COMPONENTS OF GIS – BALANCED FUNCTIONING OF ALL COMPONENTS IS ESSENTIAL

Hardware
+
Software
+
Data ware
+
Humanware
=GIS

THE DATA COMPONENT

Depending on the nature and function of geospatial data it can be categorized as under

Geodetic Control Network

Vector Raster Surface

Topographic Base

Graphical Overlays
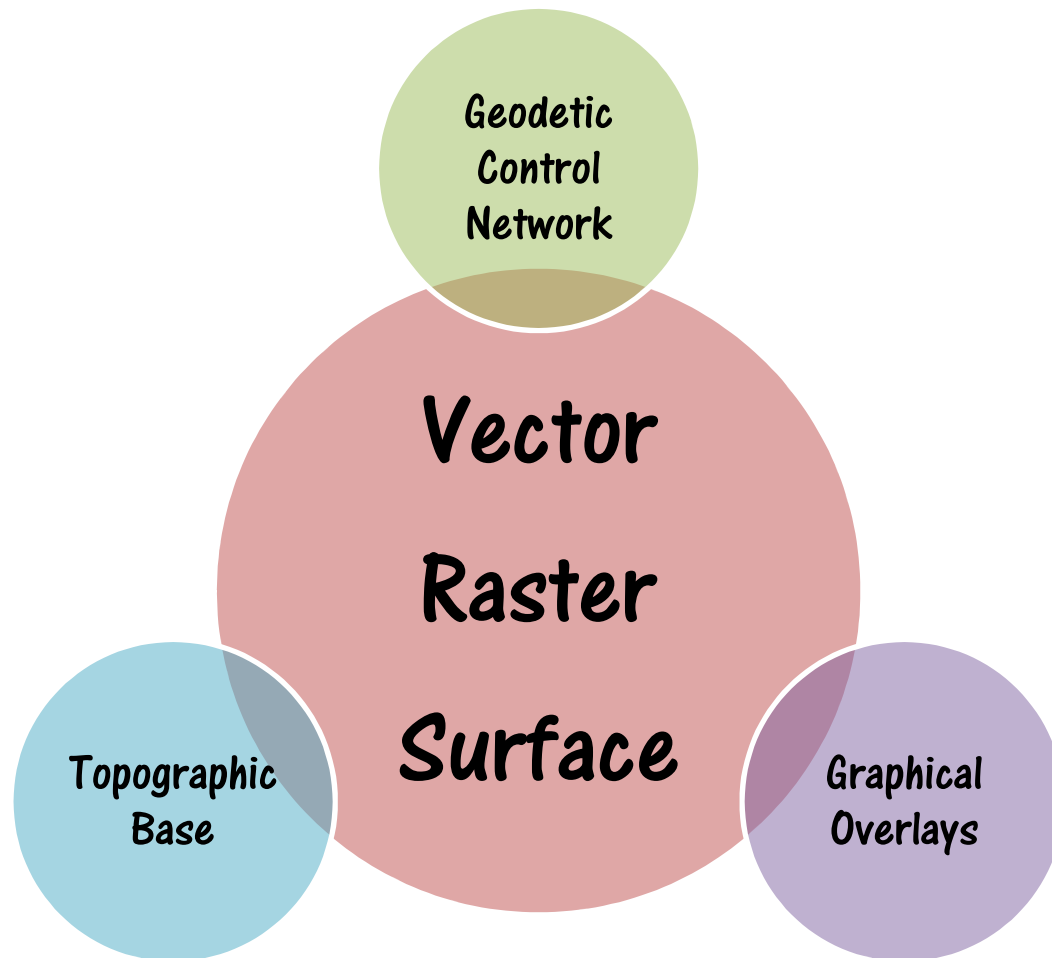
Geodetic Control Network:

• Foundation of all geographic data

• Provides a geographical framework by which different sets of geospatial data can be cross-referenced with one another

• Established by high precision survey methods and vigorous computation at national/ continental level

THE DATA COMPONENT

Topographic Base:

- Created through a basic mapping program by national, state or local governmental mapping agencies

- Contents of the database may be obtained by various methods of land surveying, or photogrammetry

Within GIS database the above three types of geospatial data are represented by three basic forms :

- Vector

- Raster

- Surface

Graphical Overlay:

- Thematic Data pertaining to specific GIS applications

- Overlays of physical features may be directly derived from topographic base – road/drainage network, vegetation cover, buildings..

- Overlays pertaining to socio-economic activities – population, parcel boundaries, natural resource values, land use ...are collected by site investigation, field surveying, remote sensing, and existing records

THE TECHNOLOGY COMPONENT

GIS Technology

Hardware — Software

Core & peripheral equipment for acquisition, storage, analysis, and display of geographic information.
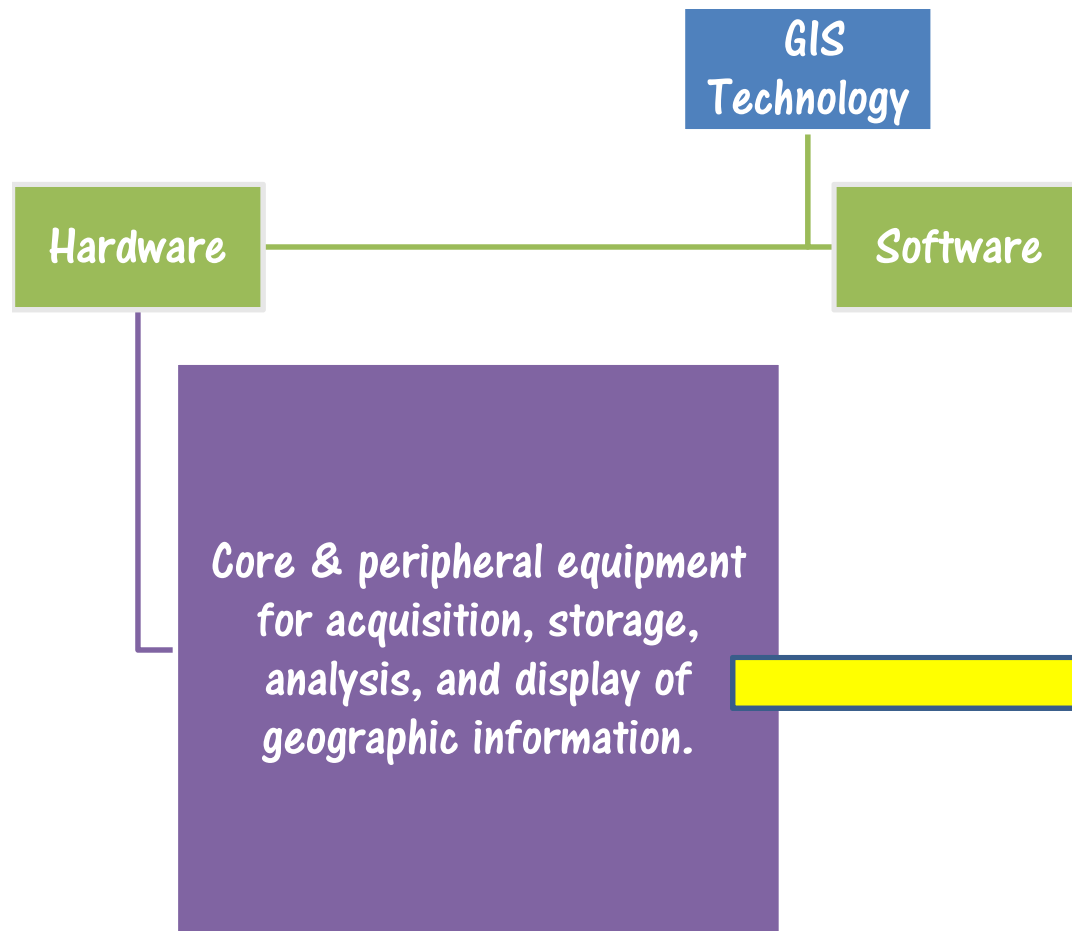
- Computer including keyboard, mouse.

- Data storage devices- hard disk, external devices – CDs etc.

- Digitizer or Scanner – to convert hard copy maps to digital form

- Plotter or Printer – To display the results of data processing

- Networking system- for inter-computer communication

THE TECHNOLOGY COMPONENT

Software

Geo-relational Data model

Object relational data model
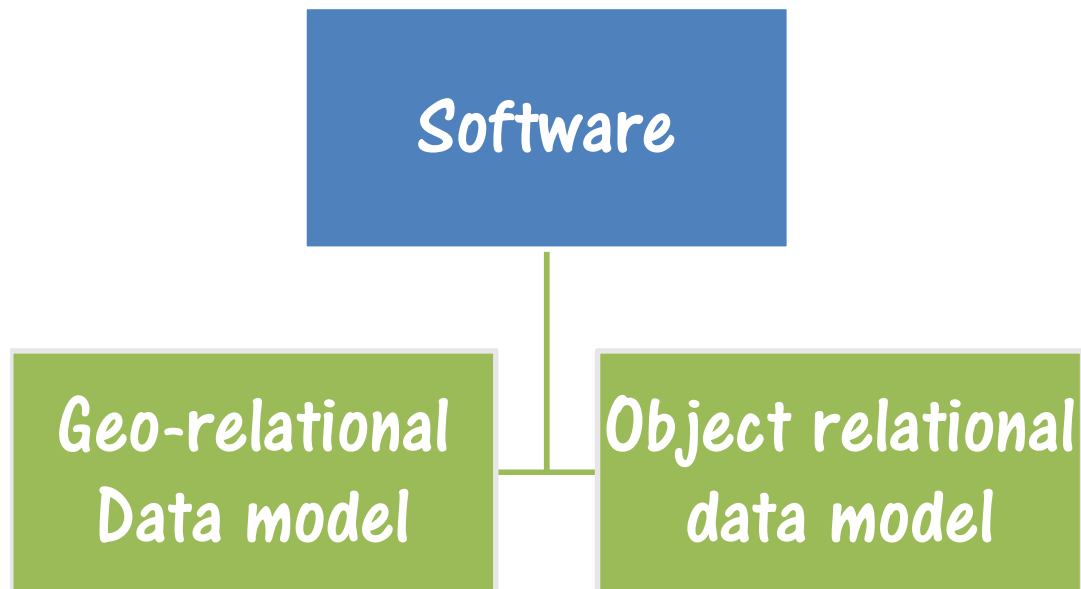
Five functional groups

1. Data input and verification
2. Data storage and database management
3. Data output and presentation
4. Data transformation-

   (i) maintenance and updating

   (ii) Utilization and analysis

5. Interaction with the user –

   (i) Menu driven commands

   (ii) Command Language Interpreter

HUMAN WARE/PEOPLE COMPONENT

GIS Specialists

- Database Administration
-Application programming
System Analysis/ design
-Project Management

Develop applications for

Request support from

Develop applications for

General GIS Users
- Engineers/planners
- Scientists
-Facility Managers
-Resource Planners
-Land administrators
-Lawyers

Provide service to

Geographic Information viewers

– For traffic /weather conditions
-To plan trips
-To entertain
-To educate....