

CREATIVE MAPPING & VISUALISATION TECHNIQUES

From FIRST IN ARCHITECTURE



What is Mapping and Data Visualisation?

Mapping and data visualisation are becoming key techniques used by architecture and design professionals to visualise data and information collected from our sites and cities to better inform design, and communicate information to clients and other project collaborators.

Rather than rely on text and number heavy data to explore our site information, which is often considerable, many designers now use mapping techniques to display details about the site that would otherwise remain unseen. Data visualisation allows architects to research and present site potentials and characteristics that offer deep insights into the project aiding the development of design solutions.

Mapping techniques can focus on the physical (visible) and non physical (invisible) site relationships to help visualise the urban connections and infrastructures. These diagrams are being developed to maximise the display of information and data in a visual and interactive way. The mapping techniques can help drive the creative process rather than being a static data collection research activity.

We are fortunate that we have a wealth of information and technology available to us that will allow for not only the collection of data, but also a varied approach to representing the information that we collate that can help formulate our final design.

Why do we present data in a visual way?

When we display our data visually it is much easier to extract meaningful patterns and information that would otherwise be indecipherable in numbers, and this in turn allows us to develop conclusions and make informed design decisions. Not only does this display of data help us with our designs, it can also demonstrate information to a client more clearly, helping them to understand the root of our design decisions and allowing them to engage with the design process from an early stage.

The display of data can look at elements like:

- geographical distribution
- correlation
- timelines
- scale
- and of course much more.

Another factor to displaying data in this way is that humans are able to remember imagery and visuals far more than text. We are generally more able to process visual information than we can statistical data and text.

What data are we mapping?

The range of data that architects and designers collect for different schemes, projects and master plans can be extensive. However, requirements will vary from project to project, client to client and practice to practice. Some of the data we collect can include:

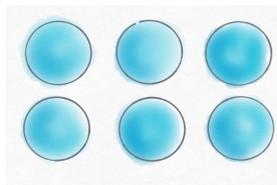
- Population densities
- Circulation
- Movement
- Infrastructure
- Housing
- Agriculture
- Land
- Topography
- Function
- Facility
- Amenity
- Historical sites
- Historical information
- Communal spaces
- Architectural heritage
- Borders, barriers, boundaries
- Communities
- Intangible elements
- Noise and sound
- Scale
- Geography
- Environment

What are the different types of data?

Some of the main data formats and relationships that we come across include:

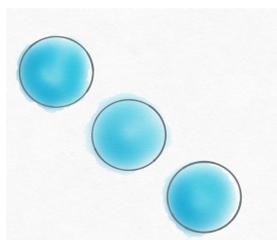
Quantitative data

This is data that can be counted or measured and is of a numerical value.



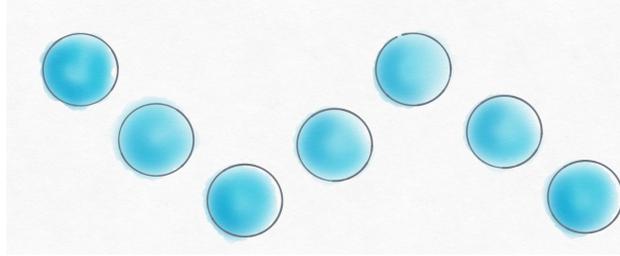
Discrete data

This is numerical data with a finite number of possible values.



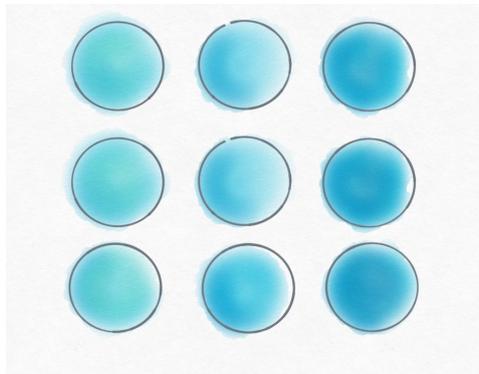
Continuous data

This is measured data and has a value that lies within a range.



Categorical data

This data can be sorted according to a category or group.



Exploring the relationship between the data can be something like tracking information over time, or some of the following common relationships:

Nominal comparison

A simple comparison of the quantitative values of subcategories

Time Series

Exploring the changes in data values of the same metric over time

Correlation

Demonstrating a positive or negative correlation between data that has two or more variables.

Ranking

Demonstrates two or more values and how they relate to each other in magnitude.

Distribution

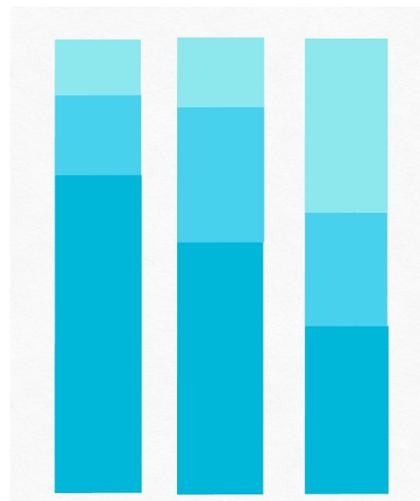
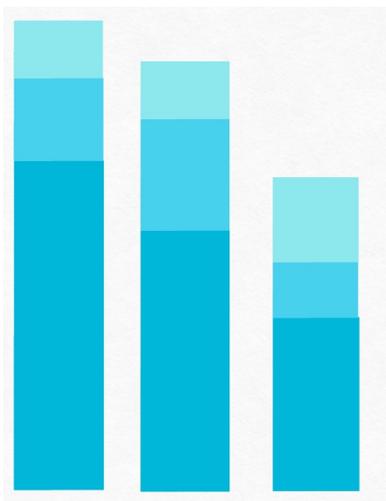
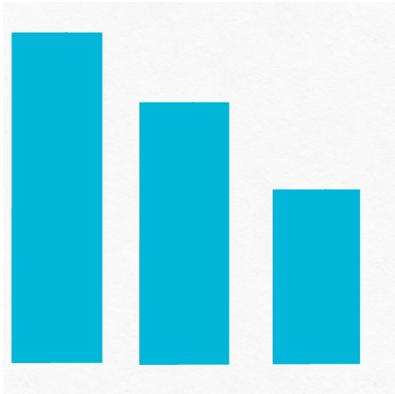
This shows data distribution surrounding a central value. Heat maps are a common example of a distribution visualisation. For example, a demonstration of different population numbers within a city by area.

How to visually present data

There are different approaches to presenting data in the basic form some of which are described below.

Bar Charts

These are very versatile, useful for comparing categories, change over time and so forth.

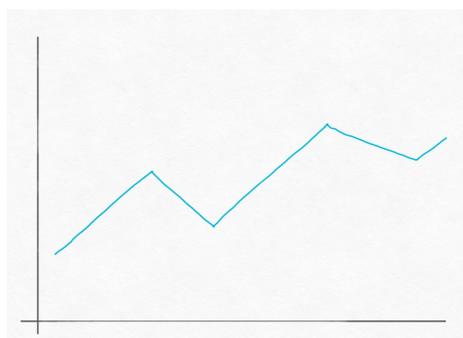


Pie Charts

Useful for comparing discrete or continuous data, best to show a limited amount of information.

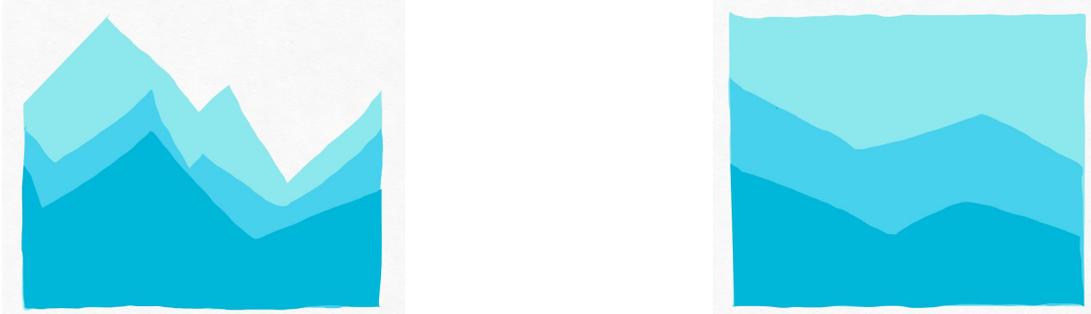
Line Charts

Usually used to show a time relationship with continuous data.



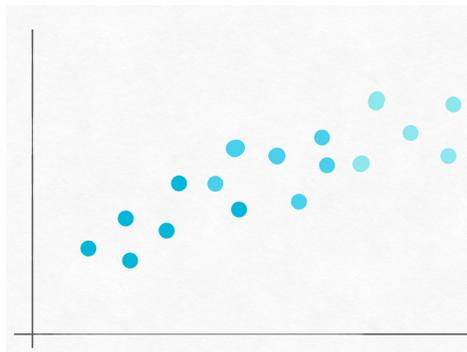
Area Charts

Also used for time relationships, but can represent volumes and be more visual than a simple line chart



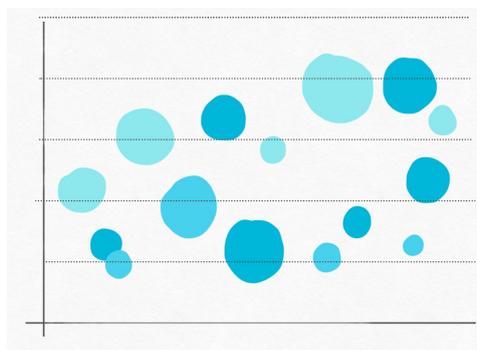
Scatter Plots

Scatter plots are useful for showing relationship between items based on two sets of variables, they can show correlation in a large amount of data.



Bubble Charts

We see these a lot in architectural diagramming and mapping, and are great for displaying comparisons or relationships. Bubbles plotted onto a map or plan to demonstrate populations, quantities and so forth are very informative.



Heat Maps

Again, a relatively popular form of data visualisation in the architectural field, displaying categorical data, using different colour shades to represent values.

Different approaches and techniques to data mapping and data visualisation

One of the hardest parts of creative mapping is extracting useful information from the raw data you have collected in order to present it in a way that tells a story.

Study the data, and look at what is significant about the data you have collected. What is important? Is there pattern? What is the main question you are trying to answer? By questioning and exploring your research you should be able to establish what is relevant, and what needs to be collated and presented. It is then important to establish the type of visualisation will tell the story, and make it easy to interpret.

Let's not forget that the key point is making the information digestible, easy to understand and allows the designer to develop strategies and solutions to the design problems. Make sure that the data you are presenting is clear and don't get too carried away with the visual craziness that we can sometime see in presentations! If your data is displayed badly, the meaning of that data and the story will get lost.

Precedents

I have a complete pinterest board dedicated to mapping techniques and data visualisation, check it out below, and be sure to follow – so you don't miss out on the new mapping technique trends!

[Check out the Pinterest Board](#)

Visit the original post with the complete set of images by following the link below.

<http://www.firstinarchitecture.co.uk/creative-mapping-and-data-visualisation-techniques-for-architects/>