What is GIS?
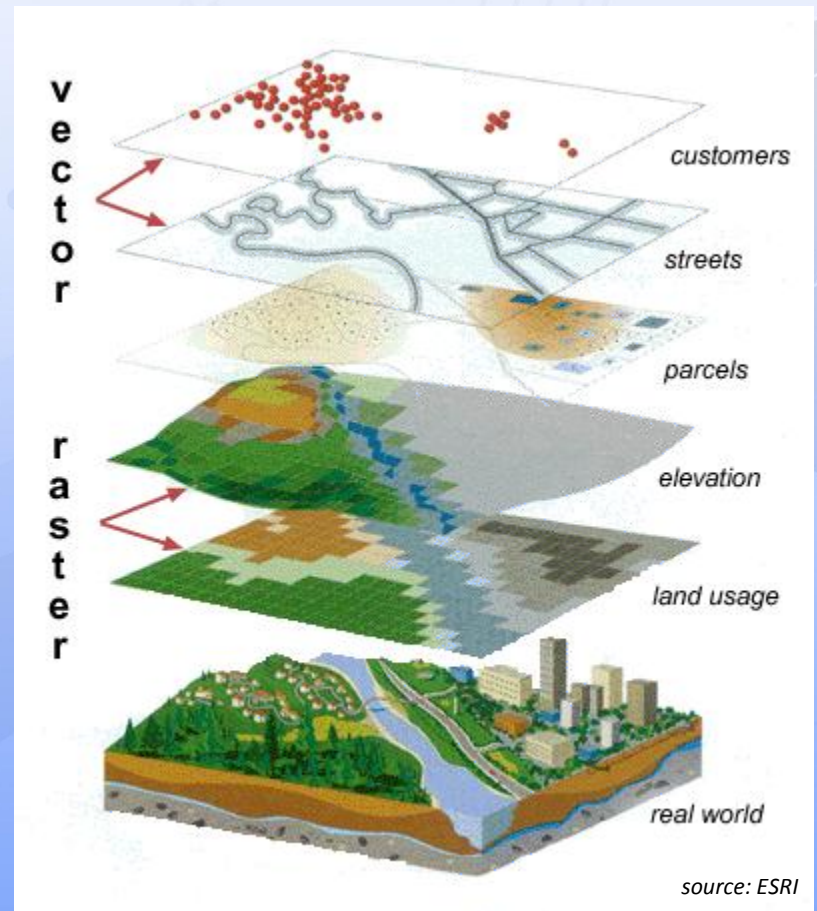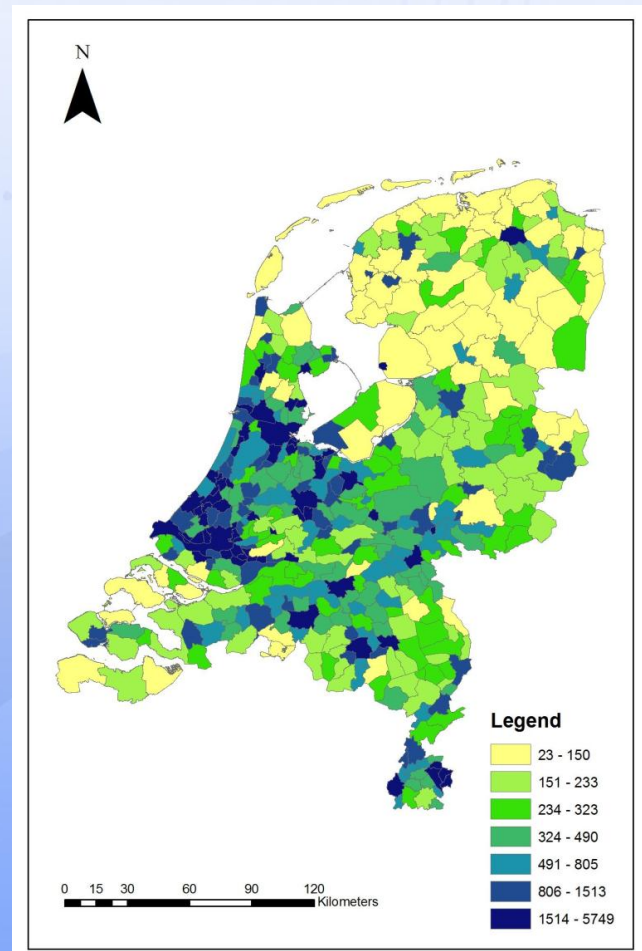
- A computerised system to capture, store, update, manipulate, analyse and display geographically referenced information

source: ESRI
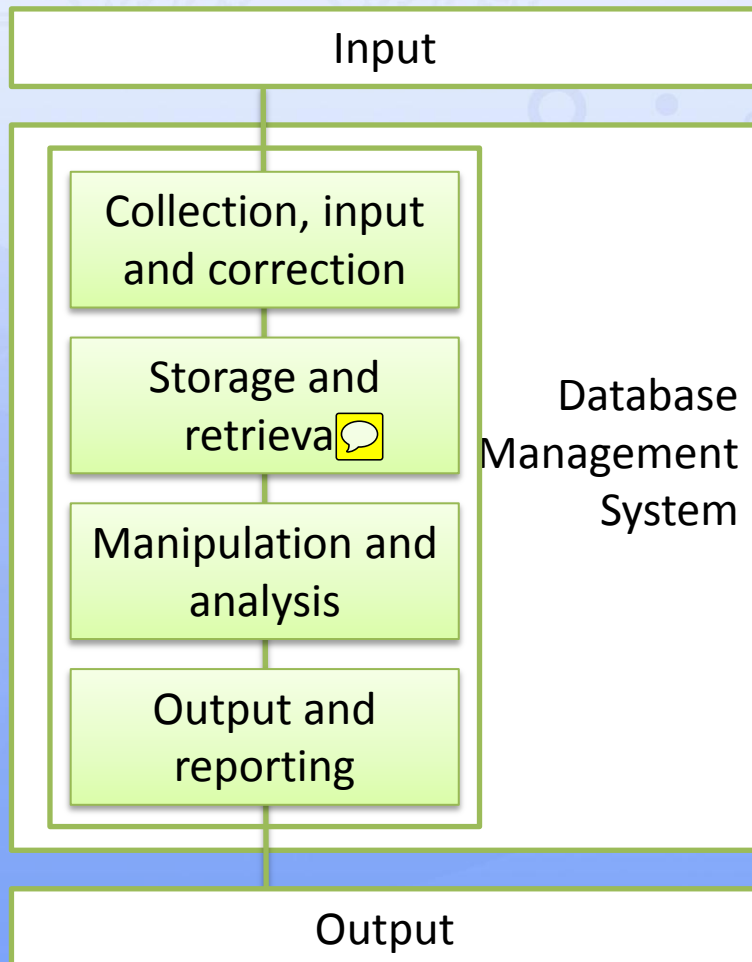
What is GIS?

It starts with data

and turns it into information

Perspectives

GIS as computer system (software):

GIS as an organisational system:

Input

Database Management System
Collection, input and correction
Storage and retrieva 💬
Manipulation and analysis
Output and reporting

Output

(Martin, 1991)

People **Software**

Data

Network

Procedures

Hardware
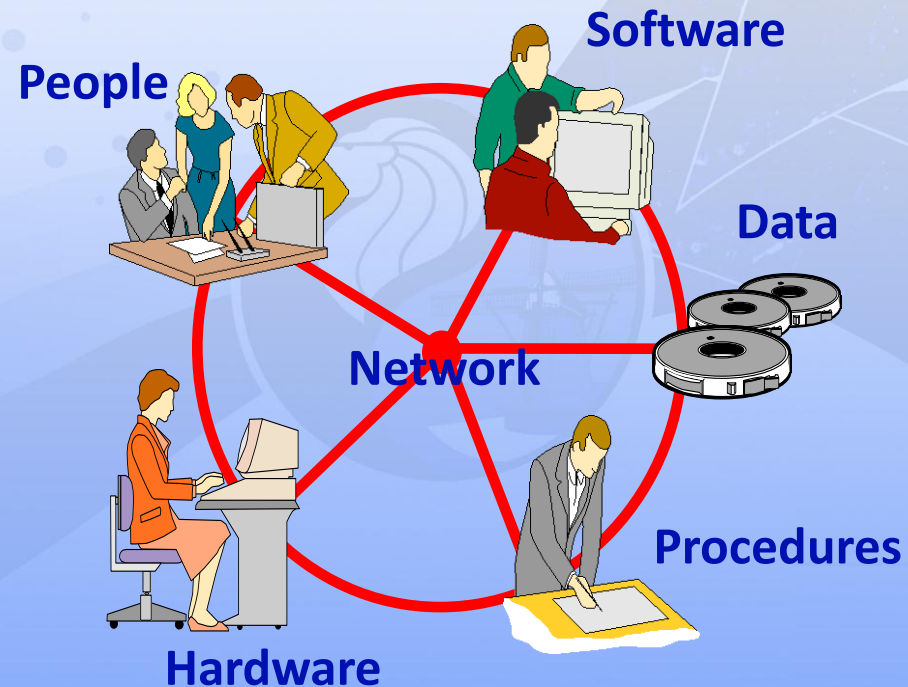
Key Defining Elements of a GIS

- **Location**

  Everything is referenced to some location on the Earth by using a coordinate system

- **Spatial databases**

  GIS enables linking datasets using the location as a common denominator

- **Spatial analysis**

  A GIS enables spatial analysis rather than providing a map or an image

Spatial Analysis

Dr. John Snow – spatial analysis of an outbreak of cholera in Soho in 1854

in a GIS

Soho

+ Cholera death

● Water pump

24

Other Geo/Spatial Technologies

- *Remote Sensing* (RS): the use of earth-orbiting satellites to capture information about the surface and atmosphere below → interpretation of satellite imagery

- *Global Positioning System* (GPS): a system of earth-orbiting satellites transmitting precisely timed signals which can be used to determine a location → technology

GIS versus CAD

- Computer Aided Design (CAD): the use of computer technology for the design of real or virtual objects
  - Computer drawing
  - Uses coordinate system, but not georeferenced, no topology
  - Weak in spatial analysis
- However, move towards integration of GIS and CAD