

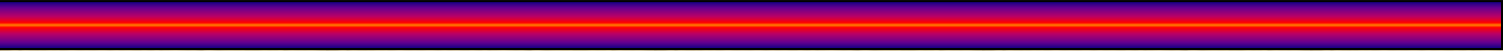
"GIS Concepts"

GIS Definition

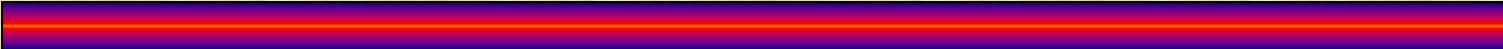
Many expert used GIS for his own demand and that is the reason that they define GIS in that context.

***Aronoff (1989) gives a general description of GIS as “any manual or computer-based set of procedures used to store and manipulate geographically-referenced data.”**

***More specifically, Aronoff (1989) defines GIS as "a computer-based system that provides four sets of capabilities to handle georeferenced data: i) data input ii) data management (data storage and retrieval) iii) manipulation and analysis iv) data output."**



Evolution of GIS

- revolution in **information technology**
 - Computer Technology
 - Remote Sensing
 - Global Positioning System (GPS)
 - Communication Technology
 - rapidly **declining cost** of computer hardware
 - enhanced **functionality** of software
- 

COMPONENTS OF GIS

Several components are involved in GIS technology.

Hardware

A computer and the associated accessories are essential for handling spatial data in GIS. These devices are collectively known as hardware like scanners, CPUs, Digitizers, Workstations & plotters etc.

Software

Software refers to the programmes that run on computers; these include programmes to manage the computer and to perform specific functions. For example, ArcGIS, ILWIS, Arc/view, Mapinfo, ERDAS Imagine, IDRISI and Arc/info are specialised software programmes designed to perform certain tasks.

Continued.....

Database

A central theme to GIS is the database. A GIS database deals with spatial data. GIS facilitate integration of spatial and attribute data and this makes GIS unique in contrast to other database systems. The beauty of GIS technology lies in the ability to assimilate different sources of data and analyse them.

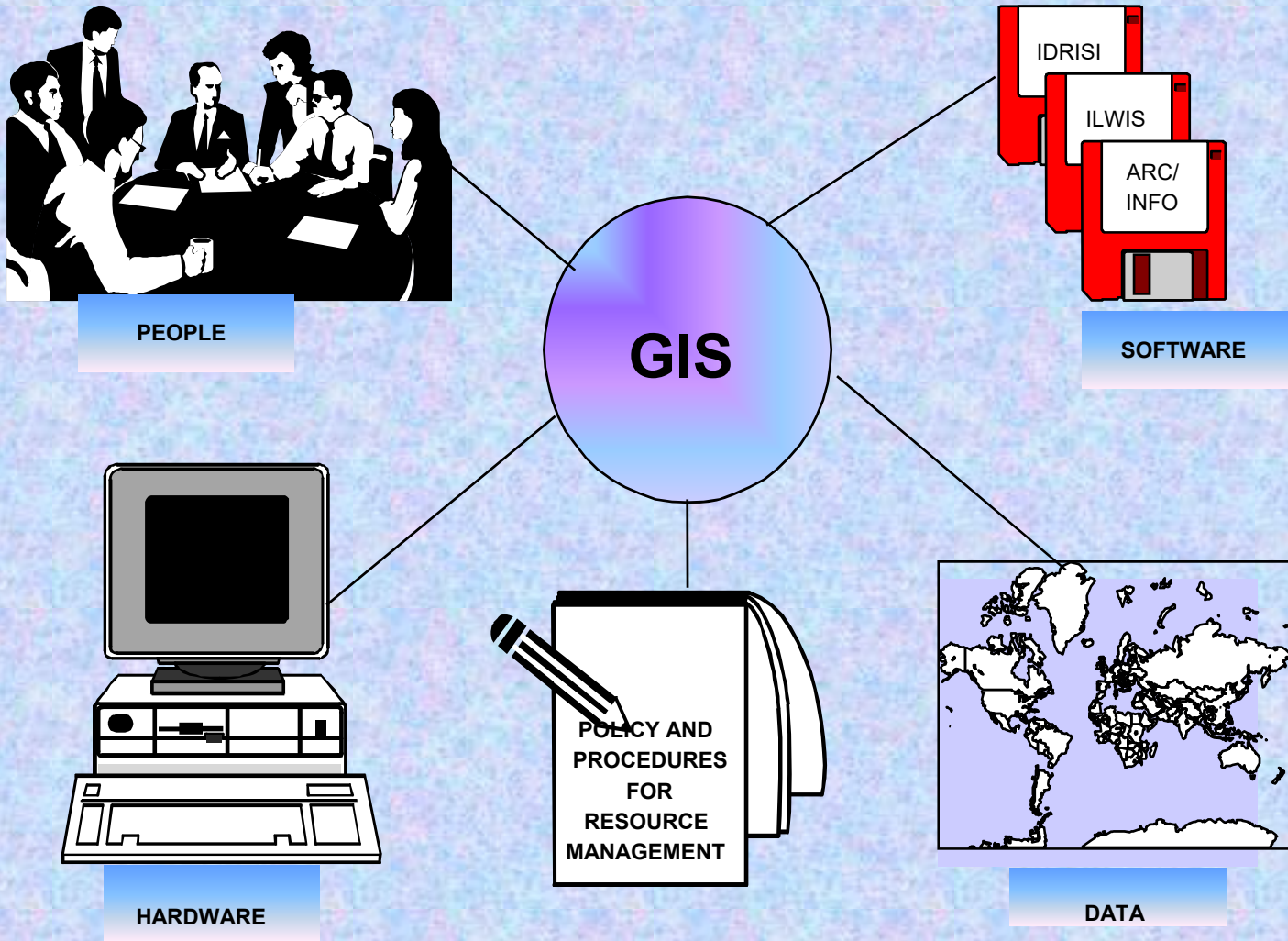
Human Input (live ware)

People who work with GIS form the most important component. GIS constitute truly an interdisciplinary field and require varied backgrounds of expertise, depending upon the applications. In addition, for technical management, a Hardware Specialist, System Administrator, and Database Manager are required for incorporating the GIS set-up.

Policy and Procedures

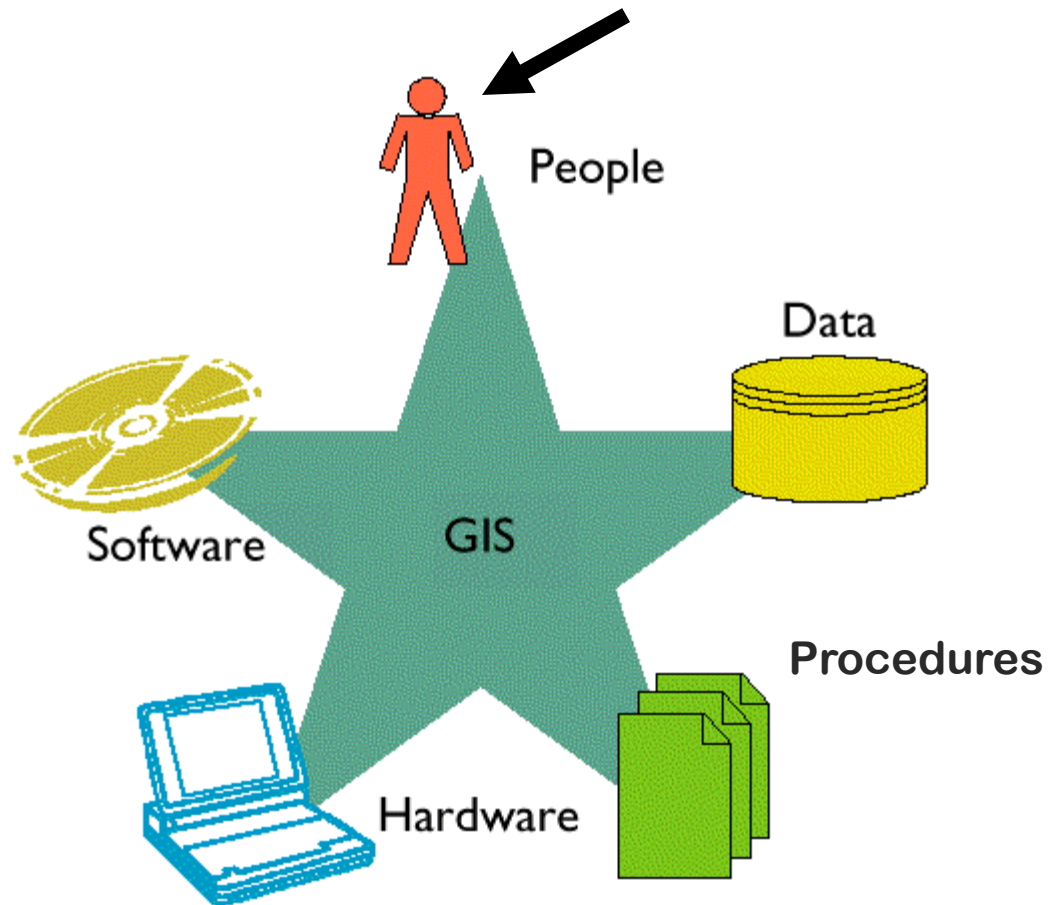
A methodology is must to derive the results users need. Basically, this includes spatial analysis for the particular application.

Geographic Information Systems

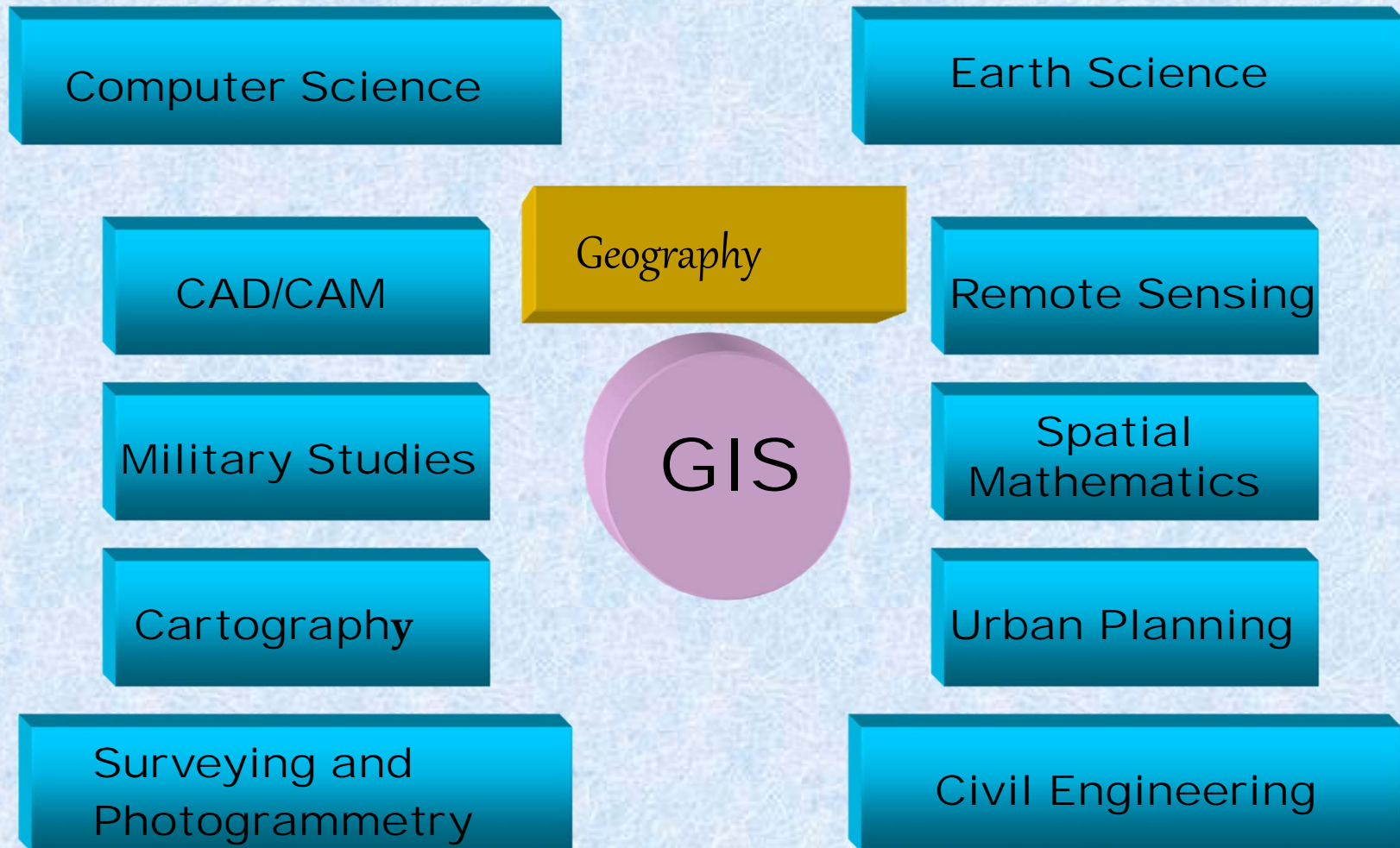


What is a GIS?

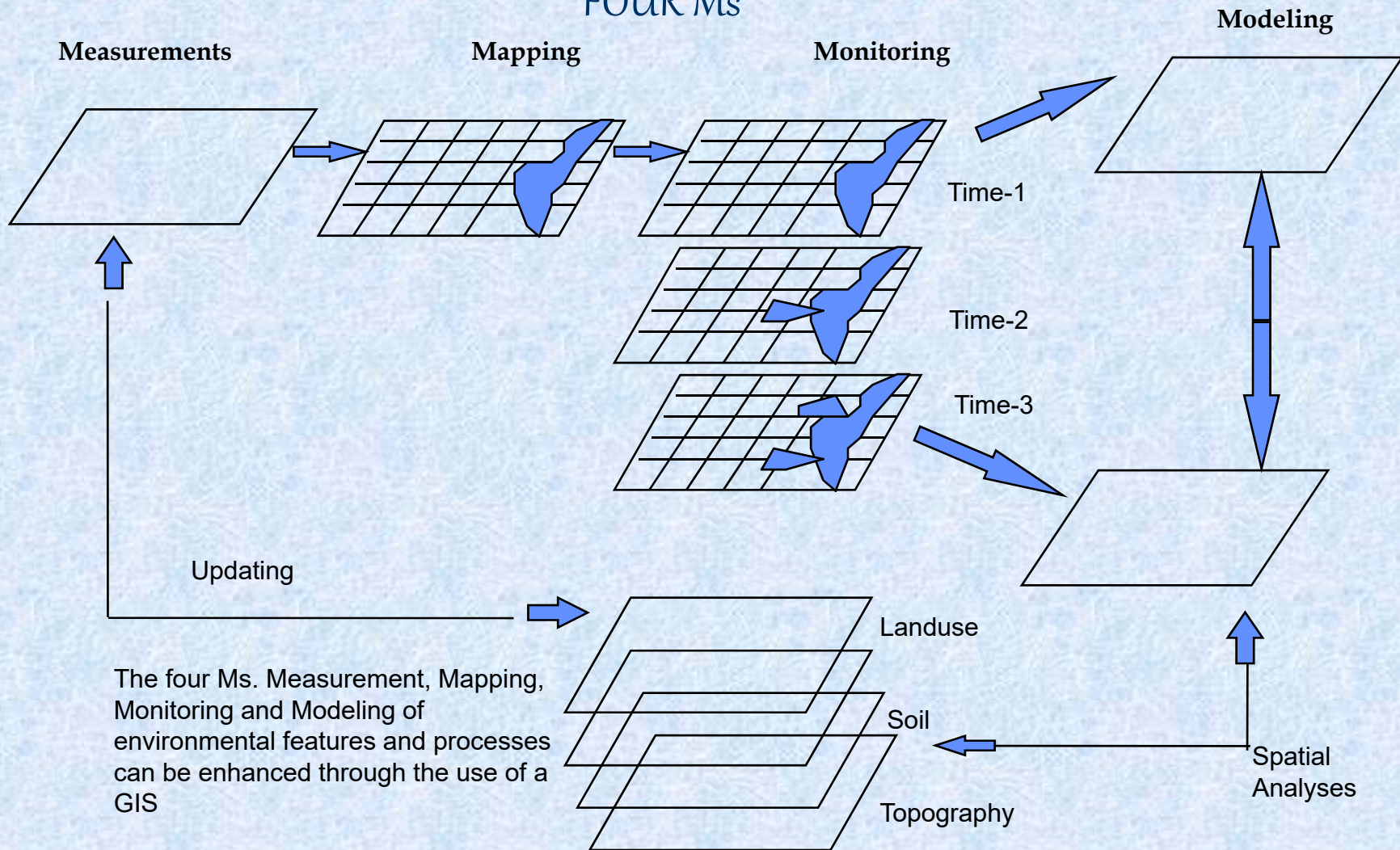
- An integration of five basic components



GIS Historical Development



FOUR Ms



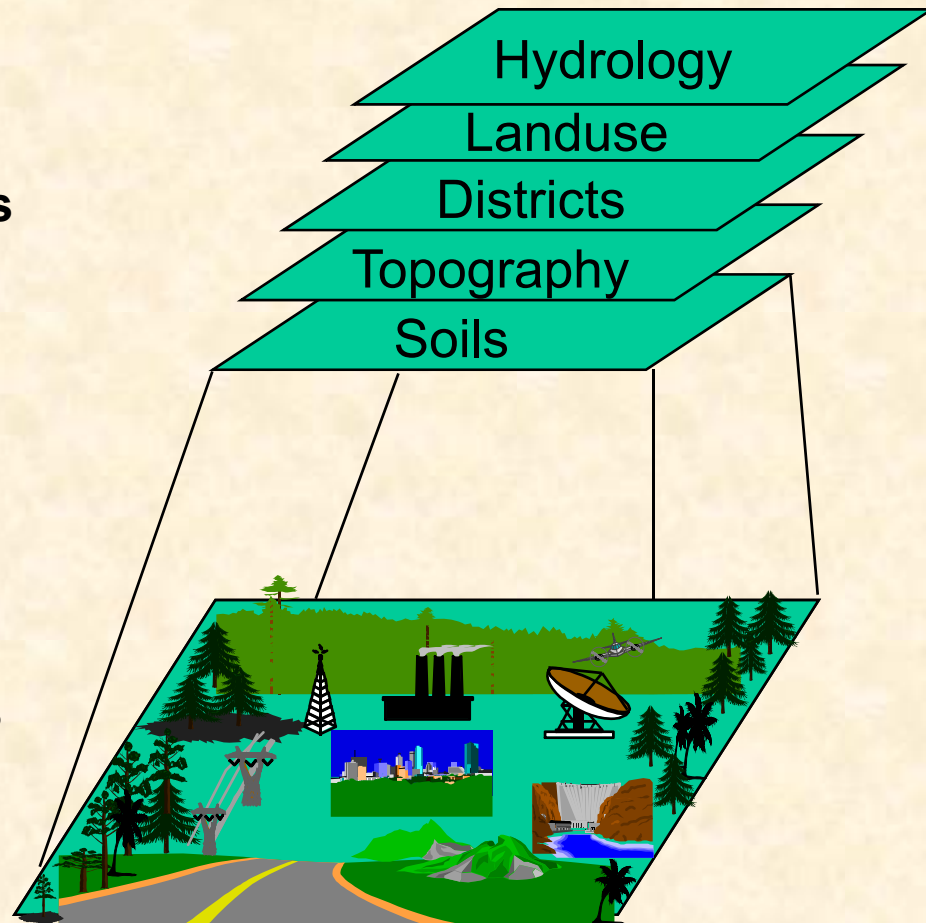
GEOGRAPHIC INFORMATION SYSTEM

Adapted from J.Stars and J.Estates

GIS

A computer based system capable of holding and using data describing places on the earth's surface

The real world consists of many geographies which can be represented as a number of related data layers.



GIS IS SUPPORTING TOOL FOR DECISION MAKERS

GIS functions

Capture

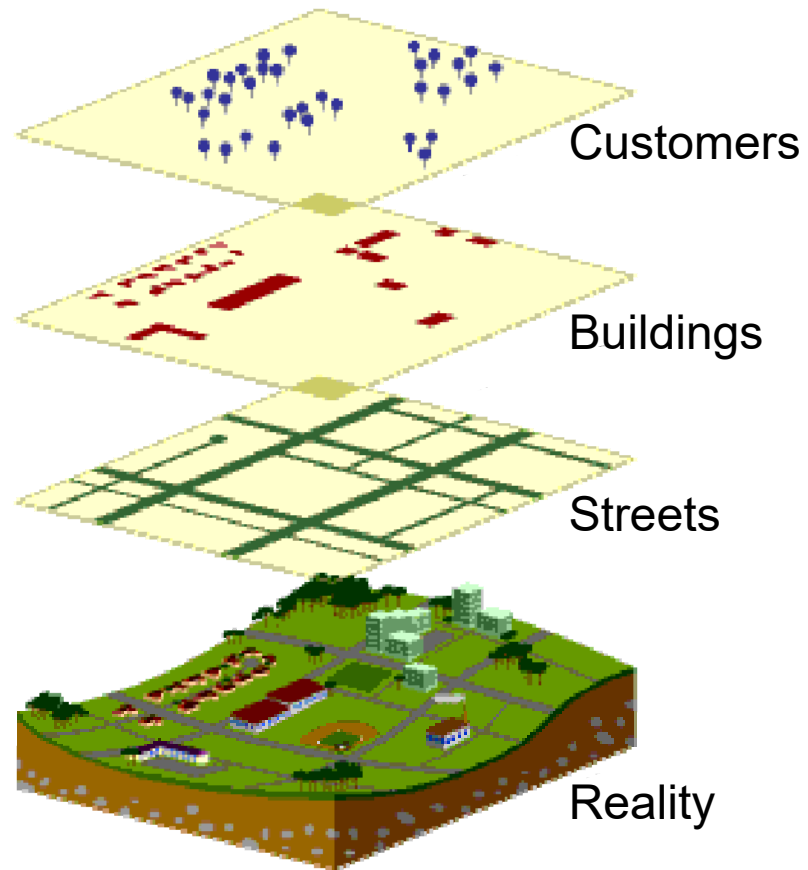
Store

Query

Analyze

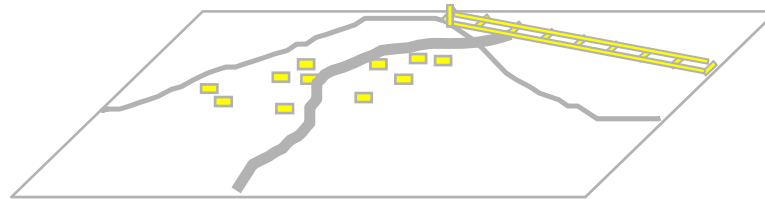
Display

Output

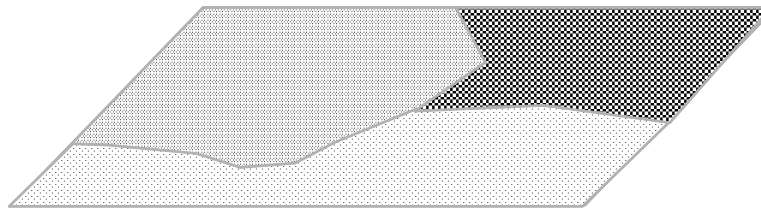


MAPS AND SPATIAL DATA

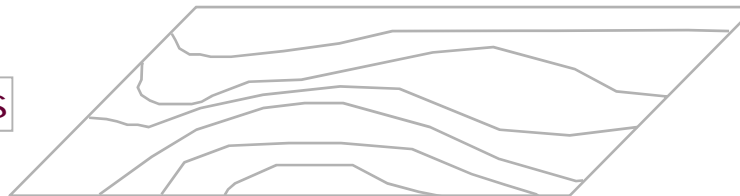
Topographic



Parcels



Contour lines

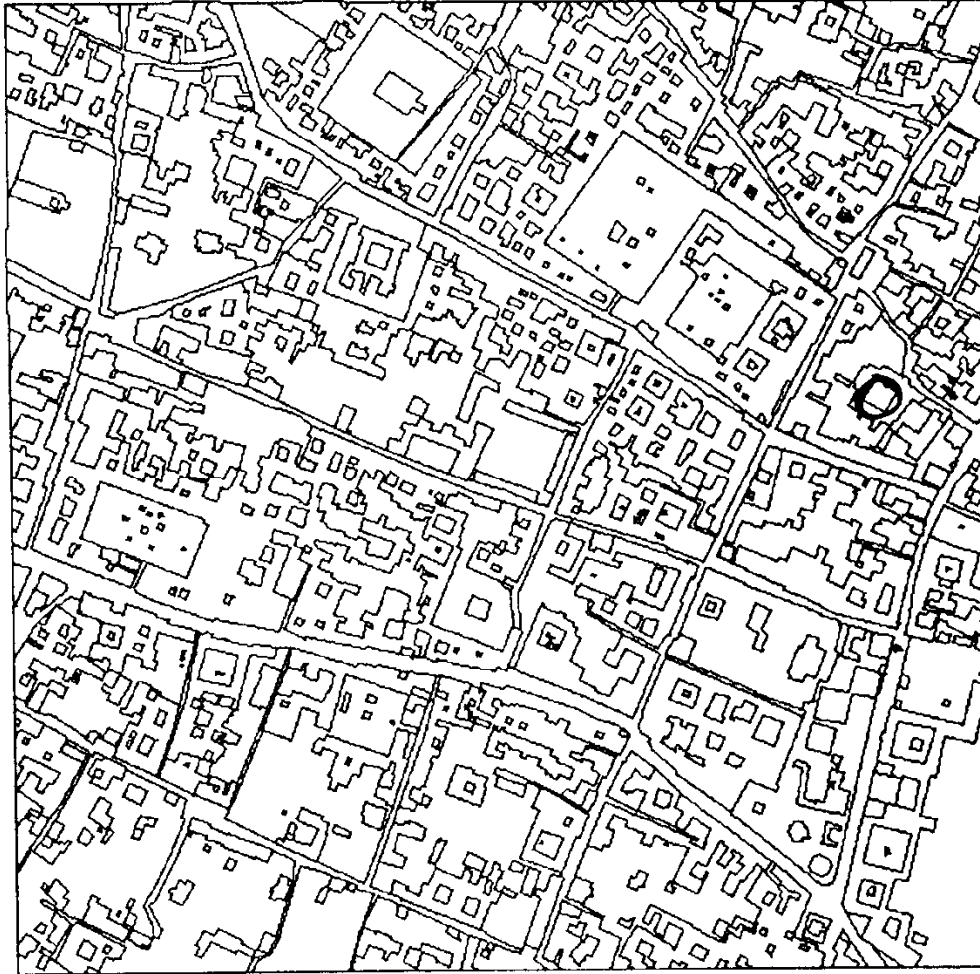


REAL-WORLD



GIS Questions - Locations - What is at ... ?

Mangal Bazar, Lalitpur District

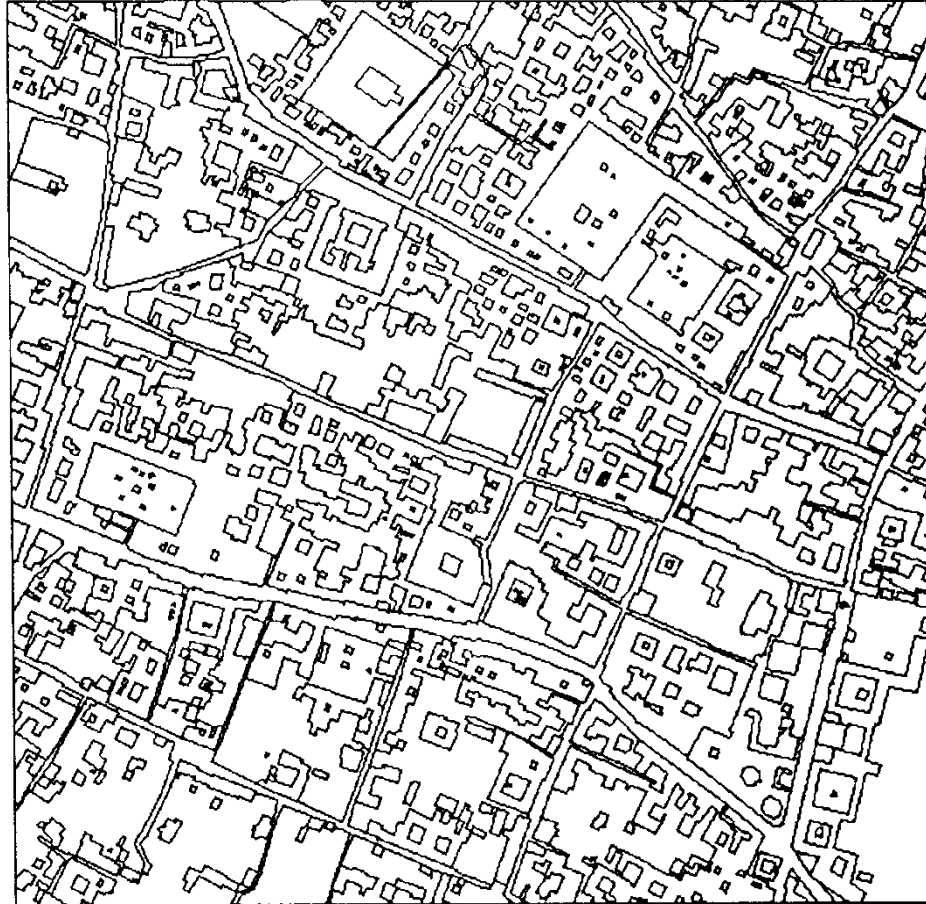


Identifier	Shrestha Niwas
Area	215.712
Owner	Asha Ram Shrestha
Address	14/210 Mahapal
Zoned land use	Residential
Assessment	NRs. 5000000

Who owns the land at Mangal Bazar, and its assessment ?

GIS Questions - Conditions - Where is it... ?

Mangal Bazar, Lalitpur District

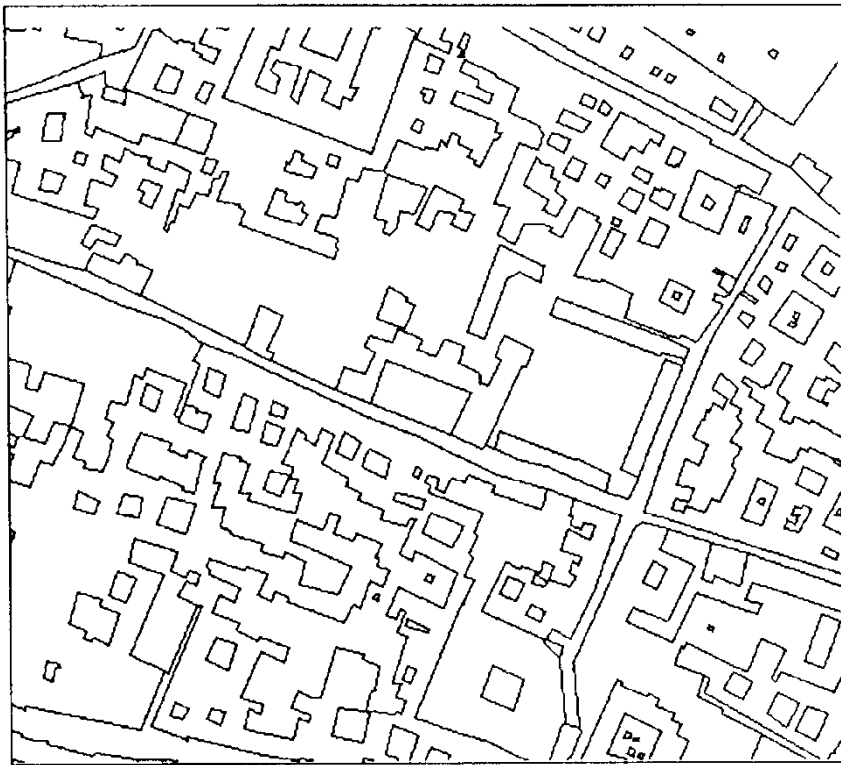


Residential Land use
Assessed at less than Rs. 500000
4 bedrooms
Made of local bricks

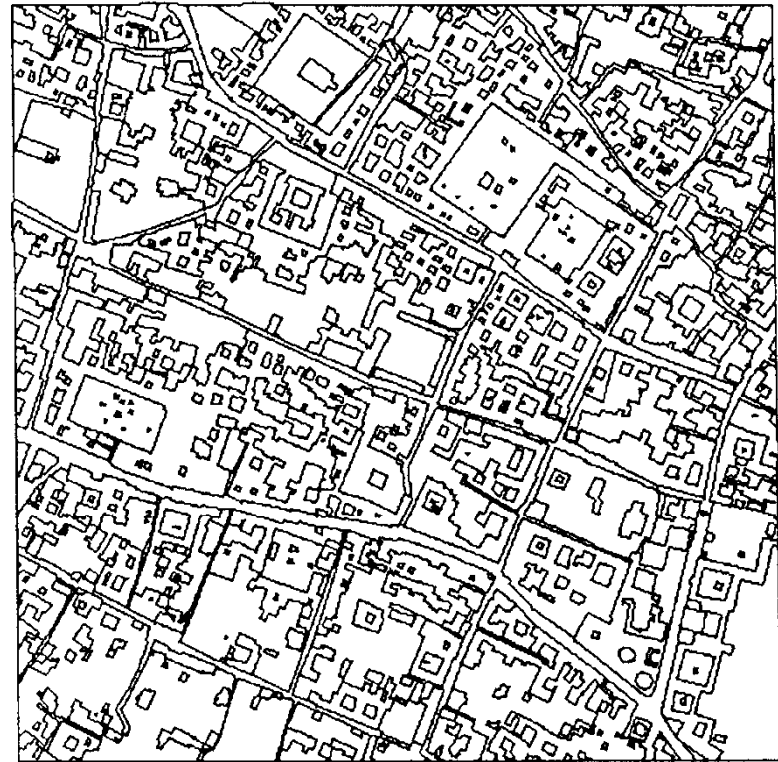
Where are houses located that you might consider buying ?

GIS Questions - Trends - What has changed since... ?

Mangal Bazar, Lalitpur District



1970

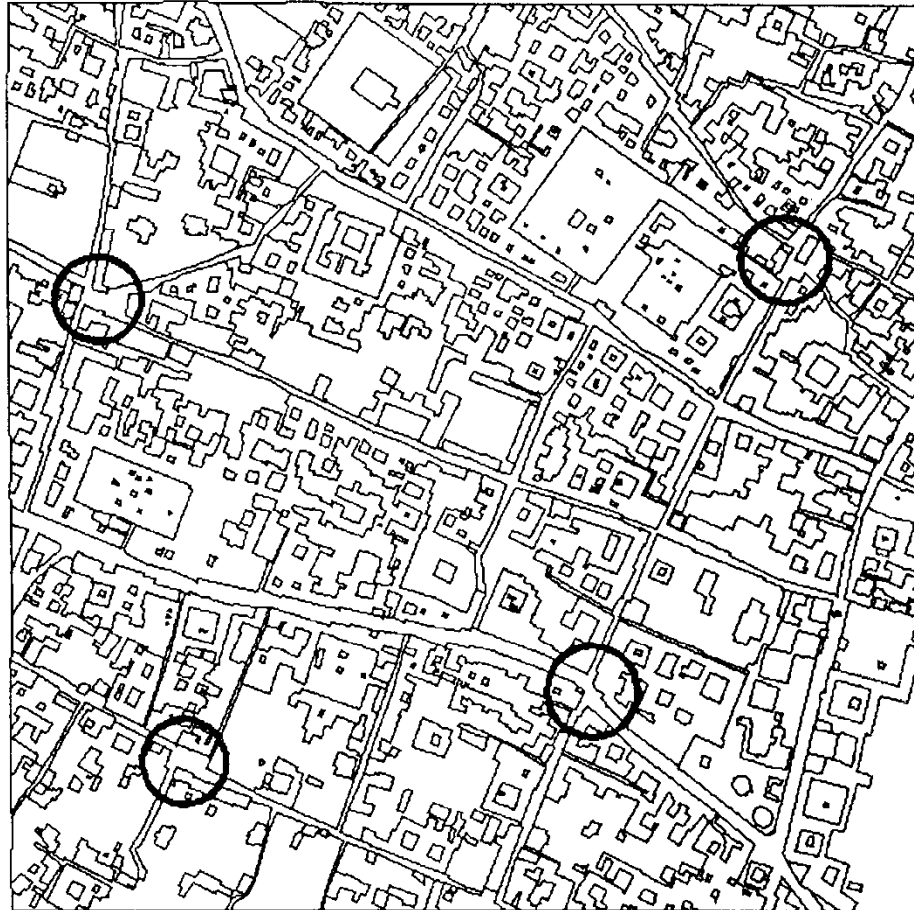


1990

How much land has used for residential area since 1970 ?

GIS Questions - Patterns - What data are related... ?

Mangal Bazar, Lalitpur District



What kind of patterns exist for vehicle accidents ?

Geographic Data

