10 HASS Data Things

Powered by Tinker

Introduction

10 HASS (Humanities, Arts and Social Sciences) Data Things is an opportunity to explore issues surrounding management of research data, specifically for people working with HASS data.

This program was developed from the 23 (research data) Things program and the extensive ANDS resources and materials related to research data management and reuse.

Who can use 10 HASS Data Things?

This program is for HASS researchers who are interested in learning more about how to use, create, store and manage research data. Currently HASS researchers have varying skill levels in this domain, from those who are just starting out to those who are already working with large datasets. The 10 HASS Data Things included here are to help you start out, and point you in the right direction if you are keen to find out more. You can always extend your knowledge by doing the full set of 23 Things!

How can I work through these 10 HASS Data Things?

- All Things have a choice of activities. You can choose activities to suit your interests.
- You can do as many or as few of the Things and activities as you want to do, or need to know.
- Some of the activities are intended as an introduction to a topic and some delve a little deeper. Choose what interests you and suits your experience.
- You can work through activities on your own at your own pace or in a group.
- Set aside some time each week to do one Thing or do a 'Crash course' and work through them all in a few hours.

In a group

- Include those Things and Activities which are of interest to your group.
- Change the 'Consider' question/prompt at the end of each activity to 'Discuss'.

Please note: this is a snapshot in time - research data as it was in 2018. You may need to check resources and update resources and links to include more recent initiatives and policy changes.

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ATTRIBUTIONS: We wish to acknowledge Helene Blowers who created the original 23 Things (2006) and Michael Witt who developed 23 Things: Libraries for Research data (2015). The 10 HASS data things was developed by Sara King with the assistance of HASS DEVL project partners and the ARDC.

About Tinker

Tinker is an online platform that gives Humanities, Arts and Social Sciences researchers easy access to a workbench of digital tools, supported by user training and opportunities for sharing workflows, best practice and case studies.

www.tinker.edu.au

HASS Digital Champions

The HASS Digital Champions program is an innovative training and skills development program for university lecturers, researchers and industry professionals. The program has been developed to enhance the translation of Australia's eResearch infrastructure to the HASS community by educating and upskilling the next generation of HASS researchers.

Tinker is supported by:

Thing 1: What is research data?

Everything. Research data comes in many shapes and sizes. Research practice itself changes over time and therefore research data itself can change over time. Digital data for instance did not exist a hundred years ago. But now it is ubiquitous.

Activity 1: What "research data" are we talking about?

1. Read the Defining Research Data section from University of Oregon library - note that for data to be reusable the data collection and collation/preparation often needs to include algorithms, scripts, software. It's not 'just data'.
2. For more about Humanities Research Data, read this page from Lafayette College.
3. Then open up the dataset details in these repositories:
    a. data.gov.au
    b. Research Data Australia Humanities and Social Sciences collections
    c. Research Data Australia Cultures and Communities collections
    d. Trove
    e. Australian Data Archive
    f. AURIN
    g. Analysis & Policy Observatory (APO)
    h. National Centre for Longitudinal Data (NCLD) (via Dataverse)
    i. National Museum of Australia

Consider:

Would you consider, digital images, texts, sound recordings, web sites, or a 3D computer model to be 'data'?

For those who want more:

What else can be considered as 'research data'? How could the complexity and range of data formats affect access and re-use possibilities?

Thing 2: Data creation and preparation

In conducting research many types of data are collected. Examples include transcribed interviews or text, survey responses, images, recordings and so on. Once data is captured, it is sometimes necessary to further prepare or process the data to render it suitable for analysis.

How do you create and further prepare your data?

Transcription

Transcription is the process of producing a searchable copy of a text - such as a recording, or a handwritten letter. This process is becoming more and more automated with the use of transcription tools.

Activity 2: Digital transcription tools

1. Take a look at these transcription tools and look at some project examples for each of them:
    a. From The Page
    b. Transkribus
    c. Digivol

Activity 3: Transcription: from recording to publication

1. The project 'From farms to freeways: Women's memories of Western Sydney' sought to capture the experiences of women who had lived in Blacktown and Penrith since the early 1950s, including their responses to social changes brought about by rapid suburbanisation in the Western Sydney region in the post-war period. This dataset consists of 34 audio recordings, the resulting interview transcripts, participant photographs, and project material.
2. Take a look at the data created during this project here.
3. You can also access the datasets via the DOI: http://dx.doi.org/10.4225/35/555d661071c76
4. See the project's website and a related publication.

Consider:

Have a look at First steps in qualitative data analysis: transcribing in which Julia Bailey describes the complexity and importance in transcription during research. What are the most important considerations to include in a transcription project?

For those who want more:

Audio transcription can be quite challenging. Take a look at this more elaborate set of conventions.

Text Analysis

Text analysis is about converting unstructured text data into meaningful data for examination. Deeper understanding of texts can be brought about through the aggregation and analysis of data, which can also be 'read' by machines that can convert it into interpretable structured knowledge.

Activity 4: Adventures in text analysis

1. Read about the way text analysis is used in different ways in different disciplines.
2. Have a go at some basic text analysis using Voyant. Use this tutorial to get started.

Consider:

How would you organise and store data from a text analysis tool? Find some examples.

For those who want more:

Watch this video (26:21) demonstration by Julia Silge (former astronomer now data scientist) who used text analytics with the topic modelling package in R for *The Adventures of Sherlock Holmes*.

Geocoding

Geocoding is the process of transforming a physical address description to a location on the Earth's surface via computational methods. Examples include locating addresses or place names from historical artifacts onto maps, joining population data with statistical boundaries, overlaying transport data on maps or imagery or locating features on interactive, online maps.

Activity 5: Geocoding: putting your data on the map

1. Take a look at the *Colonial Frontier Massacres in Central, Southern and Eastern Australia 1788-1930* project. Why might this work be considered controversial?
2. Read about this cultural history project: *A network framework of cultural history, Maximilian Schich et al. Science 345, 558 (2014)* DOI: 10.1126/science.1240064
3. Mapping the Icelandic Sagas uses maps to visualise historical literature. See if you can find other projects like this.
4. Must see: Charting culture (5:36)

Consider:

Are there any situations in which you think that geocoding may result in sensitive data?

For those who want more:

Use this geocoding chooser to help you locate the tool most appropriate for your research.

Thing 3: Data management planning

Research data is crucial in addressing the big questions of our time. So what are some of the issues we face in managing research data?

Research data is for everyone. Governments and universities all around Australia and the world are now encouraging researchers to better manage their data so it is preserved for the long term and others can re-use it.

Research data might be critical to solving the big questions of our time, but so much data are being lost or poorly managed.

Activity 6: Why and how is data managed?

1. Take just a minute and browse over some ways Queensland Government Data is being used by businesses, families, travellers, farmers.
2. This cartoon (4:40) put together by the New York University Health Sciences Library, is about what happens when a researcher hasn't managed their data (at all...) What could possibly go wrong!? As you watch the cartoon jot down the data management mistakes which interest or appal you.
3. Now, scan through the dot points in the *Consider the following….* section of the University of the Sunshine Coast's LibGuide which provides advice for researchers on how to manage their data.
4. The ARC/NHMRC and Universities Australia have released the new Australian Code for the Responsible Conduct of Research in 2018. What does the new National Code say in relation to research data?

Consider:

How just ONE of the data disasters depicted in the cartoon could have been avoided.

For those who want more:

How are you going to manage your data? Have a look at your organisation's data management policy. Where will it be stored? Most universities will have a set of options for you to explore. Speak to your librarians for more information.

Data Management Plans

A Data Management Plan (DMP) documents how data will be managed, stored and shared during and after a research project. Some research funders are now requesting that researchers submit a DMP as part of their project proposal.

Activity 7: How do you make a Data Management Plan?

1. Start by scanning this short introduction to Data Management Plans
2. Now browse through some public DMPs open up one or two of the DMPs to see the type of information they capture.
3. See this guide by UCLA on how to prepare a DMP in the Humanities.
4. Watch this 90-second video, The DMPTool: A Brief Overview, to see what the DMPTool offers researchers and institutional data managers.

Consider:

You will have noticed that DMPs can be very short, or extremely long and complex. What do you think are the two or three pieces of information essential to include in every DMP and why that is?

For those who want more:

Some research institutions and research funders now require researchers to submit a Data Management Plan (DMP) for new projects. What should a DMP cover? Could you help with one?

Find out about the work of the Australasian DMP Interest Group

Thing 4: Data descriptors

Data descriptor, keyword, subject … these are all terms commonly used when discussing metadata. In addition to selecting a metadata standard or schema, whenever possible you should also use a controlled vocabulary. A controlled vocabulary provides a consistent way to describe data - location, time, place name, subject.

Controlled vocabularies significantly improve data discovery. It makes data more shareable with researchers in the same discipline because everyone is 'talking the same language' when searching for specific data.

Data descriptors can be glossaries, vocabularies and data dictionaries. This is how you link up the data from different resources , isolate trends and find the gaps. The important stuff!

Your descriptors assist in all parts of the data story - controlled vocabularies and glossaries will help describe body language in video to text transcription.

Activity 8: How are you organising your data?

1. Browse the Directory of Metadata Vocabularies from JISC in the UK. Make sure you scroll down to the conclusion - it's worth a read.
2. Take a look at this metadata map and see what standards are used in your discipline.
3. Look at this list of metadata standards.

Consider:

Were you able to find a metadata vocabulary/standard relevant to your work from the resources above? Are you concerned about incorporating new metadata standards into your work practices?

On a scale of 1-10, how likely are you now to use any of these metadata standards? What would it take (dream big!) to change your response to a 10?

For those who want more:

How do you name your data? Explore these for starters:

Metadata standards for Social Science and Humanities

The Data Documentation Initiative

The Dublin Core Metadata Initiative

The Foundation Spatial Data Framework

Research Data Alliance standards

What's my metadata schema?

Thing 5: Data repositories and data curation

Repositories and portals play an important role in making research data discoverable and accessible.

Like providing a title, abstract and keywords to a scholarly article, data needs to be curated properly to provide rich context and descriptions to render it more interpretable and meaningful. Data curation is the process of managing data throughout its lifecycle.

Repositories

Repositories enable discovery of data by publishing data descriptions (metadata) about the data they hold - like a library catalogue describes the materials held in a library. Most repositories provide access to the data itself, but not always.

Data portals or aggregators draw together research data records from a number of repositories. eg Research Data Australia (RDA) aggregates records from over 100 Australian research repositories.

Keep in mind that, in the near future, doing the equivalent of literature search and literature review for data are likely to be the norm for any Honours/Grad student in disciplines that draw heavily on data.

Activity 9: Where can I find or store open data?

1. Choose one of the specialised data repositories below, or find another data repository of interest - particularly one in an unfamiliar discipline - and spend some time browsing around your chosen repository to get a feel for the data available.

   Research Data Australia

Open Access Data - list of repositories

Registry of Data Repositories - Browse by subject

Digital Repository of Ireland

Open Archeology - recommended data repositories

Stanford Library - list of HASS repositories

National Museum of Australia

Open Access Directory

Open Language Archives Community

2. Think about how some of these data differs from data you are familiar with, eg format, size and access method.
3. Spend a few minutes exploring data.gov.au .
   Try browsing or searching on a topic of interest.
   See which institutions contribute metadata records to the site.
   Explore a record or two in depth.

Consider:

How could cross disciplinary research be affected by discipline data conventions? Think about one way cross disciplinary data access can be facilitated.

For those who want more:

Conduct a data search in the way that you would normally conduct a literature search. Finding datasets can be just as important as finding other published sources. You can use these sites to start you off:

Finding research data

Google Dataset Search

Journey Through Data

Data curation

The aim of data curation is to ensure that data stays accessible and reusable into the future.

Activity 10: The data curation lifecycle

1. Watch the video here and see what happens through each stage of the data lifecycle.
2. Watch one of these videos:
   a. Data curation intro (1:28)
   b. What is data curation? (5:16)
3. Take a look at the DCC Curation Lifecycle Model which concentrates on preservation and curation within data management.

Consider:

Make a modification or addition you would include to make this list to adapt it to your situation.

For those who want more:

Browse this data curation module. This publication is another resource or further consideration and the Aboriginal & Torres Strait Islander Data Archive (ATSIDA) protocols are a good example for curation and provenance.

Thing 6: Data sharing and discovery

Do you want to find similar datasets as yours to build your body of knowledge? Would you like to share your data so that others may use it?

Research data may be shared in many ways, but not all data is available for immediate access.

Data availability is all about ensuring that scholarly outputs are based on solid, reproducible and transparent research.

Remember that 'available' can be 'open' or 'shared' through mediated access.

Publishing data

Data sharing policies are becoming increasingly common in Australia and internationally. Research funders and journal publishers are particularly influential when it comes to encouraging data availability.

Two exciting things are happening with data and journal publishers. More and more journal publishers are asking authors to make the data underpinning a journal article available. New forms of data publishing are emerging: **data journals**.

Activity 11: What are publishers and funders saying about data?

1. Here are a couple of examples of data journals in HASS.
    a. Journal of Open Humanities Data (JOHD)
    b. Research Data Journal for the Humanities and Social Sciences
2. If you are interested in finding out more about publishing a data paper, these articles may be helpful:
    a. Publishing and reusing data in the social sciences
    b. Introducing the data paper in the research data journal for the social sciences
    c. Data policy in social science and humanities journals: a review of selected journals

Consider:

Examine the diagram here and consider which data repository you might use if you published an article in a data journal.

For those who want more:

Publishers are suggesting, asking and even mandating that underpinning data be available to support journal articles. Choose one of the links below to explore some of these policies.

1. PLOS One data policy
2. Dryad is a data repository which integrates data and articles. It lists how and when to submit your data for 111 journals.
3. Look up a journal you know and see what the advice the journal gives on related data. How easy, or hard, it was for you to understand what you had to do in regard to research data?

Open data

Introducing 'open', 'shared' and 'closed' data.

Activity 12: Do you want your data shared?

This activity explains why different datasets may have different access conditions.

1. Watch this video (2:51) from the Open Data Institute titled *Open/Closed/Shared: the world of data.*
2. Now open this page to see a more in-depth view of why data is sometimes open, shared or closed.
3. Go to Research Data Australia and try searching for data that is 'open'.

Hint: *Look for the option to limit your search to data that is* ***Publicly accessible online****.*

Did you know that if you share a dataset openly it must have a licence attached to it to indicate to secondary users how they can use it? Check out this 'Research data rights management guide' to see how easy it is to licence a dataset!

Consider:

Why isn't more data publicly accessible or more 'open'?

For those who want more:

Read this article on the value of open data. Choose an impact case study in your discipline and consider how your research data may be evaluated in the same way.

Data sharing

Repositories are one means by which research data may be shared but in order to get data into repositories, research teams must be willing to publish their data. There are huge differences between data sharing practices by country and by discipline.

Activity 13: Who shares data?

1. Take a look at this 2017 infographic from Wiley: Research Data Sharing Insights. It provides a succinct overview of current data sharing practice and perceptions.
2. Now look closely at the sections titled 'Global Data Sharing Trends' and 'Data Sharing By Discipline'. What are the results for Social Sciences and the Humanities?

Consider:

Why do you think there are differences between disciplines and countries - what changes to these statistics would you expect between 2014 and now?

For those who want more:

Think about the reasons why researchers are hesitant to share their data. For one of these think about what you could say to challenge that reason.

Thing 7: Data citation

Citation is an important scholarly communication practice of attribution. Find out where data fits in the citation picture.

Data citation continues the tradition of attribution by acknowledging other people's work and ideas. Along with books, journals and other scholarly works, it is now possible to formally cite research datasets and even the software that was used to create or analyse the data.

Activity 14: How does data citation work?

1. Start by looking at the Weddell Seal dataset. Find out how many times it has been cited. This citation count has been measured by the Clarivate Analytics Data Citation Index.
2. Scan through the ANDS introduction to data citation.
3. Take a look at the Hutchinson Drought Index data record in Research Data Australia.
    a. This research data makes cross disciplinary connections between episodes of drought and correlated increases in rural mental health issues.
    b. The beauty of this record is that it shows the entirety of the research outputs - publications, software, related datasets and more - all of which are citable.

c. Click on the 'Cite' button to see the similarities between the formats for citation of data and other scholarly publications. Did you notice that, as yet, there are no citation metrics to this record?

Consider:

Data citation is a relatively new concept in the scholarly landscape and as yet, is not routinely done by researchers, or expected by most journals. What could be done to encourage routine citation of research data and software associated with research outputs?

For those who want more:

Have a look at these websites to learn more about data citation:

https://datacite.org/

http://datadryad.org/

Thing 8: FAIR and sensitive data

FAIR data principles provide a framework to ensure that research data can be reused. While sharing sensitive data requires careful consideration, it can be done. There are many ethical considerations to examine while collecting, storing and using sensitive data.

FAIR data

The FAIR Data Principles (Findable, Accessible, Interoperable, Reusable) were drafted in 2015. See these pages for more background and information relating to FAIR data:

The FAIR data principles - ANDS

FAIR Data Principles - FORCE 11

Activity 15: Use the tool to assess a dataset

1. Go to the FAIR data self-assessment tool and follow the instructions. Once you have answered all the questions an overall 'FAIRness' rating is provided.

Consider:

How would you explain the benefits of making a dataset FAIR?

For those who want more:

Check out these resources for FAIR data training. Choose either Findable, Accessible, Interoperable or Reusable in the left hand menu, and explore some of the resources for training on that principle. How could you use one of those resources to help make a dataset more FAIR?

Sensitive data

Major familiar categories of sensitive data are human data (eg health and personal data, secret or sacred practices); or ecological data (may place vulnerable species at risk).

Given the nature of this type of data, you might expect that it can't be shared and reused. But in many cases, it can be.

Activity 16: Publishing sensitive data

1. Explore one of these examples of published sensitive data:
    a. The Pregnancy and Lifestyle Study dataset shows how sensitive, de-identified data can be safely and openly shared. Click on "Access the data" to see the actual data
    b. This one-page story tells how sensitive data from the Australian Longitudinal Study of Women's Health data has been successfully published for almost 20 years.
2. How do you share and publish sensitive data?
    a. Scan the ANDS sensitive data webpage.
    b. Click on the Sensitive Data Decision Tree to get an overview of issues and solutions.
    c. If you have time: follow a couple of the links on the sensitive data page which are of particular interest to you.

Consider:

Imagine you are either a researcher or a participant in a health data survey:
Participant what questions might you first ask the researcher about intended sharing and reuse of the survey data?
Researcher: What responses would you need to prepare to anticipate participants' questions about publishing "their data for all the world to see"?

For those who want more:

Your institution will have its own processes for Ethics Clearance. Update your knowledge of your local requirements regarding sensitive data.

Indigenous data

Activity 17: Handling indigenous data and traditional knowledge

Data that pertains to Indigenous peoples is a complex legal and ethical terrain. Whether it is cultural, linguistic, medical or otherwise, such data usually needs to be managed and shared with care. Data may need to have access mediated under specific conditions, but this should not be a barrier to the proper handling and care.

1. Read the GERAIS principle for managing use of, and access to, research results.
2. Check out one (or more if you are interested!) of the following resources for handling indigenous data and traditional knowledge:
    a. Traditional Knowledge (TK) Labels
    b. An Introduction to Traditional Knowledge Labels and Licenses
    c. Online Databases and Registries of Traditional Knowledge and Genetic Resources
    d. Indigenous Knowledge Management Systems (databases) Guide for Indigenous Communities
    e. Indigenous Knowledge: Issues for protection and management
    f. Guidelines for Ethical Research in Australian Indigenous Studies
    g. Indigenous Data

Consider:

Write down three important considerations for researchers working with indigenous data and traditional knowledge.

For those who want more:

Take a look at Mukurtu and browse the projects that use this Content Management System. How would you approach a project involving indigenous people and traditional knowledge? Read this paper, *Aboriginal Knowledge, Digital Technologies and Cultural Collections* by the Melbourne Networked Society Institute.

Thing 9: Linking data

The term 'linked data' refers to a set of best practices for publishing and connecting structured data on the Web. DOIs, APIs, ORCID, and URIs are all examples of how data can be linked through standards-based, machine-readable processes.

Digital Object Identifiers

Digital Object Identifiers (DOIs) are unique identifiers that provide persistent access to published articles, datasets, software versions and a range of other research inputs and outputs. There are over 120 million Digital Object Identifiers (DOIs) in use, and last year DOIs were "resolved" (clicked

on) over 5 billion times!

Each DOI is unique but a typical DOI looks like this: http://doi.org/10.4225/08/50F62E0D359D5

DOIs can be used to collect citation metrics about the use of a dataset or article.

Activity 18: DOIs

1. Start by watching this video (4:51) about persistent identifiers and data citation as explained from the Netherlands. It gives you a succinct, clear explanation of how DOIs underpin data citation.
2. Have a look at this poster and follow the arrows to see how DOIs are attached to data sets.
3. Let's go to a data record which shows how DOIs are used. Click on this DOI to 'resolve' the DOI and take us to the record https://doi.org/10.4225/13/50BBF1BF4D141
4. This same record has been syndicated to Research Data Australia. Click on the Cite icon on the upper left of the record (under the green Go To Data Provider tab). Now click on the DOI in the data citation. No matter where the DOI appears it always resolves back to its original dataset record to avoid duplication. I.e. many records, one copy.

Consider:

DOIs can also be applied to grey literature, such as reports like the Haefliger's cottage investigation with this DOI - http://dx.doi.org/10.4227/11/50459F7BD4D0B - in the Archaeology Online: Grey Literature Archive.

For those who want more:

Want to know more about DOIs? Scan the ANDS Guide - Digital Object Identifier (DOI) System for research data.

APIs

Apps and APIs are tools which make data much more discoverable and usable for all of us. They are are the engines behind making data usable. Get hands on to explore and use APIs relevant to research data including services offered by ANDS and the National Library of Australia.

APIs are important for research data because they are used by developers to cleverly make data more discoverable and reusable eg. the Google Maps API is very widely used to record the exact location of a species or photograph, and lets developers embed Google Maps on webpages.

Activity 19: How are APIs used with data?

1. Start by watching this easy, short video (3:24 min), 'What is an API?'

2. Metadata records often show at least 2 different APIs in action. Interview material from Western Sydney women's oral history project: 'From farms to freeways: Women's memories of Western Sydney' metadata record shows both:

a. Google Maps API for the area map (zoom in to see the exact location where the data was collected)

b. Views and Accesses API

3. Trove uses an API to showcase National Library of Australia collections in amazing ways. Check out the Trove Applications Gallery to see some clever uses of Trove APIs. To see more of the power of one API, watch this short video (3:09).

Consider:

How APIs could make data more exciting and accessible for more people. Browse the introduction to the Trove API. Then go the Trove API Console and click on some of the example searches provided.

For those who want more:

Try constructing your own API query to see what results you get. Have a look at other examples of APIs that HASS researchers are using:

State Library of Victoria

State Records of New South Wales

Time Capsule Ballarat Time

The Prosecution Project

National Museum of Australia

ORCID

Apart from identifiers for data, there are also identifiers for people. ORCID provides a persistent digital identifier to distinguish researchers (that may share the same name) from each other.

Activity 20: Exploring ORCID

1. Take a look at ORCID, or the Open Researcher and Contributor ID.
2. Create your own ORCID if you don't already have one
3. If you have one, spend some time updating your profile.
4. Don't want one? Learn more here.

Consider:

How are funders and publishers are using ORCID? What impact that will have on you, your institution and other researchers?

For those who want more:

Use this guide to help you add works automatically to your ORCID via direct import from other systems, such as Scopus Author ID.

Linked data

The concept of 'linked data' relates to the group of standards, practices and tools used to publish and connect structured data on the internet. These protocols mean that data can be linked for different purposes but doesn't have to be reproduced.

Activity 21: How does linked data work?

1. Watch one of these videos (or more if you are in the mood)
    a. What is Open Linked Data and why is it good for you? (3:42)
    b. What is Linked Data? (12:09)
    c. Meet the DAAO (Design and Art Online)(2:16)
    d. Tim Berners-Lee - The Next Web (15:10)
2. Browse this government linked data website and take a look at this example of linked data.

Consider:

The internet is evolving from a 'Web of linked documents' into a 'Web of linked data'. What are, in your opinion, the expected benefits and drawbacks of Linked Data?

For those who want more:

Go to LinkedDataTools and have a go at completing some or all of the 5 short (5 min) Semantic Web Primer tutorials.

Thing 10: Visualising Data

It has become a lot simpler to mine data and interpret insights in an engaging, attractive and easy to understand way. Data visualisation includes any way that data can be interpreted in a visual form, such as charts, diagrams, infographics and animations.

Activity 22: Experiment with visualisation

1. Go to this list of various free and premium tools and platforms for creating interactive charts, infographics, maps and word clouds.
2. Choose one tool and delve into the detail.
3. If you want to get hands on, work through this infogr.am tutorial to create a data visualisation.

Consider:

What do you like or dislike about the tool you explored? Read more here about data visualisation tools. Put together a list of data visualisation tools you think might be useful and create a visualisation using some of your own data, using these University of Sydney Library guidelines.

For those who want more:

Do you think publishing data as a visualisation is likely to make the data more or less accessible, reusable and therefore citable?

Scan through some of the examples from here. Next go to this page. Click on one of the bubbles and drag it around the screen with your mouse. How would you characterise your experience compared to other data visualisations you have encountered previously?