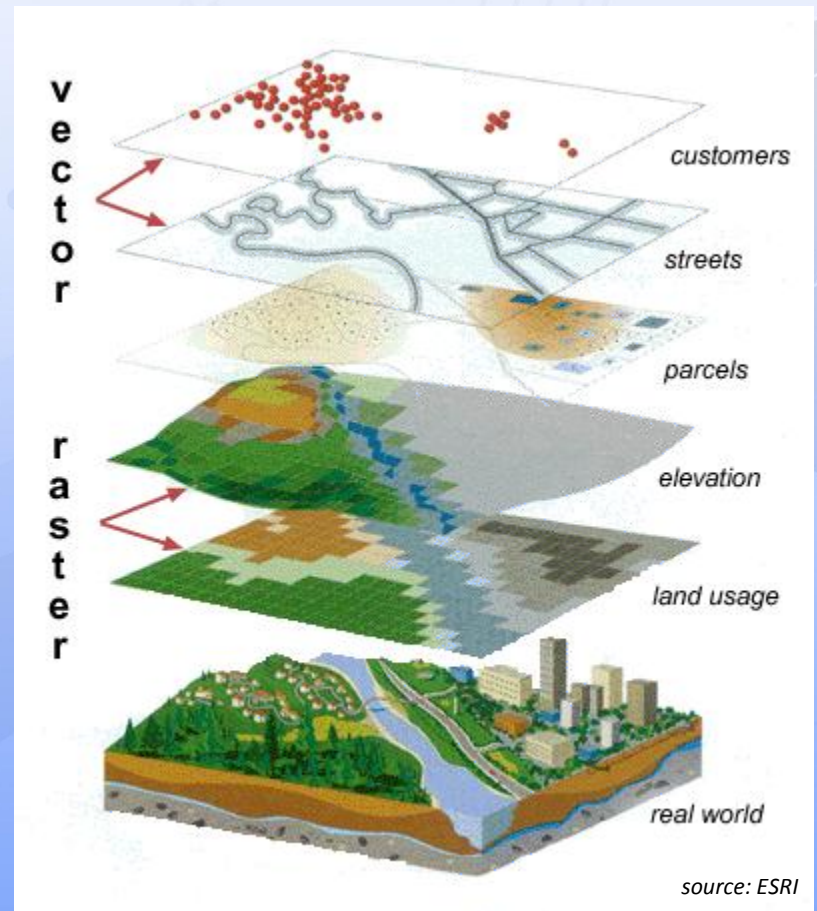


What is GIS?

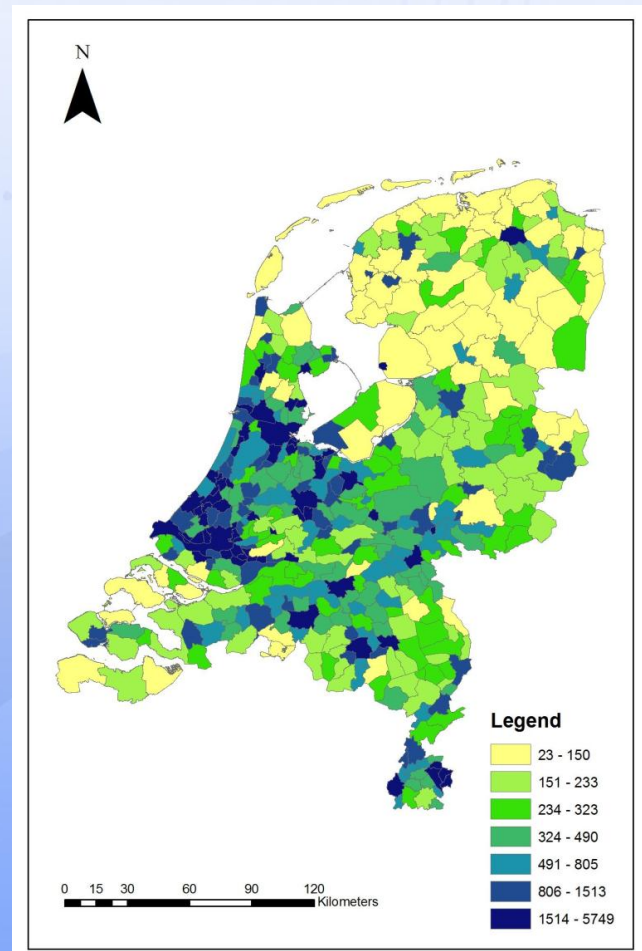
- A computerised system to capture, store, update, manipulate, analyse and display geographically referenced information



What is GIS?

It starts with data

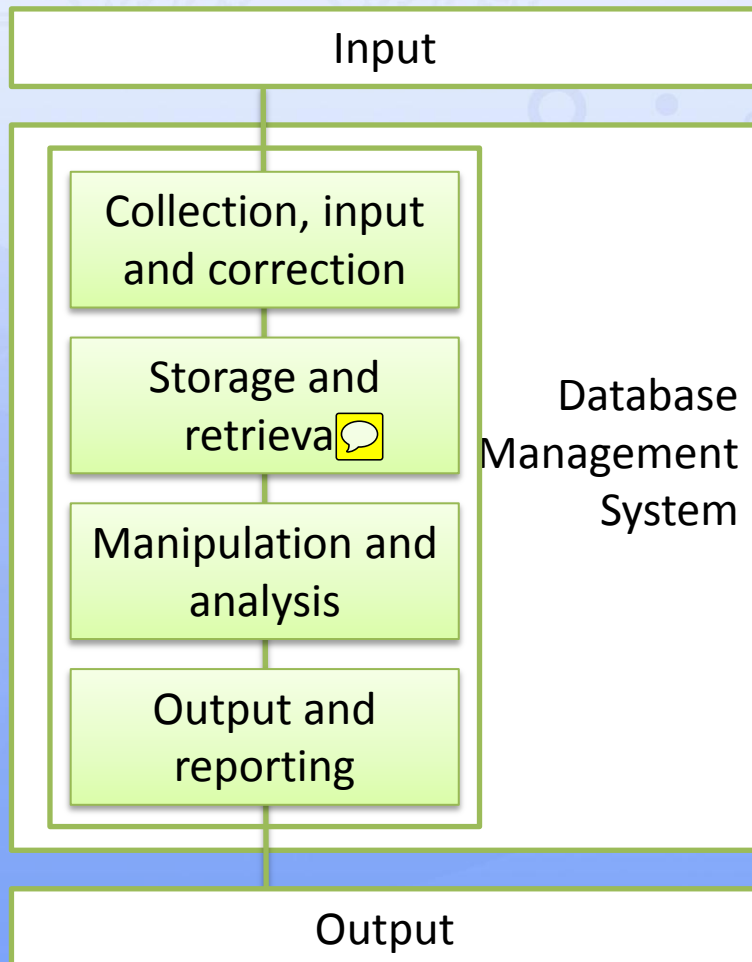
GEMNAAM	OPP TOT	BEV DICHTH	AANT INW	PROVINR	PROVCODE	PROVNAAM
Appingedam	2462	511	12190	20	20	Groningen
Bedum	4496	238	10600	20	20	Groningen
Bellingwedde	11007	88	9510	20	20	Groningen
Ten Boer	4571	160	7250	20	20	Groningen
Delfzijl	22748	208	27650	20	20	Groningen
Groningen	8369	2327	181610	20	20	Groningen
Grootegast	8778	140	12150	20	20	Groningen
Haren	5070	412	18810	20	20	Groningen
Hoogezand-Sappemeer	7305	512	34390	20	20	Groningen
Leek	6427	303	19190	20	20	Groningen
Loppersum	11199	97	10780	20	20	Groningen
Marum	6488	156	10070	20	20	Groningen
Almere	24877	1388	180920	24	24	Flevoland
Stadskanaal	11996	290	34120	20	20	Groningen
Scheemda	11746	123	14120	20	20	Groningen
Slochteren	15884	100	15190	20	20	Groningen
Veendam	7871	369	28120	20	20	Groningen
Vlagtwedde	17051	99	16600	20	20	Groningen
Zeewolde	26897	79	19700	24	24	Flevoland
Skarsterlân	21689	145	27050	21	21	Friesland
Winschoten	2224	854	18480	20	20	Groningen
Winsum	10253	139	14000	20	20	Groningen
Boarnsterhim	16859	127	19310	21	21	Friesland
Zuidhorn	12837	147	18460	20	20	Groningen
Dongeradeel	26694	149	24860	21	21	Friesland
Achtkarspelen	10399	274	28140	21	21	Friesland
Ameland	26850	58	3460	21	21	Friesland
het Bildt	11651	119	10960	21	21	Friesland
Bolsward	942	1054	9600	21	21	Friesland
Dantumadeel	8749	227	19460	21	21	Friesland
Franekeradeel	10916	200	20570	21	21	Friesland
Harlingen	38767	618	15460	21	21	Friesland



and turns it into information

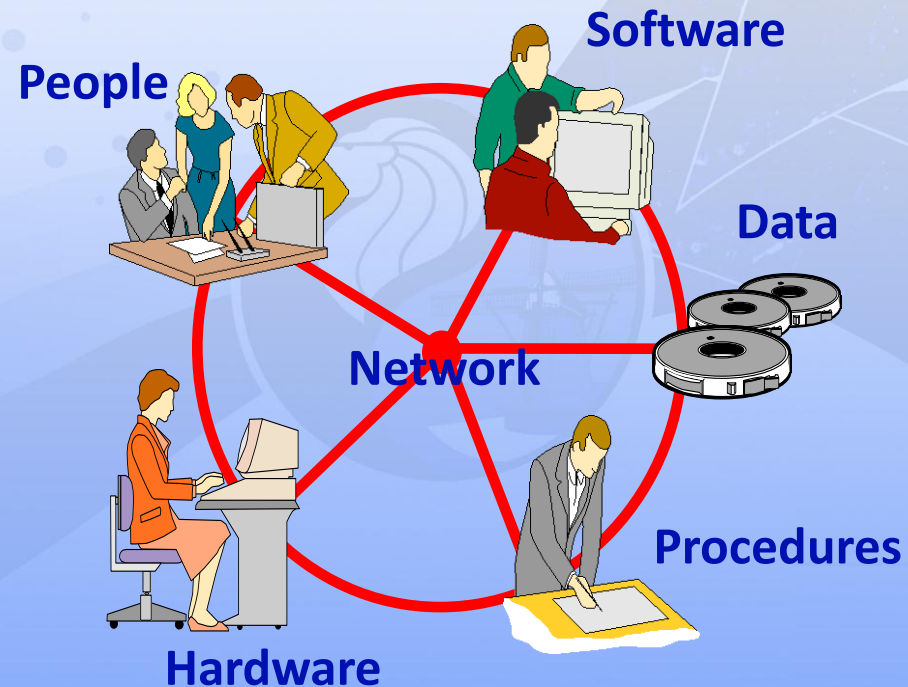
Perspectives

GIS as computer system (software):



(Martin, 1991)

GIS as an organisational system:



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



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