



GIS – a SYSTEM-atic makeover

GIS (Geographic Information System) enables one to envision the geographic aspects of a body of data. Basically, it lets us query or analyse a database and receive the results in the form of some kind of map. Since many kinds of data have important geographic aspects, a GIS can have many uses: weather forecasting, sales analysis, population forecasting, and land use planning, to name a few.

In a GIS, geographic information is described explicitly in terms of geographic coordinates (latitude and longitude or some national grid coordinates) or implicitly in terms of a street address, postal code, or forest stand identifier. A geographic information system contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. GIS developers sometimes obtain the map data from public sources or companies that specialize in collecting and organizing geographic information.

Geographic data can be stored in a vector graphics or a raster graphics format. Using a vector format, two-dimensional data is stored in terms of x and y coordinates. A road or a river can be described as a series of x, y coordinate points. Nonlinear features such as town boundaries can be stored as a closed loop of coordinates. The vector model is good for describing well-delineated features. A raster data format expresses data as a continuously-changing set of grid cells and is better for portraying subtle changes such as soil type patterns over an area. Most GISs make use of both kinds of data.

GISs do varied things:

- ❖ Accept geographic input in the form of scanned-in and digitized map images. Often this data is supplied by a source that may own maps and has already digitized them.
- ❖ Rescale or otherwise manipulate geographic data for different purposes.
- ❖ Include a database manager, usually a Relational Database Management System (RDBMS).
- ❖ Include query and analysis programs so that you can retrieve answers to simple questions such as the distance between two points on a map or more complicated questions that require analysis, such as determining the traffic pattern at a given intersection.
- ❖ Provide answers visually, usually as maps or graphs.

Currently operators utilize GIS for wireless engineering and fixed wireless engineering programs. It allows analysing RF engineering or planning solutions data in combination with marketing information, such as demographics, to identify areas with the highest potential return and associating of network equipment with network switching and access locations. Moreover, GIS can be beneficial in other following ways too.

- Identifying concentrations of population
- Locating existing infrastructure
- Locating rights-of-way
- Identifying optimal routes for wired infrastructure and distribution points for wireless infrastructure
- Detailed physical network design
- Cable route layout
- Outside plant equipment inventory
- Cost estimation
- Asset/Facilities management
- Maintenance and expansion planning

For more information:

<http://searchsqlserver.techtarget.com/definition/GIS>

http://top.bev.net/tamp/7-Common_Appendices/Main_Project_Papers/GIS_Applications_in_Community_Telecommunications.pdf