

Key Message

Tableau is an **intuitive, easy to use point-and-click** driven tool for **data wrangling** and **visualisation**, with the ability to easily create **interactive charts** and build **complex dashboards**.

Tableau Public is a **free to use** desktop application allowing users to use the **Tableau interface** to create **interactive charts** and **dashboards** for sharing **publically online** to the **Tableau Public cloud-based service**.

Tableau Public **does not have access to the desktop file system**, only allowing files to be **saved to the Tableau Public cloud**.



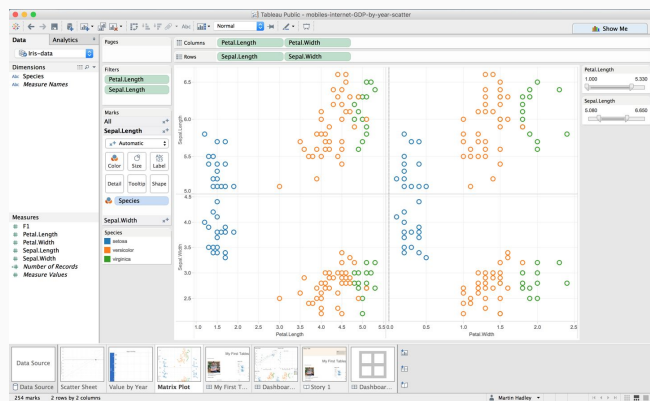
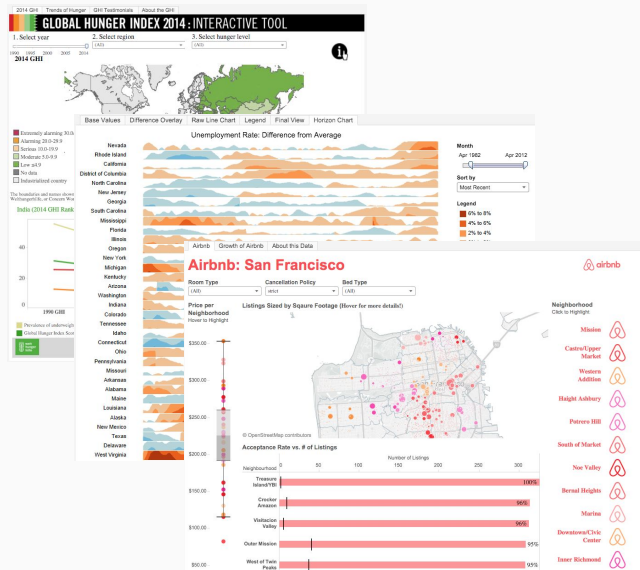
Creating Interactive Data Visualisations with Tableau Public

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Academic Research Technology Specialist

IT Services

Why Tableau?



Intuitive and Easy-to-use Interface

Easily import data from .xls, .xlsx, .csv files or directly connect to MySQL, SAP or even Hadoop clusters...

Prepare, filter and analyse data with a powerful point-and-click interface

Automated design of visual presentation

“Data science at the speed of thought”

In a file

- Tableau Data Extract
- Microsoft Access
- Microsoft Excel
- Text File
- Import from Workbook

On a server

- Tableau Server
- Action Vectorwise
- Aster Database
- Cloudera Hadoop
- DataStax Enterprise
- EMC Greenplum
- Firebird
- Google Analytics
- Google BigQuery
- Hortonworks Hadoop Hive
- HP Vertica
- IBM DB2
- IBM Netezza
- MapR Hadoop Hive
- Microsoft Analysis Services
- Microsoft PowerPivot
- Microsoft SQL Server
- MySQL
- OData
- Oracle
- Oracle Essbase
- ParAccel
- PostgreSQL
- Progress OpenEdge
- Salesforce
- SAP HANA
- SAP NetWeaver Business Warehouse
- SAP Sybase IQ
- Teradata
- Windows Azure Marketplace DataMarket
- Other Databases (ODBC)

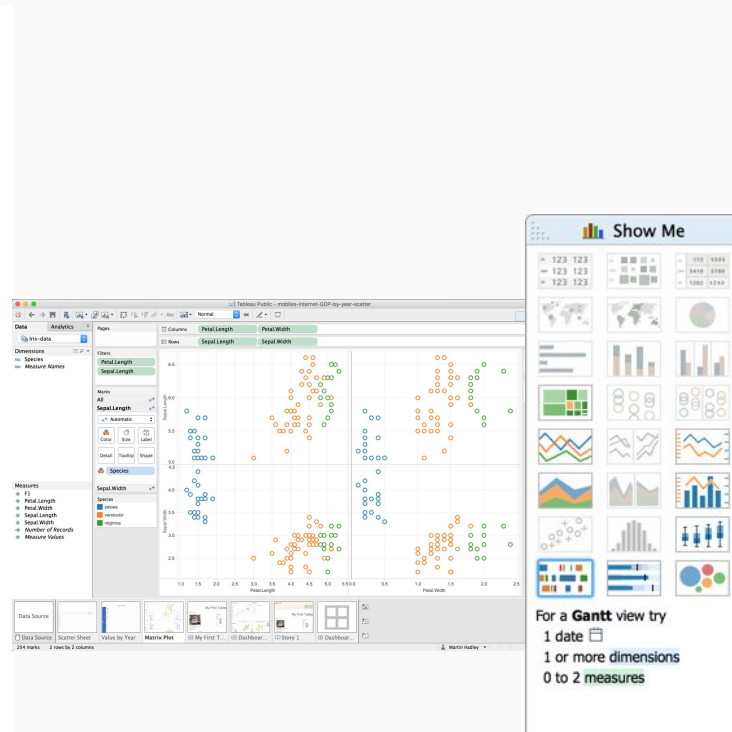


Tableau Dashboards

Combine multiple interactive charts to communicate multiple dimensional datasets

Add text and imagery to charts to add narrative to your data visualisations

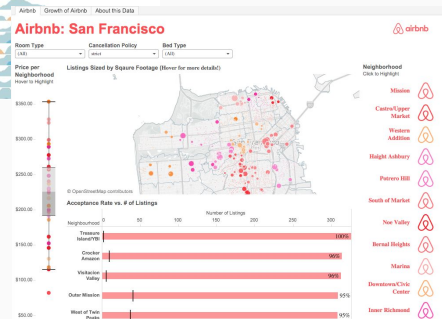
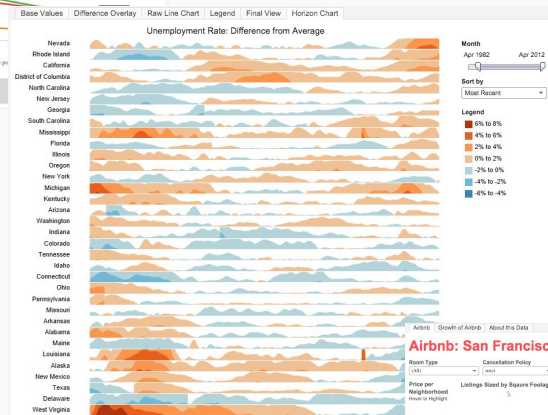
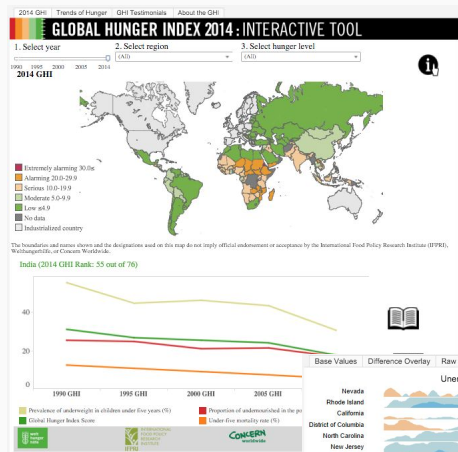


Tableau Stories

Provide further narrative for your data by combining multiple dashboards to create a Tableau Story

Boris bike availability during the recent London tube strike

Apparently this is a better position (approx 1.5 mile drive from Charing Cross). I used this to fine Central vs Outer London.	Did commuters just take them home? Looks like it!	Compared to weekday averages (data gathered over previous year), bike availability in and out of London saw a sharp drop during the strike.	Here's the typical distribution of bikes at 7pm on a given day - this was the Monday before the strike began.	24 hours later, after the strike had just started, availability in central London was down 10% as commuters used the bikes to get home.	By 1am there were basically no bikes available in central London, with commuters leaving many at the outer stations.	Commuter use of bikes at work, is in town height of
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Availability by bike station

Stations without any bikes available are not shown

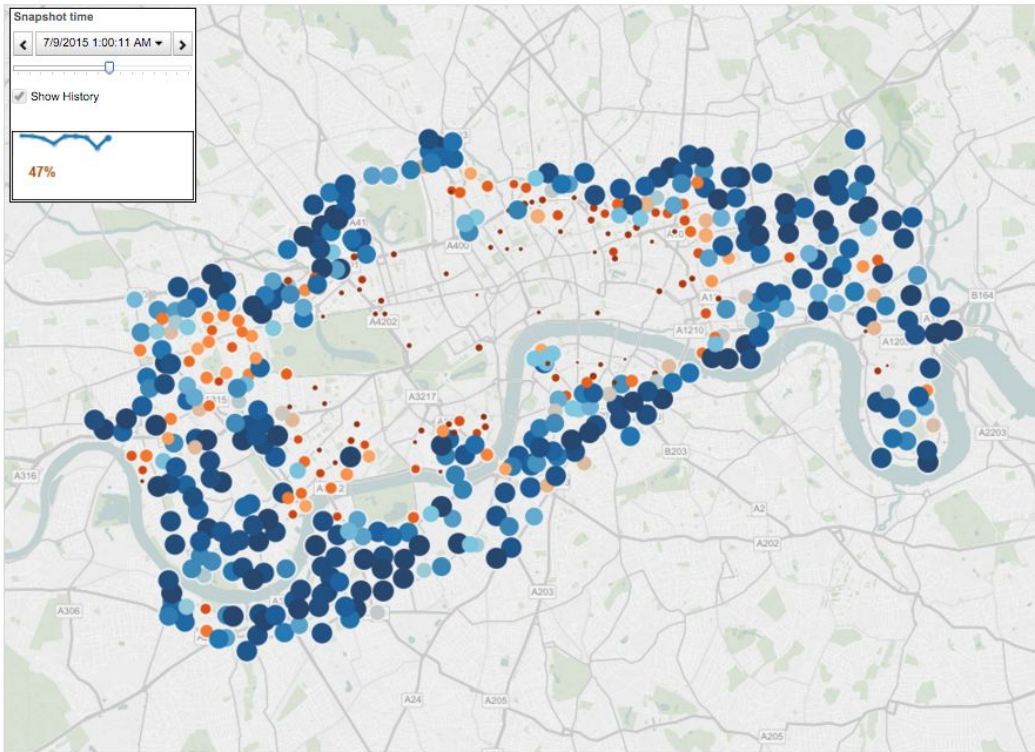


Tableau Desktop, Tableau Mobile,
Tableau Public, Tableau Reader
and Tableau Server...

The Tableau Ecosystem

Tableau Product Family

Tableau Desktop

Licensed desktop software for creating Tableau workbooks and dashboards

Tableau Server

Licensed server application allowing a Tableau dashboard to be connected to live databases

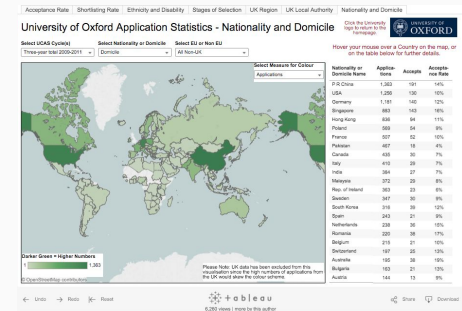


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Free software allowing users to view interactive content created using Tableau

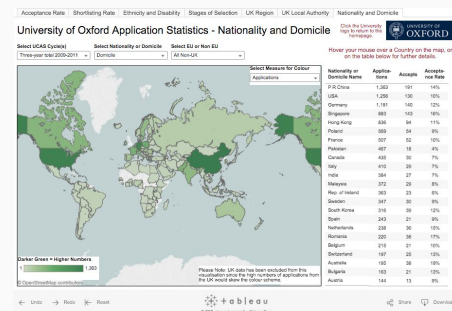


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Tableau Public

Free software for publishing interactive dashboards to Tableau's cloud-based visualisation service

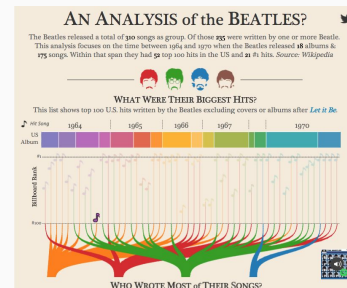
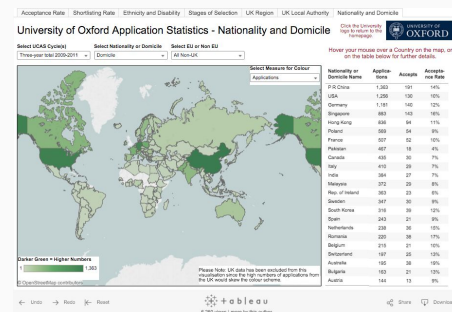


Tableau Public

Getting Tableau Public

Sign Up

Download

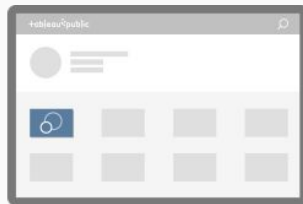
Install

Login

public.tableau.com



Import, wrangle & visualise your data in the desktop application



Publish your visualisations and dashboards to the Tableau Public gallery



Share your visualisations through social media or embed elsewhere as iframes

Getting Tableau Public

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- Files **cannot** be saved locally, only to the cloud
- All data contained in your visualisations/dashboards is uploaded to Tableau Public
- This data should be considered in the public domain
- Data and visualisations hosted by Tableau Public visualisations can be re-used without attribution

Tableau Dashboard Structure

Tableau Dashboard Structure

Workbook

Data Sources

Worksheet

Dashboard

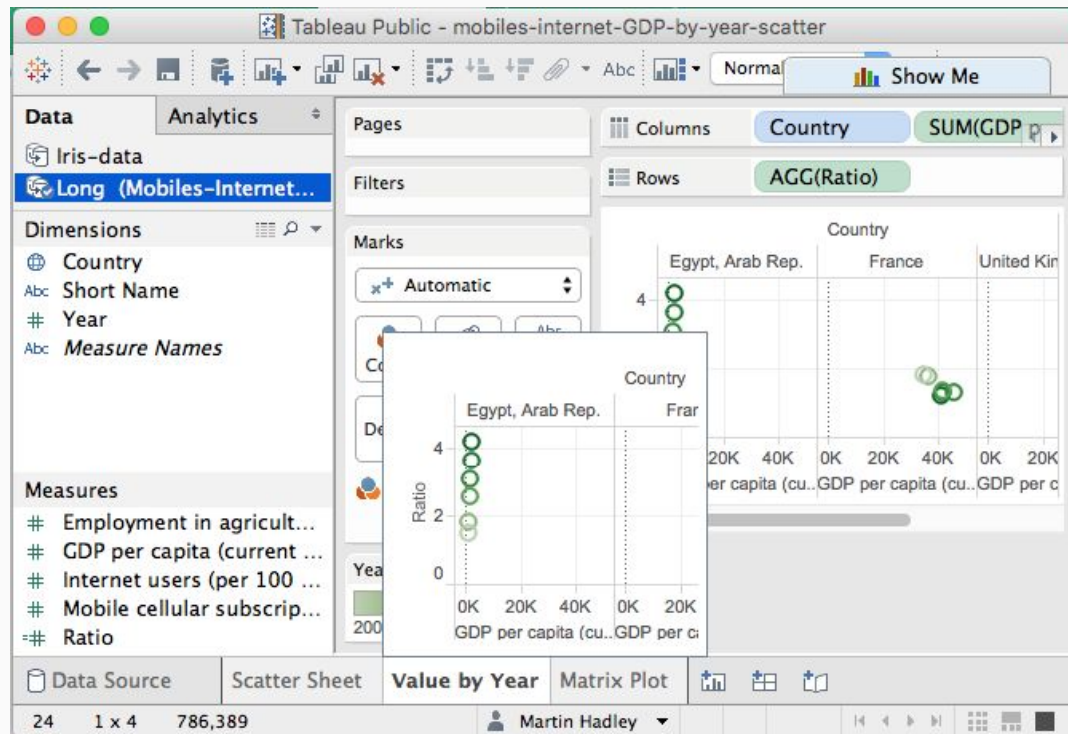


Tableau Dashboard Structure

Workbook

Data Sources

Worksheet

Dashboard

▼ Long (Mobiles-Internet-and-Farms)

Connected to Excel

Workbook
Mobiles-Internet-and-Farms.xlsx

Sheets
Enter sheet name

☒ Data
☒ Definition and Source
☒ Long

Long

Filters
0 | Add...

Copy ☐ Show aliases ☐ Show hidden fields Rows 24 ➡

Country	Short Name	Year	Mobile cellular sub...	Internet users (per ...	Employment in agri...
Long	Abc Long	# Long	# Long	# Long	# Long
United Kingdom	GBR	2005	108.592	70.0000	1.3000
United Kingdom	GBR	2006	115.600	68.8200	1.3000
United Kingdom	GBR	2007	121.102	75.0900	1.3000
United Kingdom	GBR	2008	122.186	78.3900	1.0000
United Kingdom	GBR	2009	123.955	83.5600	1.0000
United Kingdom	GBR	2010	123.625	85.0000	1.1000

Data Source | Scatter Sheet | Value by Year | Matrix Plot

Tableau Dashboard Structure

Workbook

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Worksheet

Dashboard

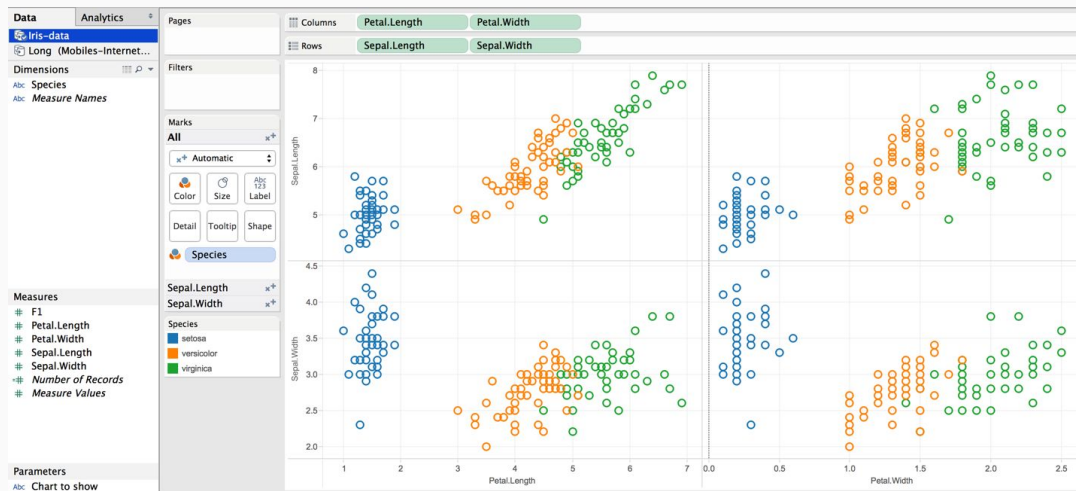


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Workbook

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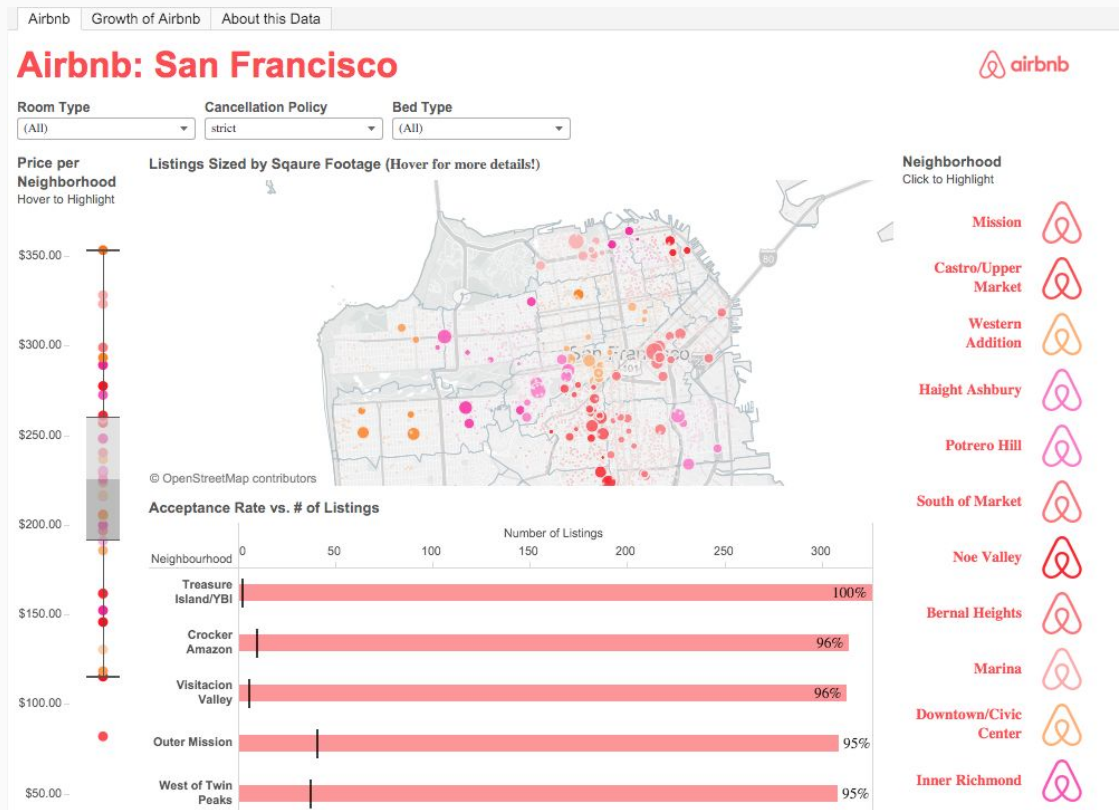


Tableau Public Demo

What shape is your data?

Wide

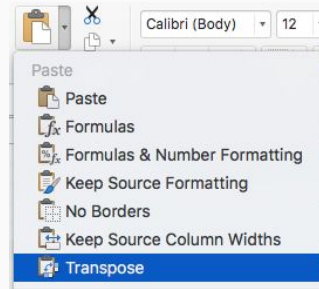
Country	Horse and Carriages (per 100) 1819	Horse and Carriages (per 100) 1820	Horse and Carriages (per 100) 1821	Horse and Carriages (per 100) 1822
UK	10	10	11	12
US	9	10	11	11

Long

Country	Year	Horse and Carriages (per 100)
UK	1819	10
UK	1820	10
UK	1821	11
UK	1822	12

Tableau wants and needs long data

Country	Horse and Carriages (per 100) 1819	Horse and Carriages (per 100) 1820	Horse and Carriages (per 100) 1821	Horse and Carriages (per 100) 1822
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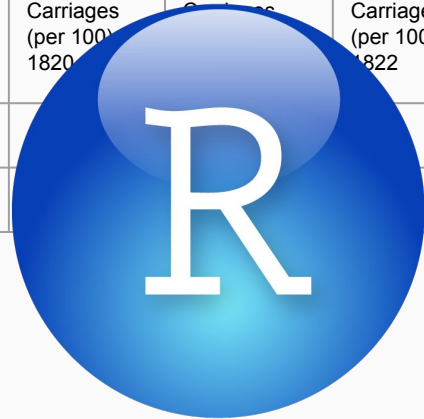


=RIGHT(B2,LEN(B2)-SEARCH(" ",B2)-1)

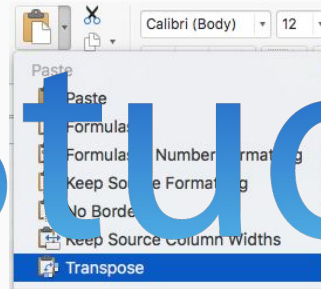
Country	Year	Horse and Carriages (per 100)
UK	1819	10
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UK	1821	11
UK	1822	12

Make this Reproducible!

Country	Horse and Carriages (per 100) 1819	Horse and Carriages (per 100) 1820	Horse and Carriages (per 100) 1821	Horse and Carriages (per 100) 1822
UK	10			
US	9			



studio



=RIGHT(B2,LEN(B2)-SEARCH(" ",B2)-1)

Country	Year	Horse and Carriages (per 100)
UK	1819	10
UK	1820	10
UK	1821	11
UK	1822	12

Tableau wants and needs long data

Country	Year	Horse and Carriages (per 100)
(Dimension)	(Dimension)	(Measure)
UK	1819	10
UK	1820	10
UK	1821	11
UK	1822	12

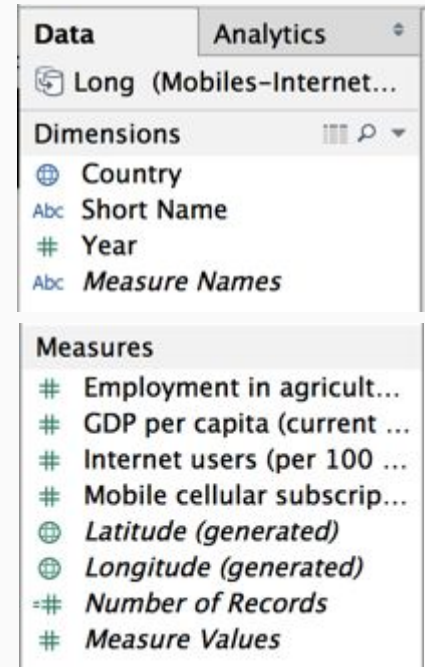


Tableau Public Demo

Region Calculated Field

```
CASE [Country.Name]
  WHEN "United Kingdom" THEN "Europe"
  WHEN "France" THEN "Europe"
  WHEN "Germany" THEN "Europe"
  WHEN "United States" THEN "North America"
  WHEN "Canada" THEN "North America"
  WHEN "Egypt" THEN "Middle East"
  WHEN "China" THEN "Asia"
  WHEN "Japan" THEN "Asia"
  ELSE "OTHER"
END
```

Tableau Public Demo

Take Away Messages

Tableau provides a powerful tool for data wrangling and visualisation.

Tableau Public is a free to use application for creating and publishing interactive visualisations.

If you're interested in working on case study with Tableau Public or other tool please contact martin.hadley@it.ox.ac.uk

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Tableau Public should only be used when the data in your visualisations can be put in the public domain

Tableau Public visualisations and data can be downloaded by anybody and be reused without attribution (though, in practice this rarely happens)*

*<https://public.tableau.com/s/data-policy>

Dragons live below this slide...

Get Data:

Countries:

UK, France, Germany
United States, Canada
China, Japan

Metrics to Take:

Mobile phones, GDP, articles
published, borrowers

Years:

1995 - 2014

```
CASE [Country.Name]
  WHEN "United Kingdom" THEN "Europe"
  WHEN "France" THEN "Europe"
  WHEN "Germany" THEN "Europe"
  WHEN "United States" THEN "North America"
  WHEN "Canada" THEN "North America"
  WHEN "Egypt" THEN "Middle East"
  WHEN "China" THEN "Asia"
  WHEN "Japan" THEN "Asia"
  ELSE "OTHER"
END
```

FIRST DASHBOARD

Simple worm chart

a. Show pages for it

2. Might be interesting to look at the year of the financial crash in 2008

3. To do that make a subset of the Year Dimension

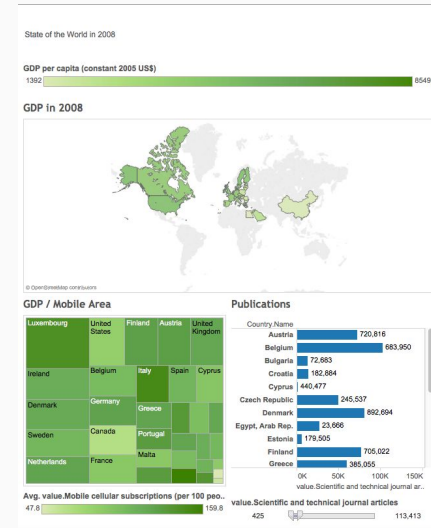
4. Make a world map for the year of the financial crash

5. Rectangle area chart with GDP and mobile use

6. Bar Chart of publications

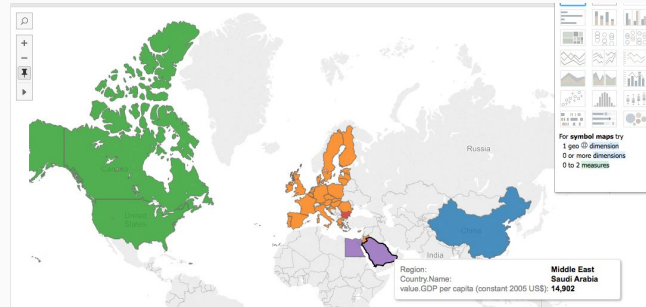
7. Make into a dashboard

8. Add a quick filter to the Publications



Regions and Parameters

1. Duplicate the world map
2. Create a calculated field called region
3. Add information to the tooltip
4. Duplicate Area and Publications
5. Duplicate dashboard
6. Wouldn't it be nice to be able to switch between regions and countries?
7. Create a Parameter
8. Create a calculated field based on the parameter
9. Add this to the worksheets



```
CASE [Country.Name]
  WHEN "United Kingdom" THEN
    "Europe"
  WHEN "France" THEN "Europe"
  WHEN "Germany" THEN
    "Europe"
  WHEN "United States" THEN
    "North America"
  WHEN "Canada" THEN "North
    America"
  WHEN "Egypt" THEN "Middle
    East"
  WHEN "China" THEN "Asia"
  WHEN "Japan" THEN "Asia"
  ELSE "OTHER"
END
```

Story

1. Combine into a story!
2. Upload!

1995 - 2014



State of the World in 2008

Region GDP in 2008



Region

- Asia
- Europe
- Middle East
- North America
- OTHER

Region or ..

Region Area



Region Publications

