

CARTOGRAM

A cartogram is a thematic map type in which the size of an area is rescaled to be proportional to the feature it represents. Therefore, the rescaled size communicates the feature attributes selected. In that case, cartograms distort area sizes.

Cartograms are used for thematic mapping. They are a particular class of map type where some aspect of the geometry of the map is modified to accommodate the problem caused by perceptually different geographies.

Two forms-

- ✓ contiguous and
- ✓ non-contiguous,

- A non-contiguous cartogram is the simplest and easiest type of cartogram to make. In a non-contiguous cartogram, the geographic objects do not have to maintain connectivity with their adjacent objects. This connectivity is called topology. By freeing the objects from their adjacent objects, they can grow or shrink in size and still maintain their shape. In a non-contiguous cartogram topology was sacrificed in order to preserve shape.

In a contiguous cartogram, the reverse is true- topology is maintained (the objects remain connected with each other) but this causes great distortion in shape.

THEMATIC-MAP

A thematic map is called a special-purpose, single-topic, or statistical map. A thematic map focuses on the spatial variability of a specific distribution or theme (such as population density or average annual income), whereas a reference map focuses on the location and names of features.

Thematic maps can be used for exploratory spatial data analysis, confirming hypotheses, synthesizing spatial data by revealing patterns and relationships, and data presentation. These are maps which depict information on a particular topic or theme. The detail portrayed on a thematic map may be physical, statistical, measured, or interpreted, and sometimes requires specialist knowledge by the map user. Weather, population density and geology maps are examples of thematic maps.

TYPES

- **Choropleth Map**

The choropleth map is one of the most frequently used maps in Geospatial data. It is a type of thematic map in which we use colour to represent statistics of an attribute feature we are interested proportionally to its location — for example, the unemployment rate of each county. Choropleths are good at displaying densities using colours.

Strengths:
Display densities (ratios) of quantities using colour.

Weaknesses:
The visual tends to generalise
Not uniform areas

- **Isopleth map**

Here quantities are indicated by lines of value known by isopleth/isarithm/isoline/isometric lines etc. The spatial trends are indicated by the spacing of isopleths. The closer the isopleths, the sharper the spatial variation and the steeper the horizontal gradient, and vice versa.

Strength:
Regionalisation becomes easier

Weakness:
Precision depends on selected value interval, method of interpolation etc.

- **Flow map**

Most important forms of dynamic maps. Movements of goods, information and people between and among places are shown. The quantitative impression is displayed by the width of the line.

Strength
Allows overlaps of service areas to be mapped.

Weakness
Time taking
Actual route is not displayed

- **Dot Distribution Map**

A dot distribution map, or dot density map, is a thematic map type that uses dots (variation of marks) to display the presence or absence of a feature. Typically, one point is assigned to represent a larger quantity.

Strengths:
A right way visualises spatial patterns.
An effective way to represent also different categories using colours

Weaknesses:
Randomly generated points might differ from one iteration to another.
If shown without borders, we do not know where these points represent.

- **Graduated Symbol Map**

Graduated maps are an alternative to choropleth maps. The difference is instead of using colour to indicate feature attributes or statistics; Graduated symbol map uses points. The data is likely stored in Polygons and then converted to centroid points for these areas. We use this type of map when

we intend to visualise quantities rather than densities in Choropleth map.

Strength:

It does a better job showing raw quantities rather than densities with choropleth maps.

It conveys where and how much (quantities).

Weakness:

They are less exact than distribution maps.

Needs pre-processing to derive centroids.

Overlapping circles (Can use transparency)