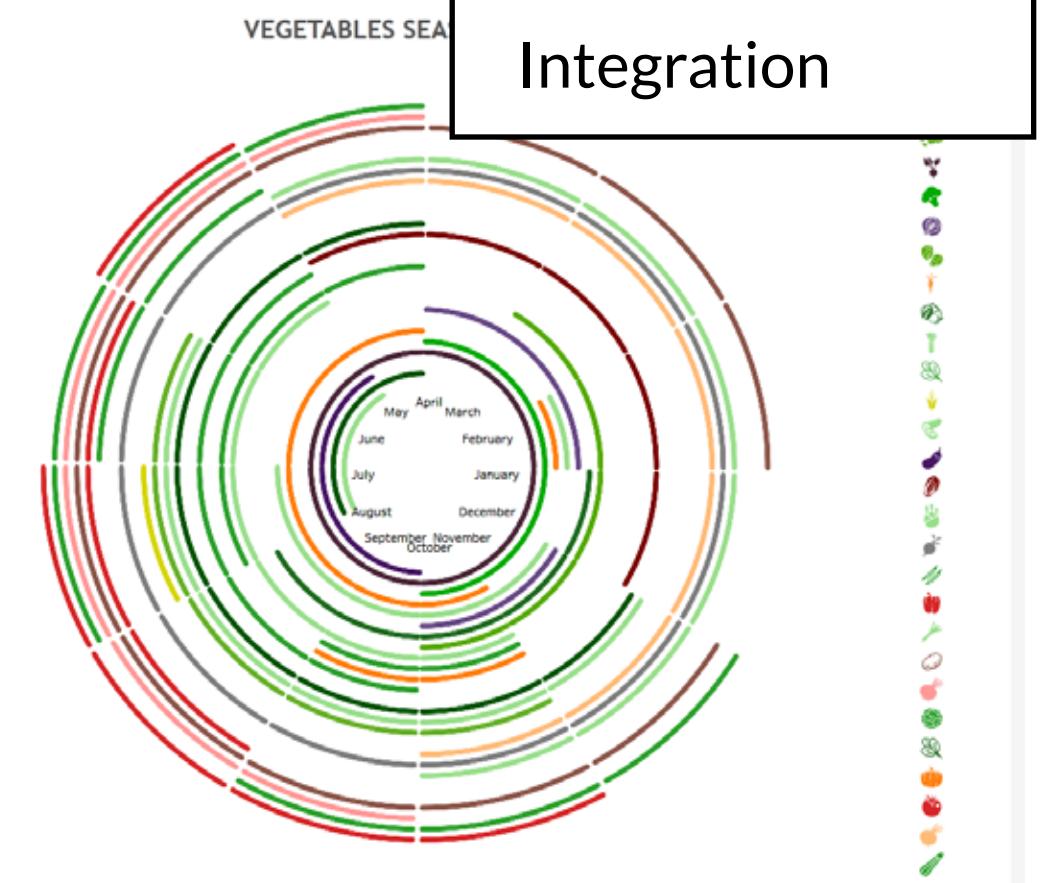
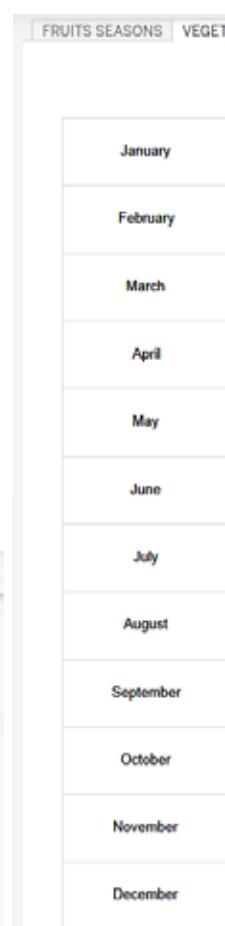
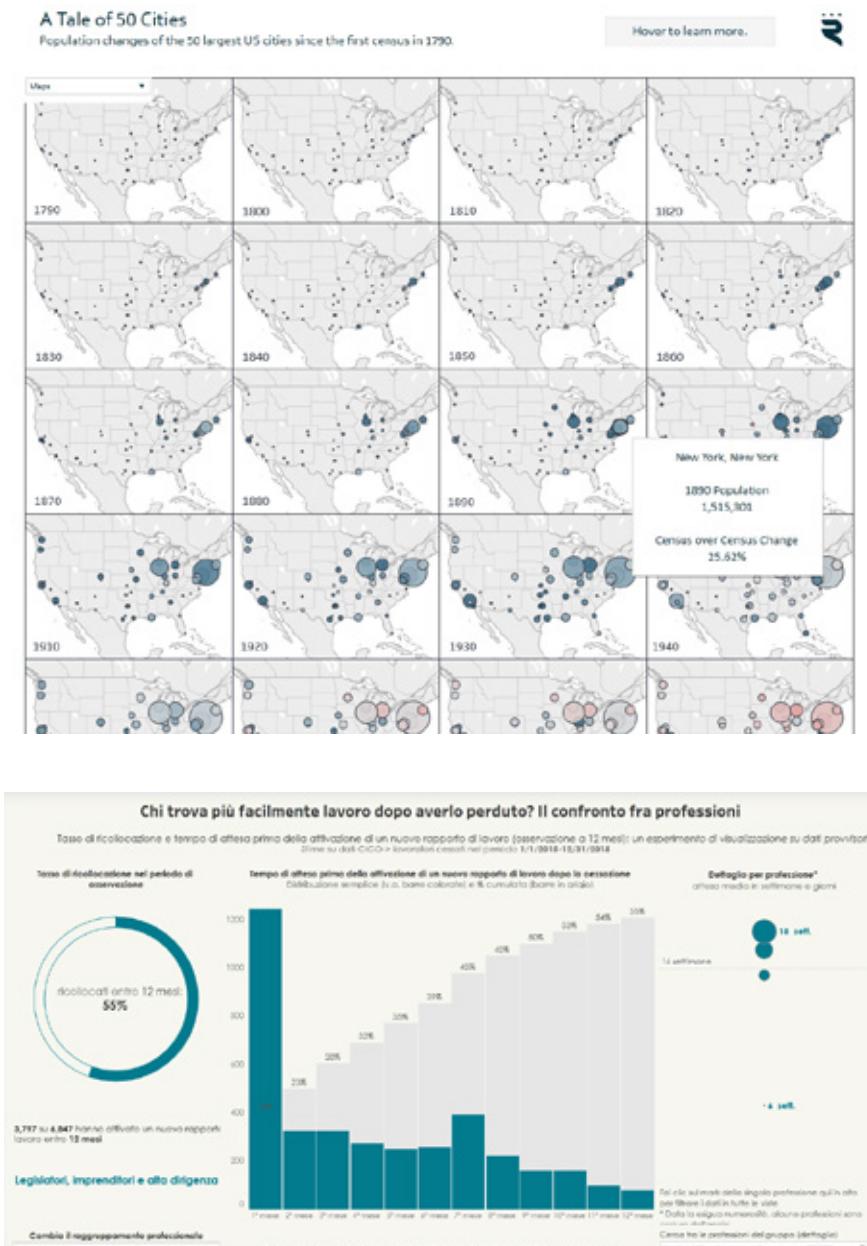
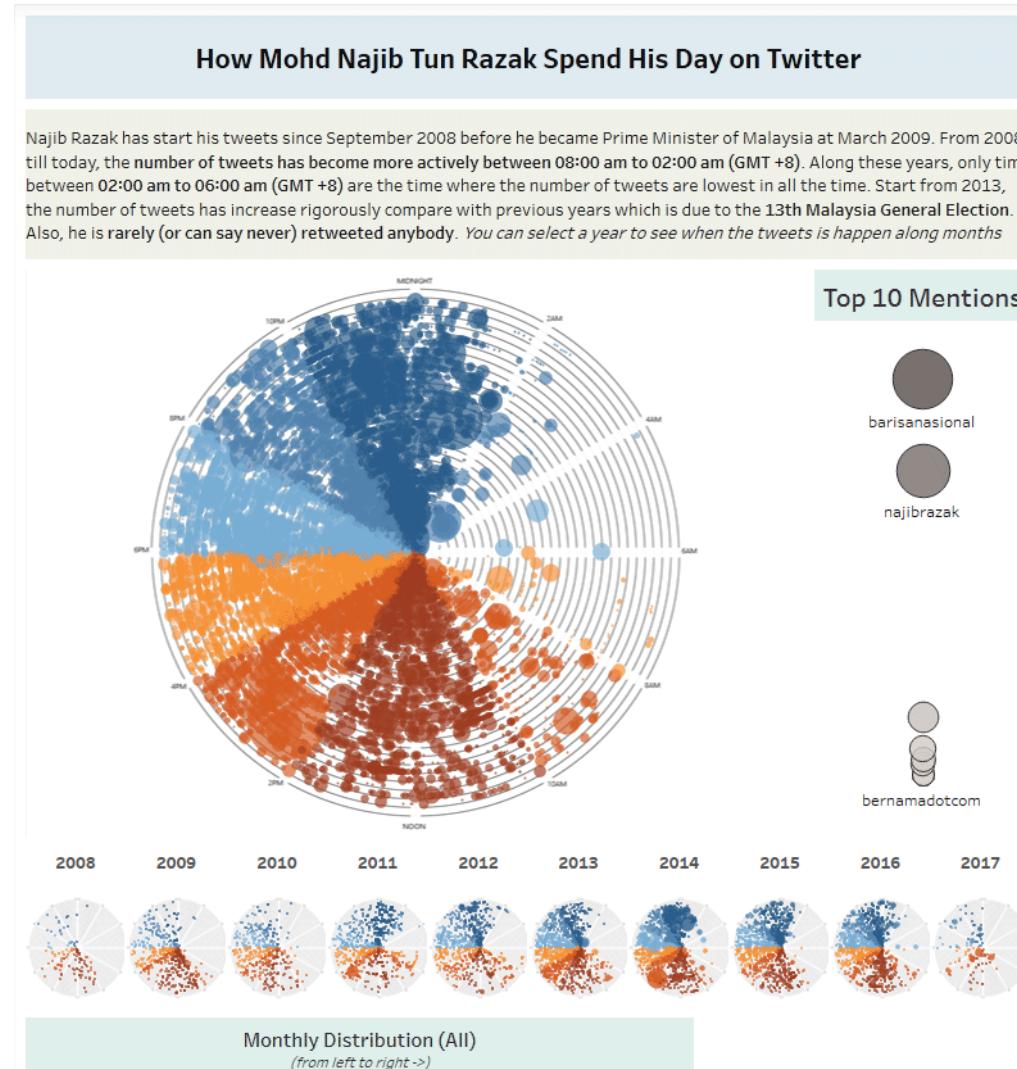
Plotly <https://plot.ly/>



UI for D3
Dashboards
Variety of graphs
Easy to use

Open source software for data visualisation

Tableau <https://public.tableau.com>



Dashboards / analytics

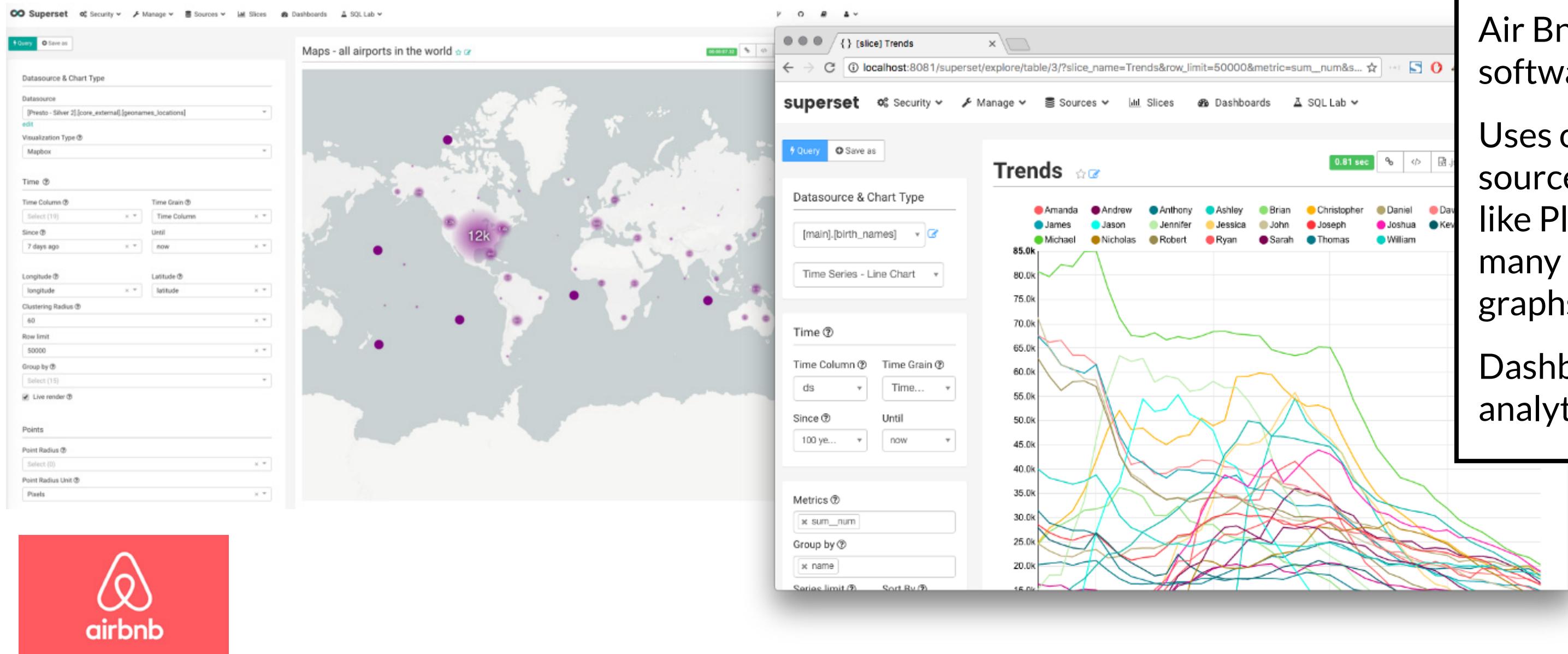
Variety of graphs

Big datasets

Integration

Open source software for data visualisation

Superset <https://github.com/apache/incubator-superset>



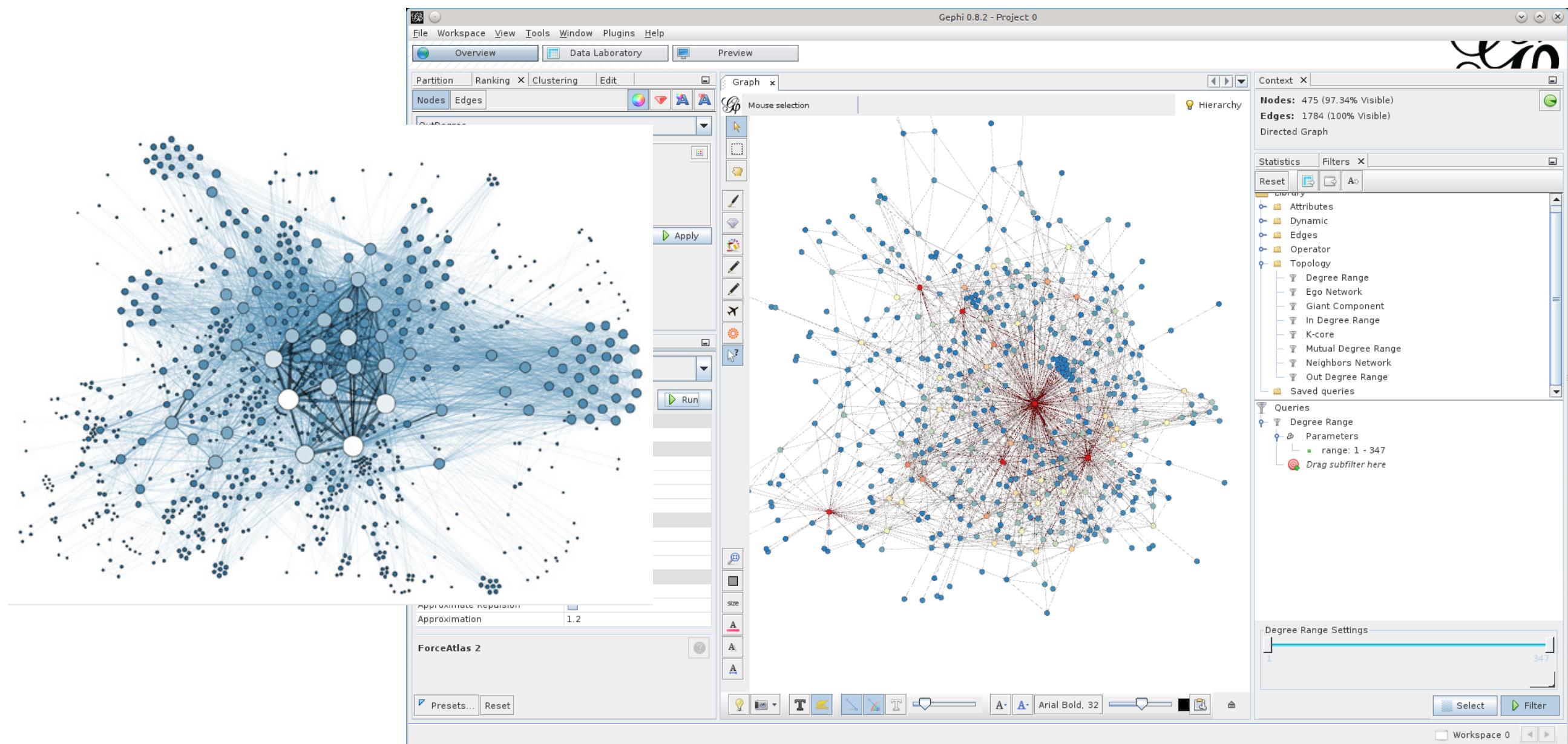
Air BnB's in-house software.

Uses other open source resources like Plotly to allow many types of graphs.

Dashboard & analytics

Open source software for data visualisation

Gephi <https://gephi.org/>

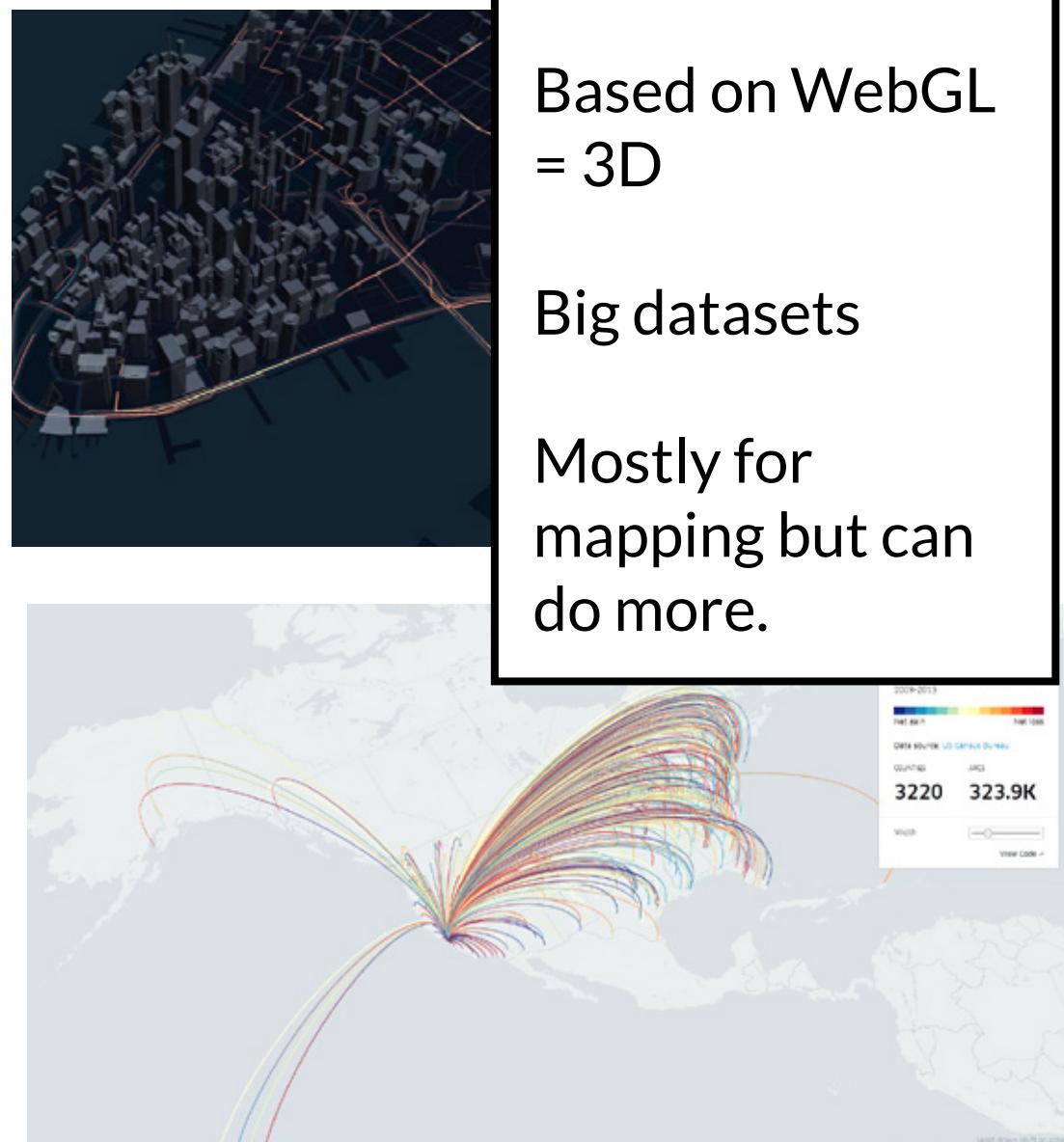
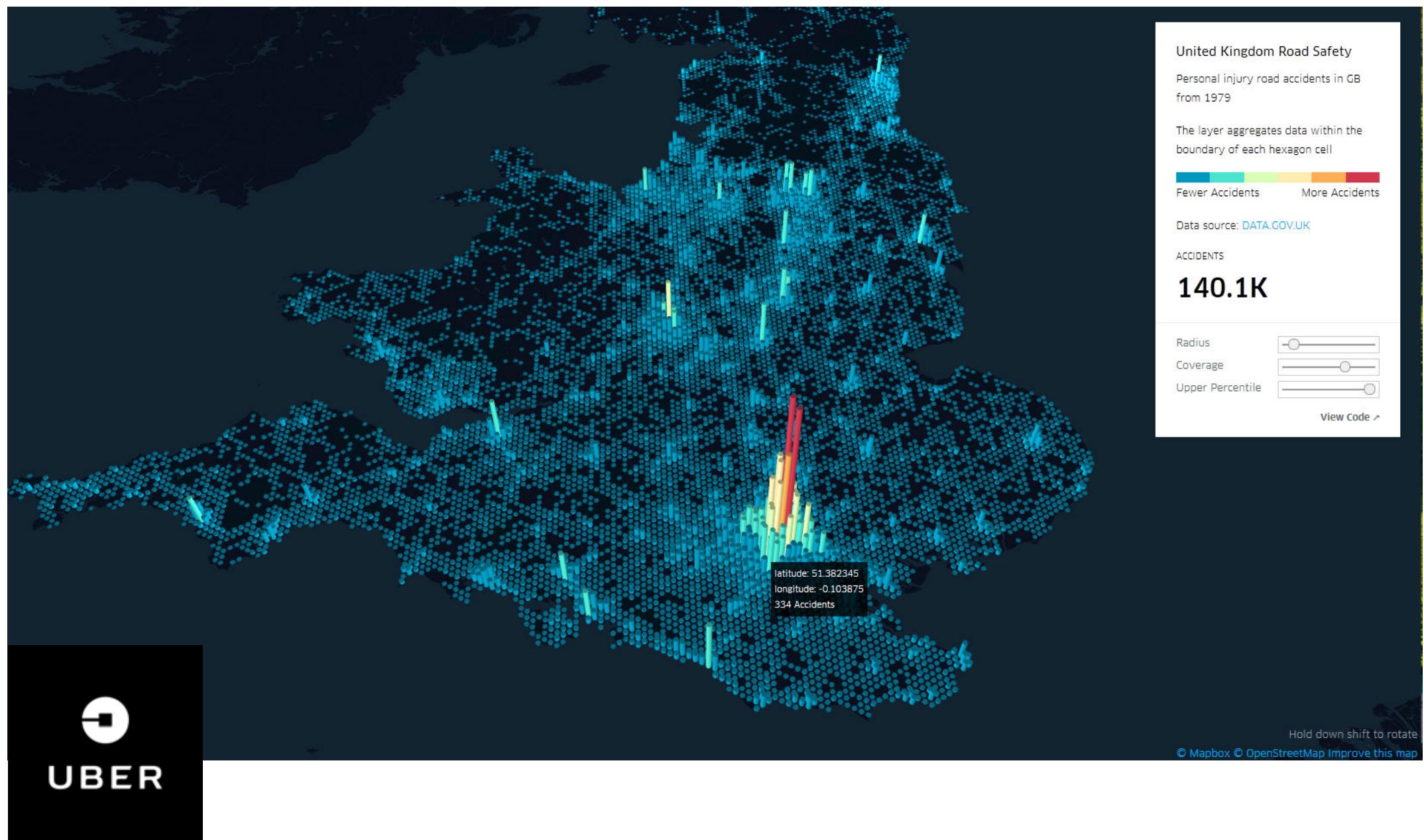


Network
visualization and
analysis



Open source software for data visualisation

deck.gl <https://uber.github.io/deck.gl>



Uber's in-house software.

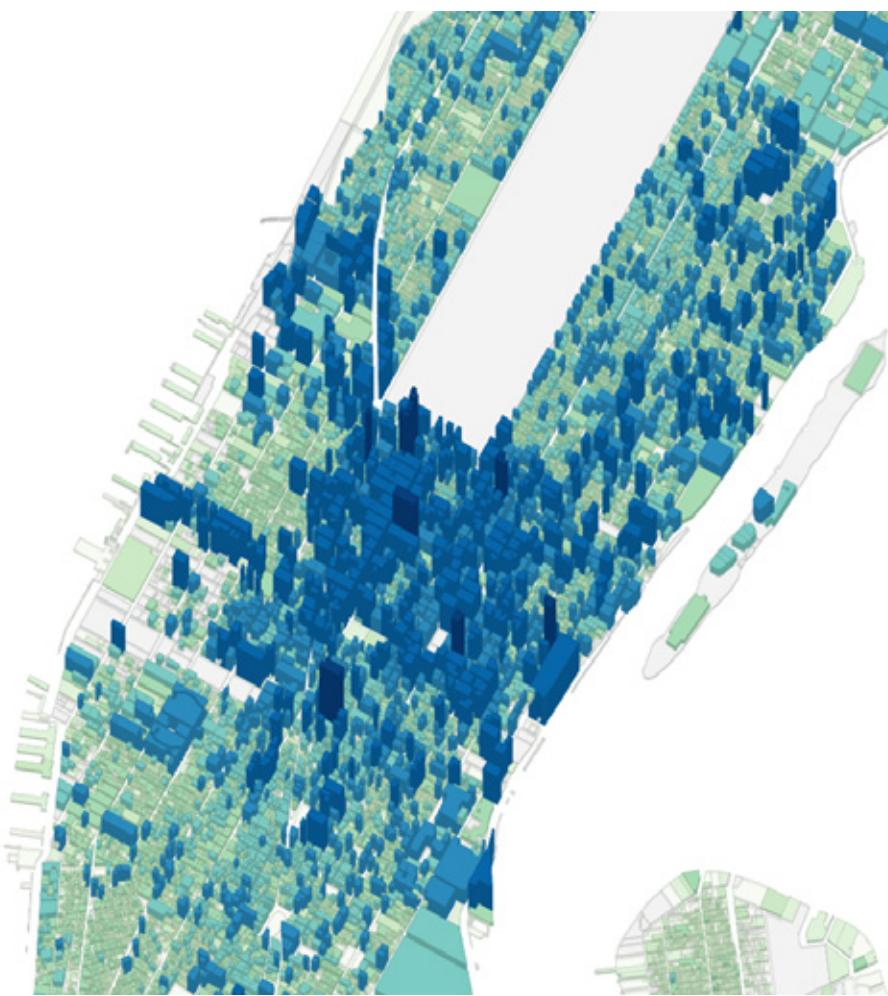
Based on WebGL = 3D

Big datasets

Mostly for mapping but can do more.

Open source software for data visualisation

Carto <https://carto.com>



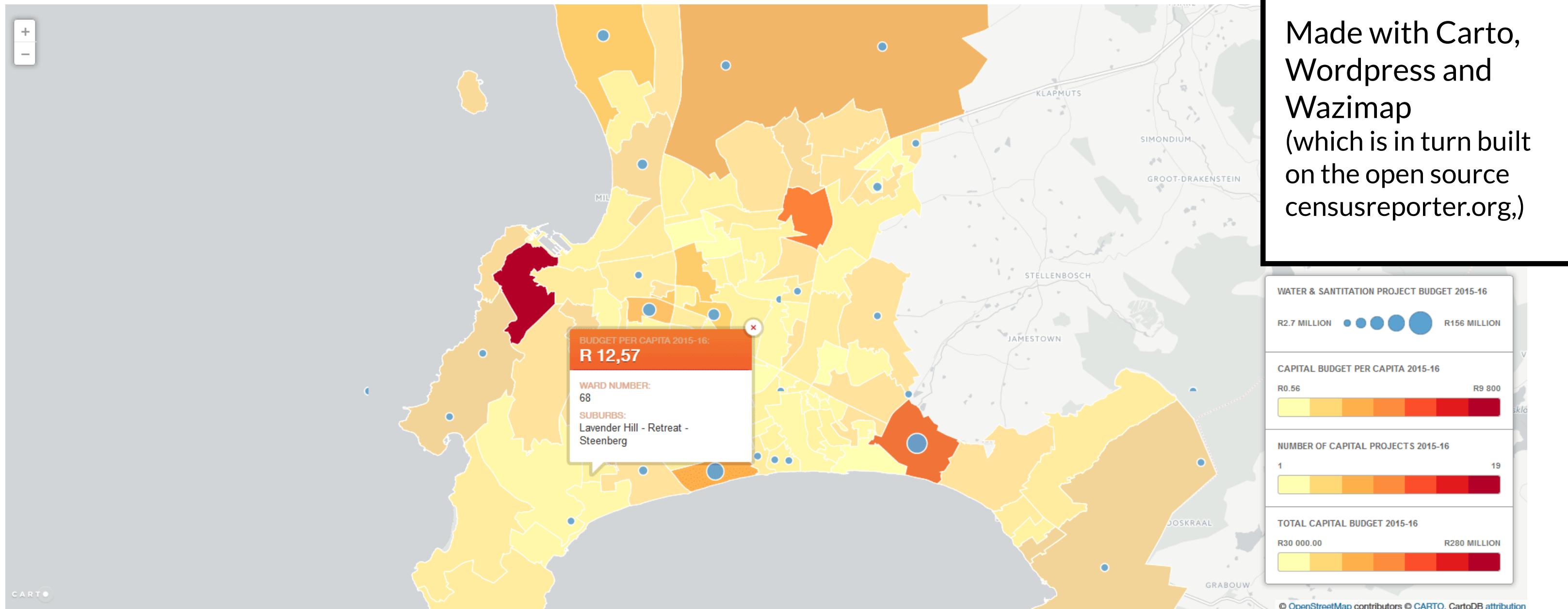
Mapping /
Geodata

Easy to use

Large datasets

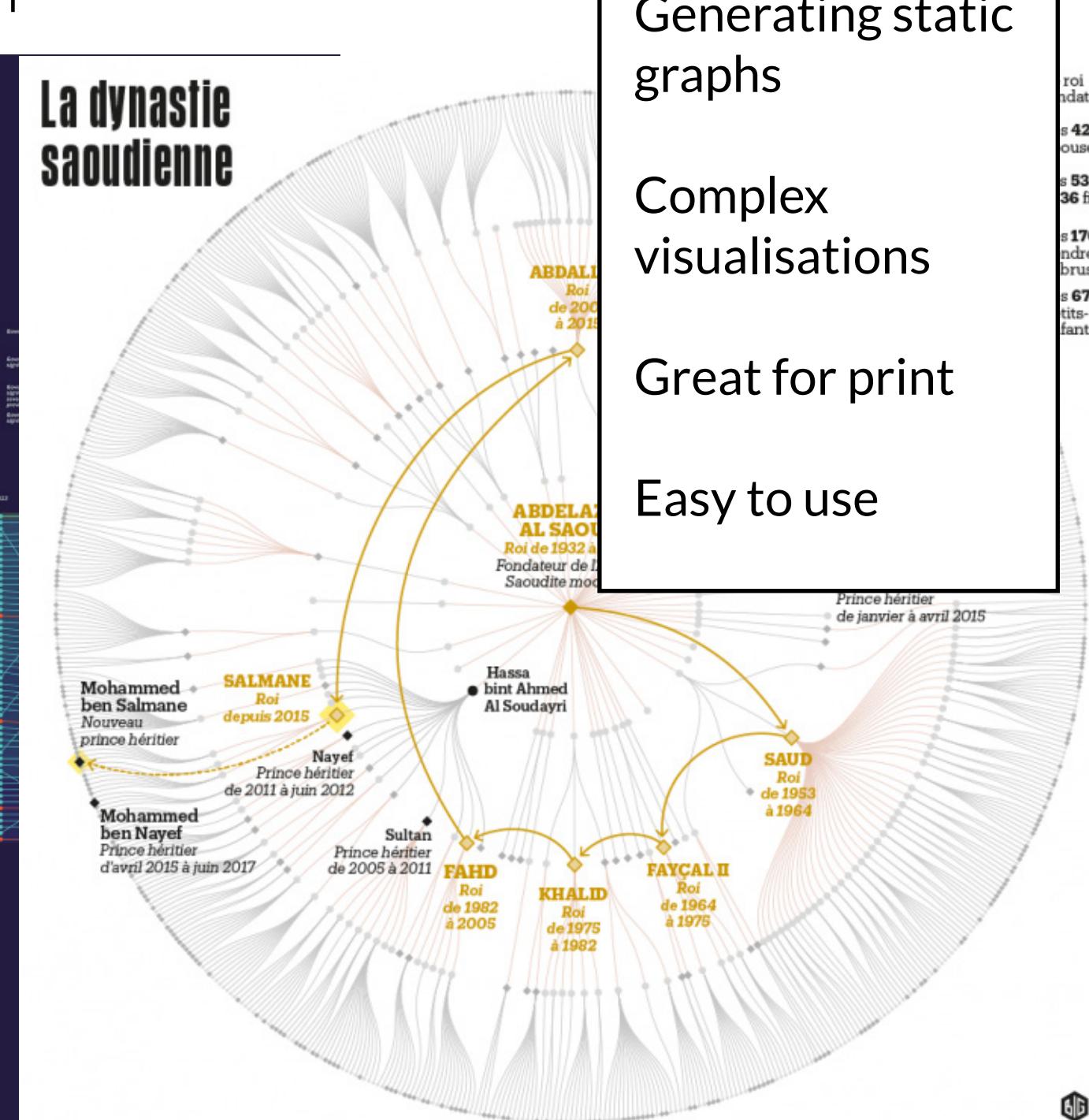
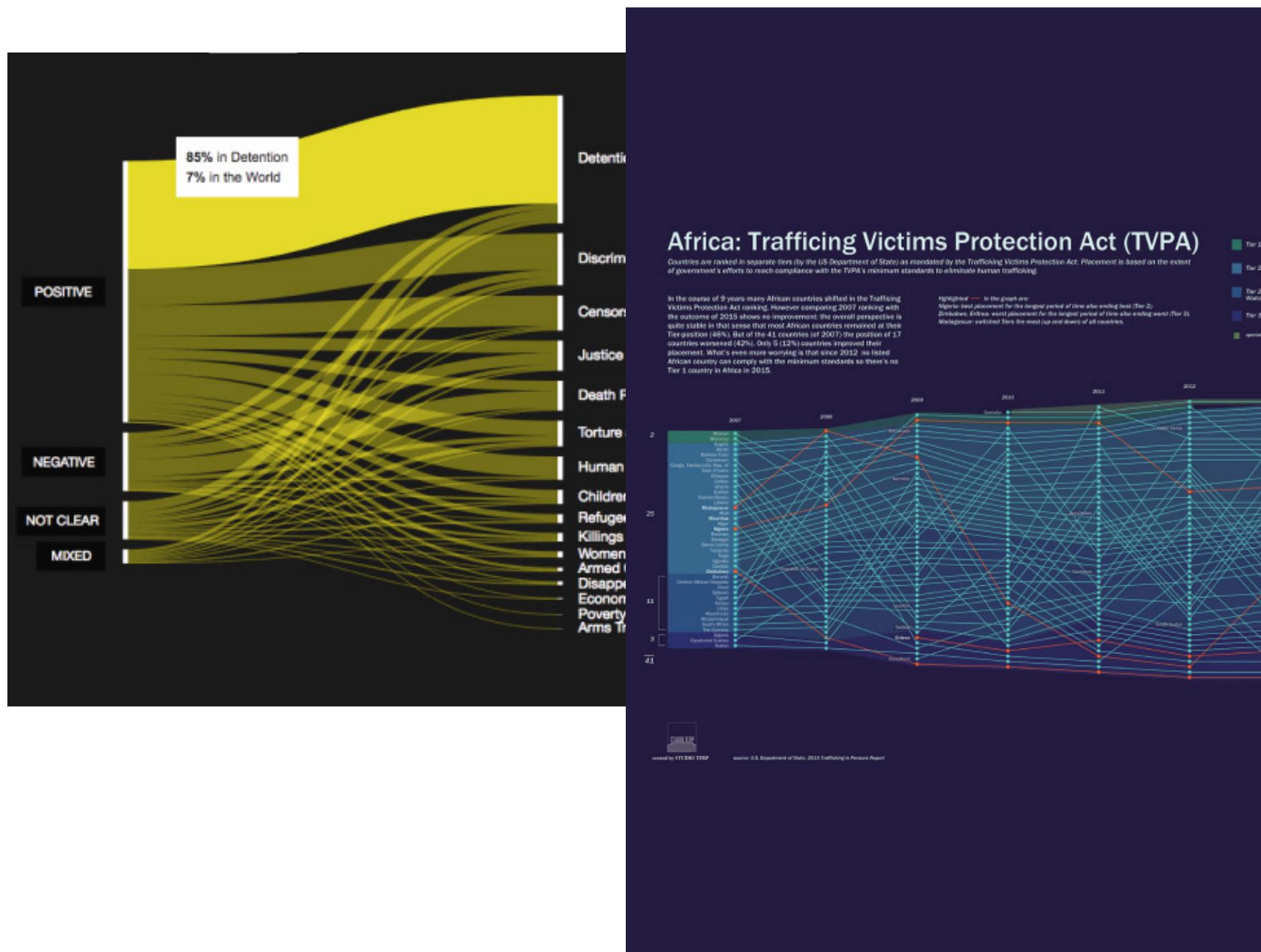
Open source software for data visualisation

Cape Town Budget Project <http://capetownbudgetproject.org.za/>



Open source software for data visualisation

RAW <http://rawgraphs.io>



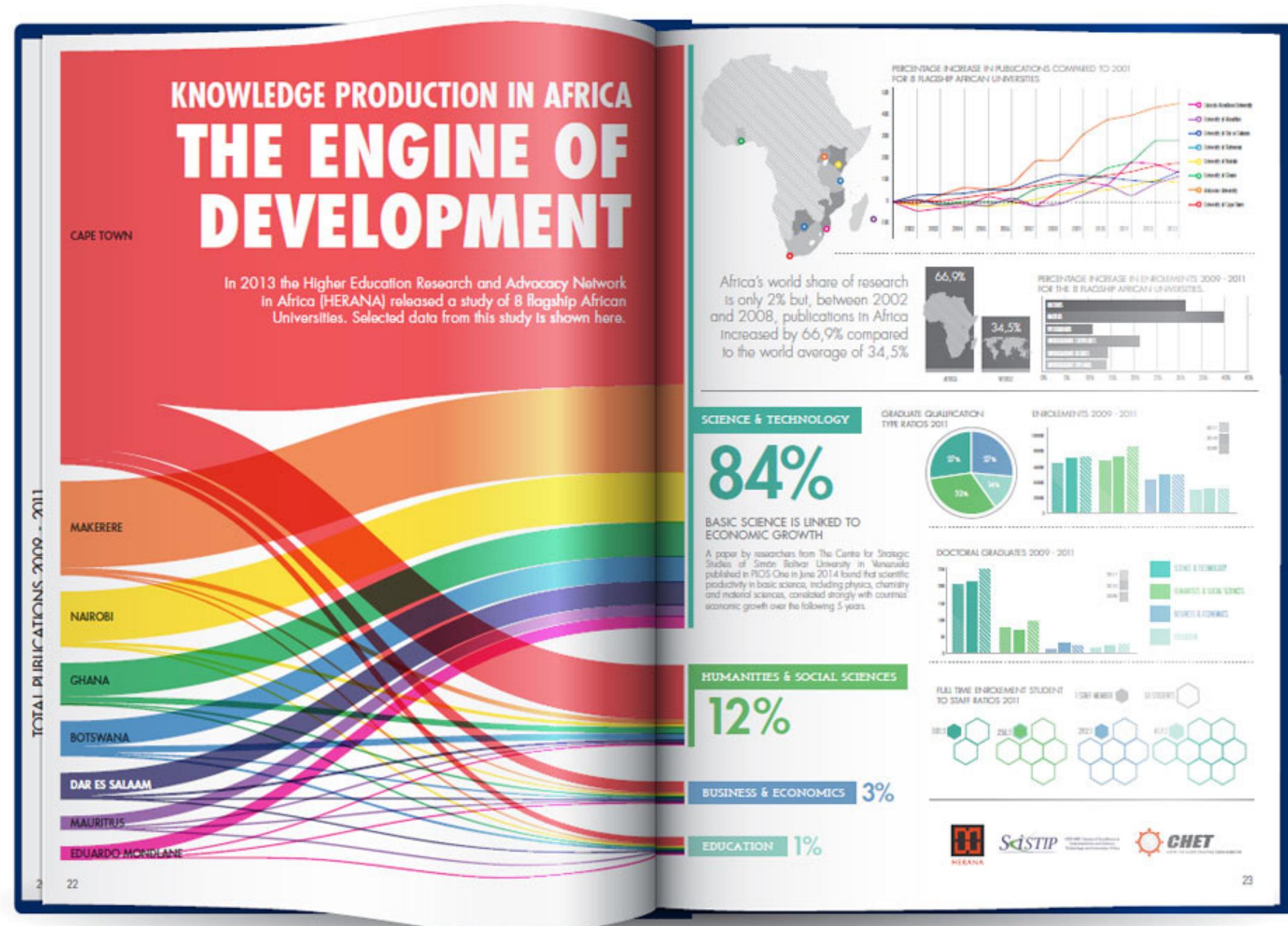
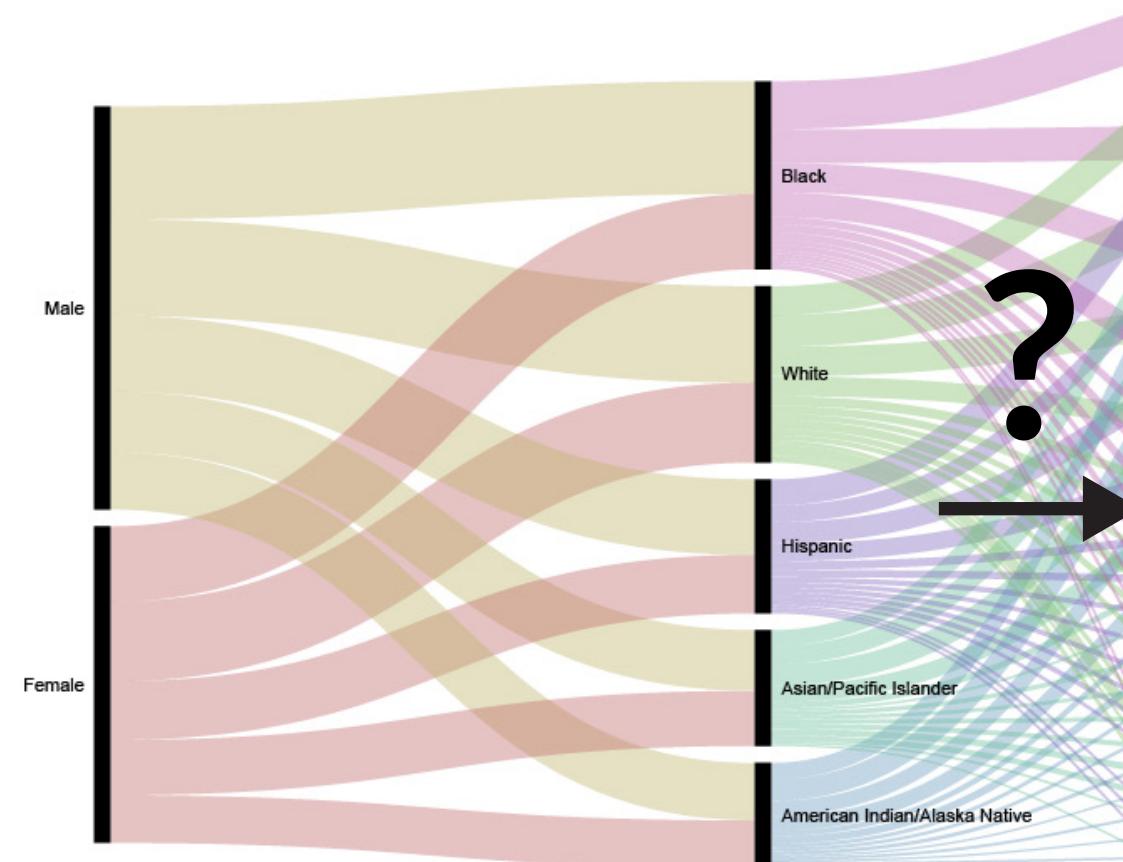
Generating static graphs

Complex visualisations

Great for print

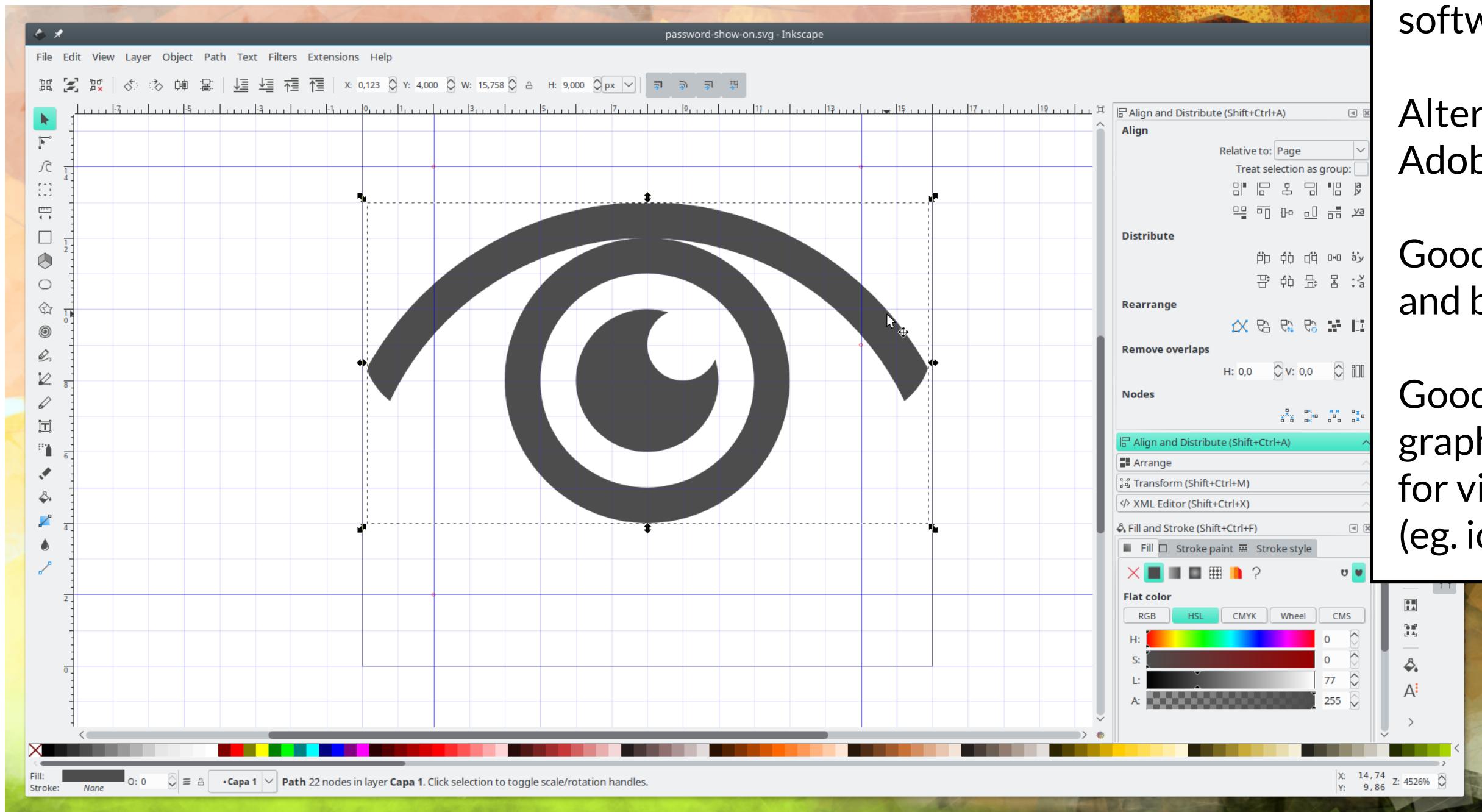
Easy to use

Open source software for data visualisation



Open source software for data visualisation

Inkscape <https://inkscape.org/>



Vector graphics
software

Alternative to
Adobe Illustrator.

Good for design
and basic layout

Good for creating
graphic elements
for visualisations
(eg. icons)

Open source software for data visualisation

GIMP <https://www.gimp.org/>

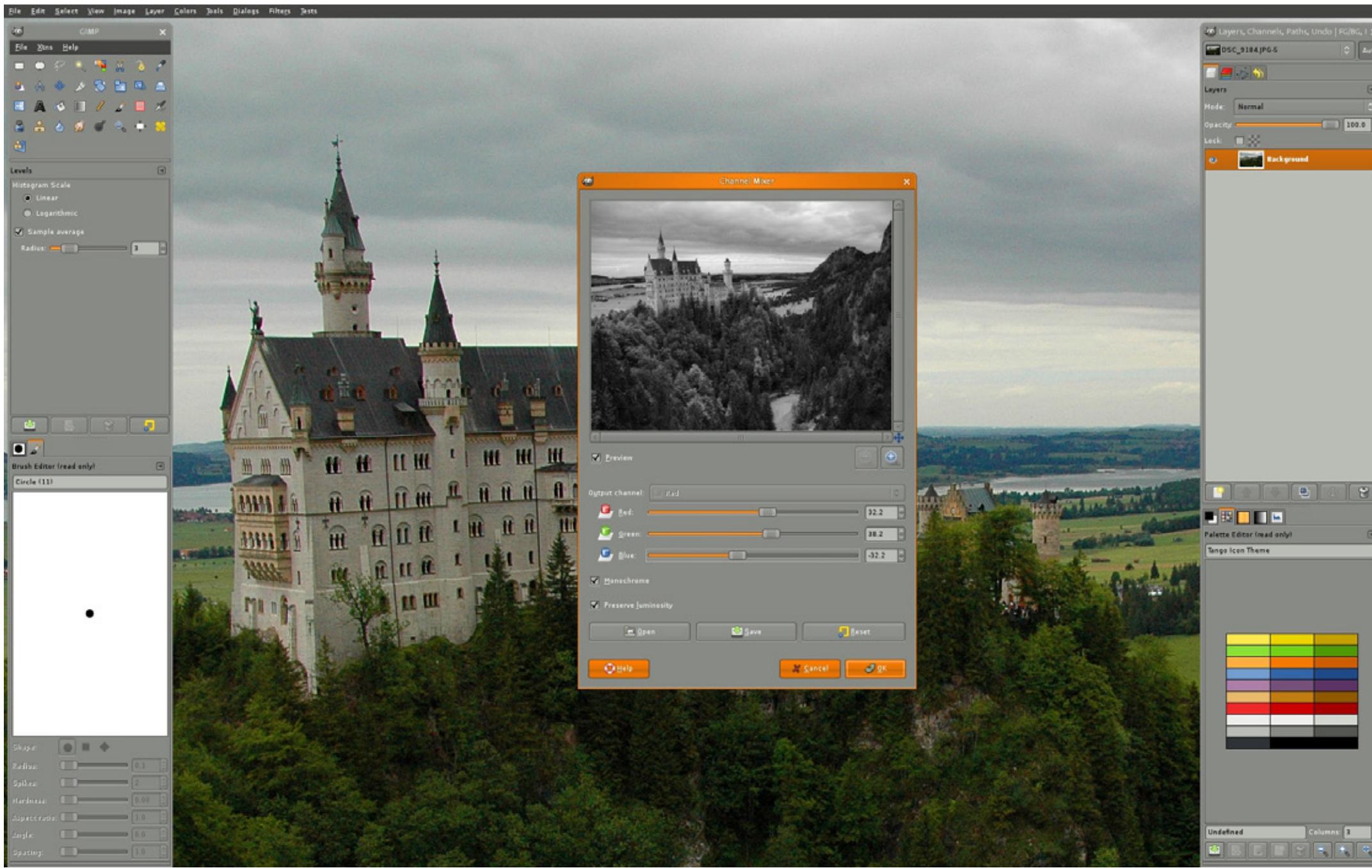


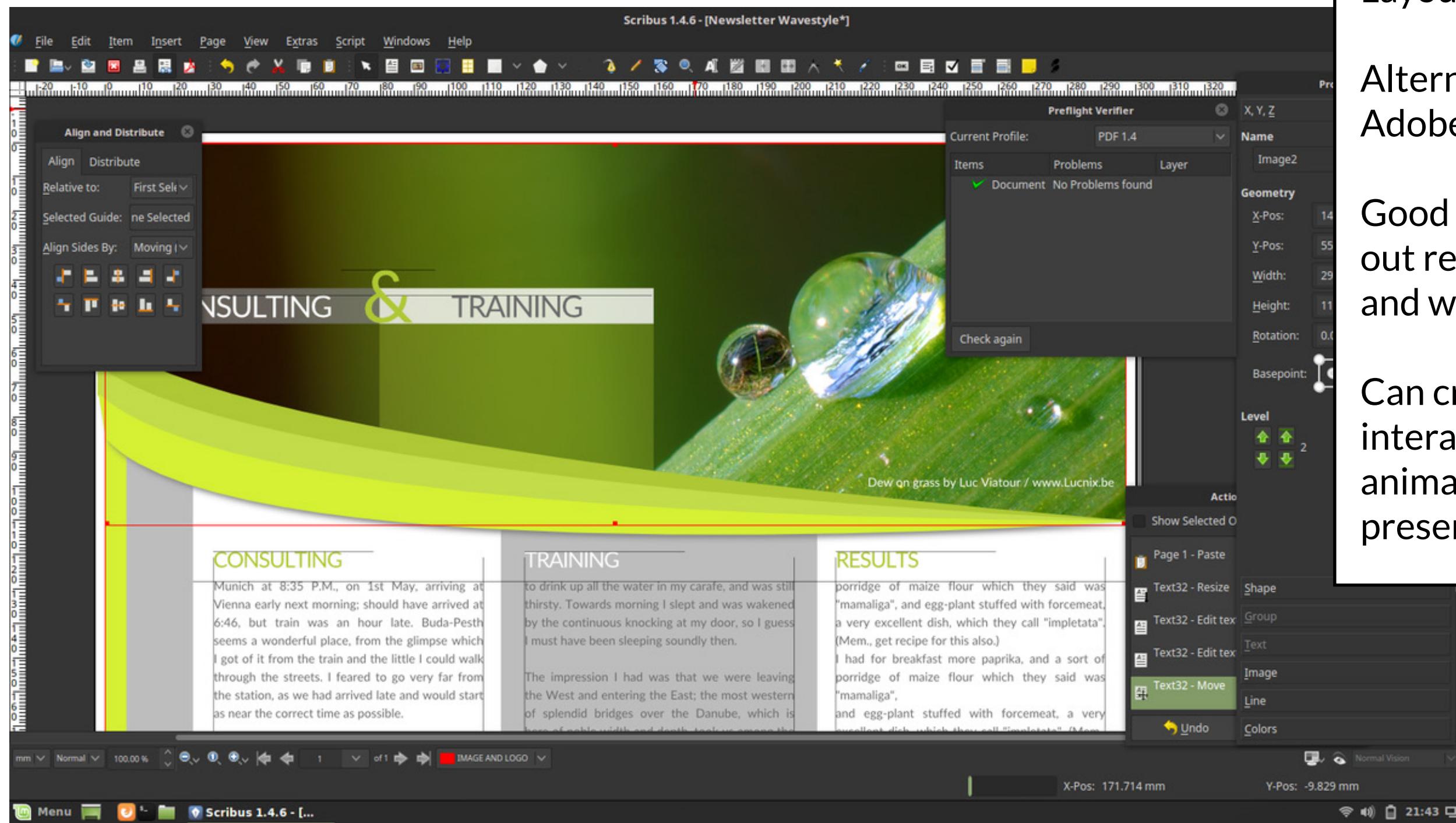
Image manipulation software

Alternative to Adobe Photoshop

Good for photo editing

Open source software for data visualisation

Scribus <https://www.scribus.net/>



Layout software

Alternative to
Adobe InDesign

Good for laying
out reports (print
and web)

Can create
interactive /
animated pdf
presentations

Open source software for data visualisation

3-D Printing & Data Sculpture



Data sculpture visualizing the vehicle theft throughout Portland - Doug McCune



Iohanna Pani.

Examples:

Sketchup

Autodesk

Blender

Cura

Repetier

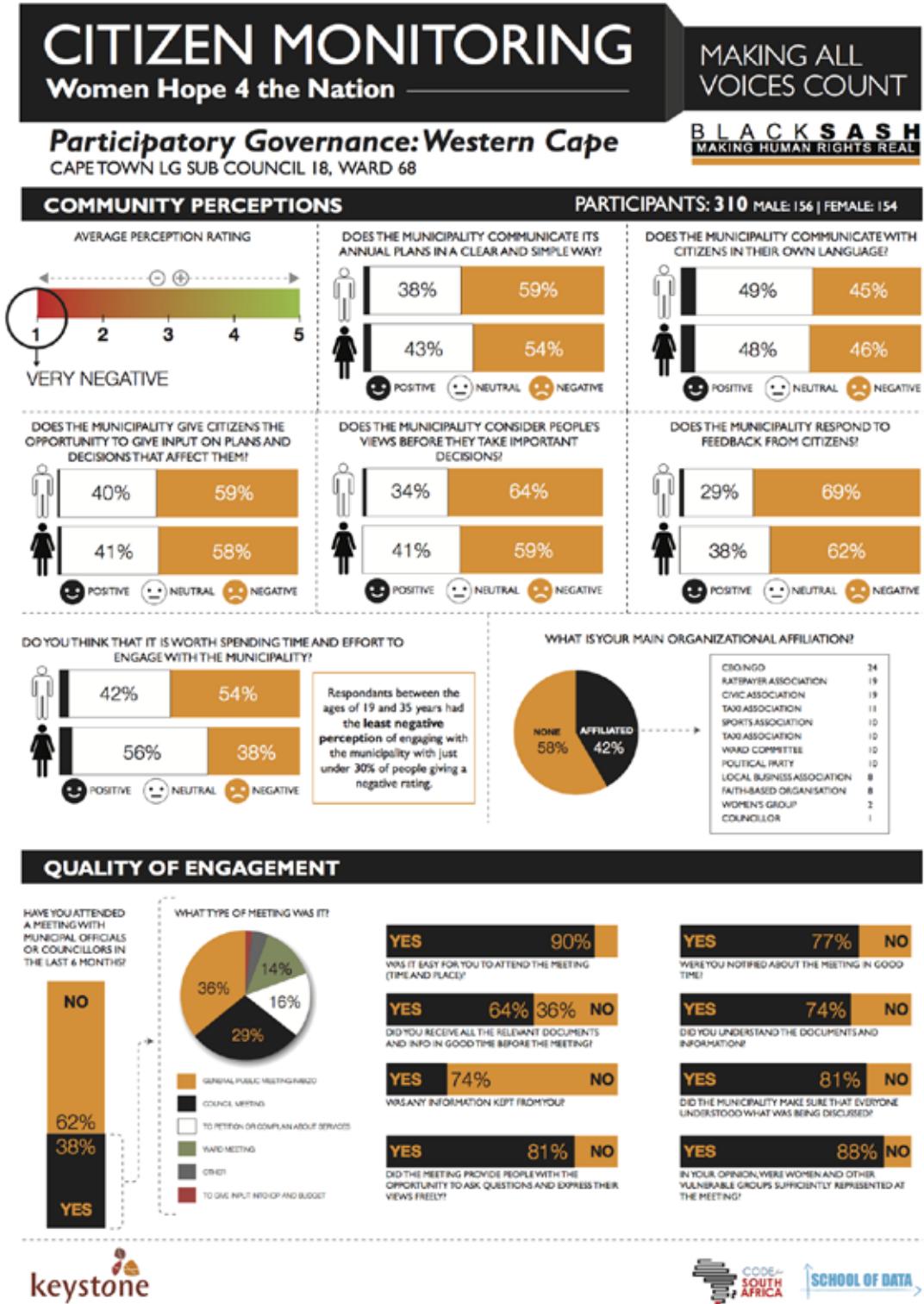
Slic3r



Stefanie Posavec and Miriam Quick - one week of air quality data measured in the city of Sheffield



Open source can be more than just software



It's about **sharing methodologies, tools and experiences** so that anyone can learn from it, adapt it for their own needs and share what they in turn have learned again.

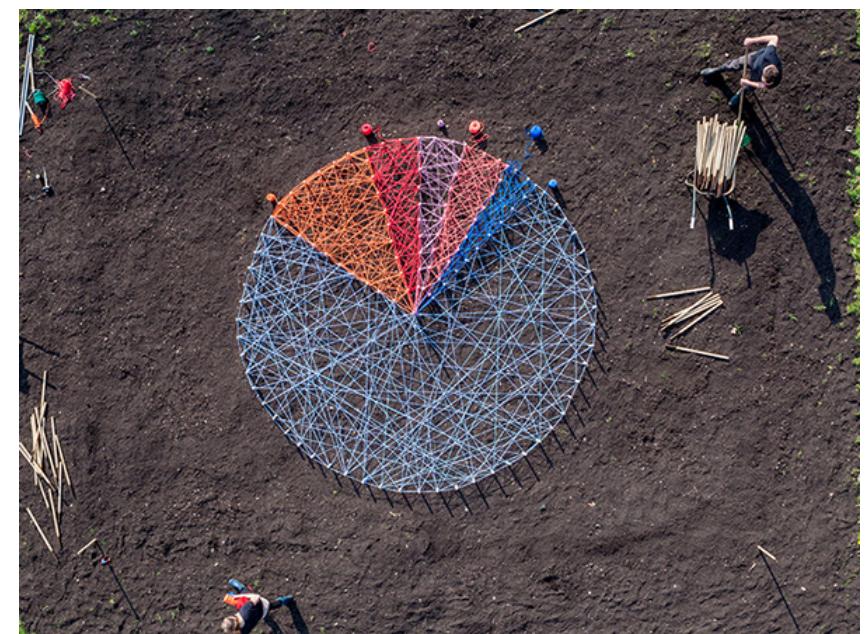
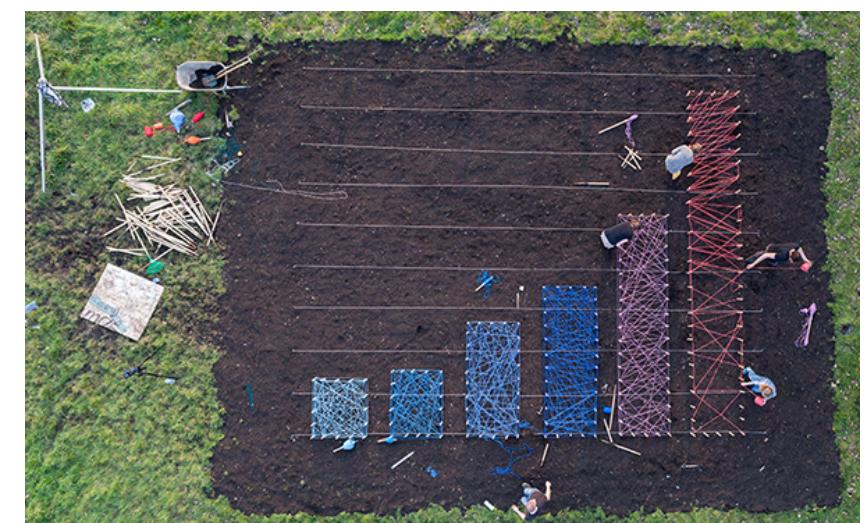


Open source can be more than just software

Physical data visualisation handmadevisuals.com, Jose Duarte



Jose Duarte



Annual report of ablynx



Try new things! Share your experiences and “source code”!
It’s the open source way :)