

# Section 1: Introduction

| Lecture 1: About Speaker |

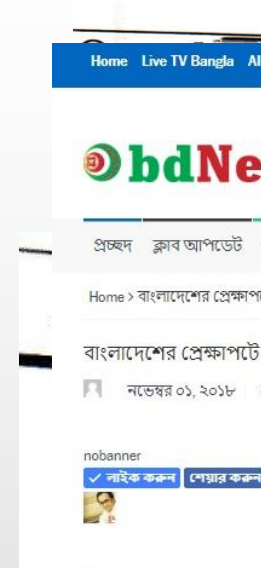


# About Speaker



## Md. Shahriar Alam

- ✓ Founder of Shahriar GIS School
- ✓ International Award-Winning GIS Trainer in 2021
- ✓ Web GIS Specialist/Consultant/Teacher/Speaker
- ✓ First Asian Web GIS Instructor of Udemy
- ✓ First “SuperMap” Global Online Course Creator
- ✓ Voting Member, OpenStreetMap Foundation, UK
- ✓ 14 years of experiences in GIS and Web GIS



Md. Shahriar Alam  
Founder, Shahriar GIS School

সি.ই.জি.আই.এস., আই.সি.ডি.ডি.ব্যবহার অনেক। এখন আমরা মো.জি.আই.এস. এর একটি বড় অবদান ইত্যাদি। কম্পিউটারে অথবা মোবাইল সেবা প্রদানকারি একটি প্রতিষ্ঠান হ'ল লোকসান বিশ্লেষণ ইত্যাদি ক

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## CASE STUDY

### World's First “SuperMap Global Online Course”



Md. Shahriar Alam  
Founder, Shahriar GIS School

Shahriar GIS School currently has more than 13,000 learners from 173 countries all across the globe who are learning GIS online through our 17 GIS courses since 2018. Our main business theme is “Learn and enjoy GIS by playing with this from anywhere at any time”.

As the founder of a GIS training institution, I always try searching for new ways of teaching and look for technologies to which my learners will be attracted and thus will be able to enjoy learning GIS through our online Courses practically. We apply our innovative ideas based on global situations and problem solutions. For example, during the Covid-19 pandemic situation, many GIS experts were

losing their jobs and some were unable to find any jobs due to the economic recession of many business industries and companies globally. With that in mind, Shahriar GIS School had planned to create a “Freelancing with GIS” course to inspire those jobless GIS experts to earn from home using a freelancing platform with their GIS experiences and earn their livelihood. We can find many freelancing courses online in the current times, but there has been no course that specialized in GIS freelancing. In that case, our world's first “Freelancing with GIS” course had helped many GIS experts globally in the Covid-19 pandemic. The other particular strength of Shahriar GIS School in GIS training is that we are trying to be “Only One” in a new idea and we inspire our learners to “Learn.... then Earn”. When I got to know SuperMap, it seemed to me that this is a new smart technology in the field of GIS which I was searching for my learners so that they can enjoy learning GIS. Then we

#### About Teacher



**Thank You**

**Enjoy GIS....!**



# Section 1: Introduction

| Lecture 2: GIS Career for Everyone |

# Lecture: 2

## After completing this lecture, you will learn:

1. GIS in Civil Engineering
2. GIS in Architecture
3. GIS in Computer Science and Engineering
4. GIS in Agriculture
5. GIS in Environmental Science
6. GIS in Urban Planning
7. GIS in Geography

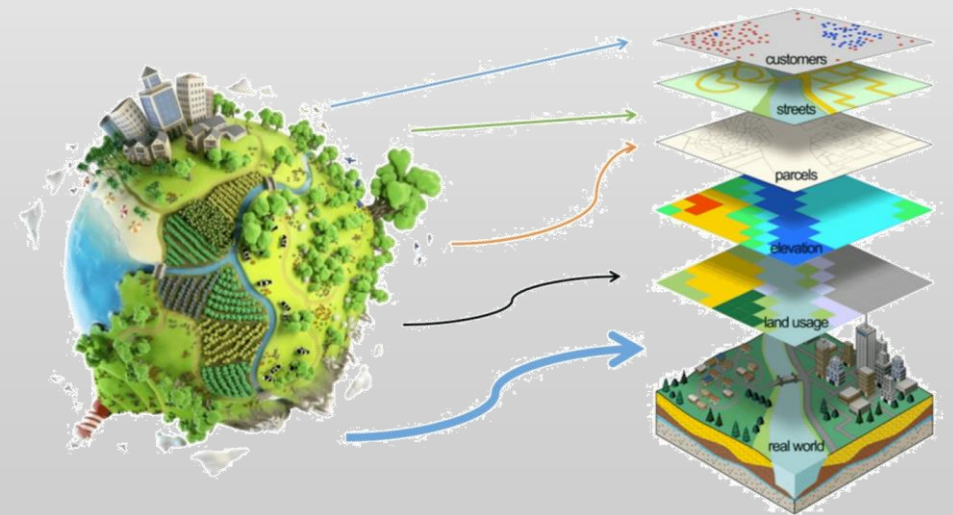


# GIS in Civil Engineering

**1. Structural:** Civil engineers can use GIS to include a multitude of material data, area history data and 3D GIS maps to create standard design methodologies.

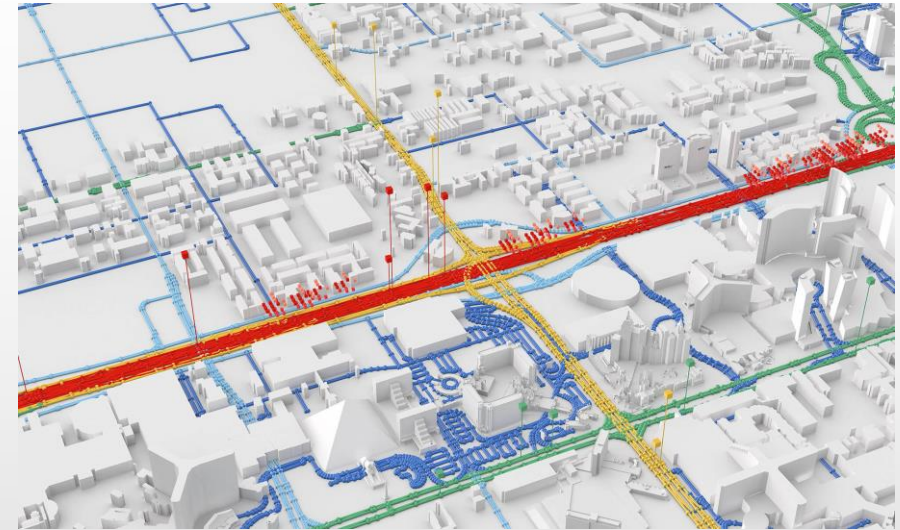


**2. Environmental:** GIS Provides the overlay maps, future growth plans, industrial concerns, land, water sources, and other natural elements so that Engineers can make the least impactful decisions.

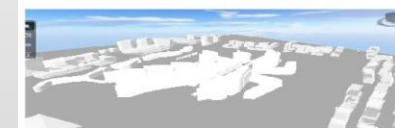


# GIS in Civil Engineering

**3. Transportation:** By using GPS in GIS technology, Highly dynamic traffic data or rapidly changing flood levels can be shown alongside population changes on the same map.



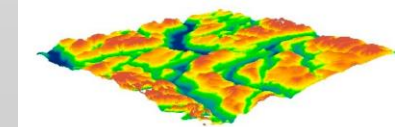
**4. Wastewater:** GIS provides Hydraulic data for water utility systems and combines customer information, water flow at various nodes, and historical data to forecast water demand.



**Building Model**



**Surface Model**



**Digital Elevation Model**



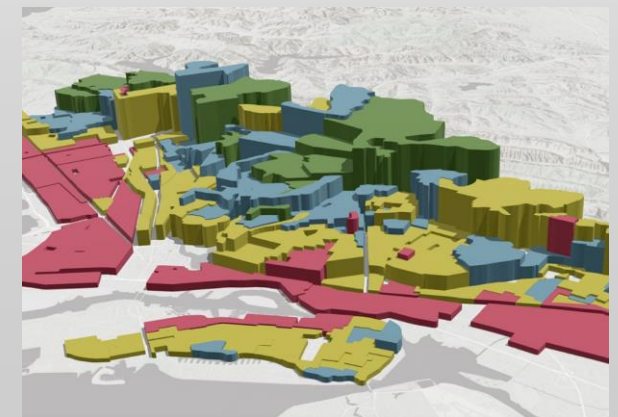
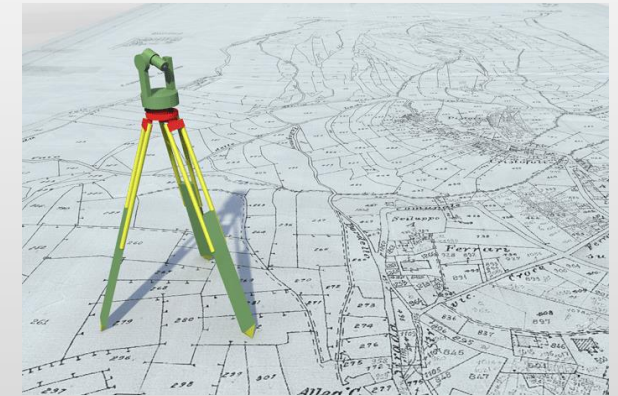
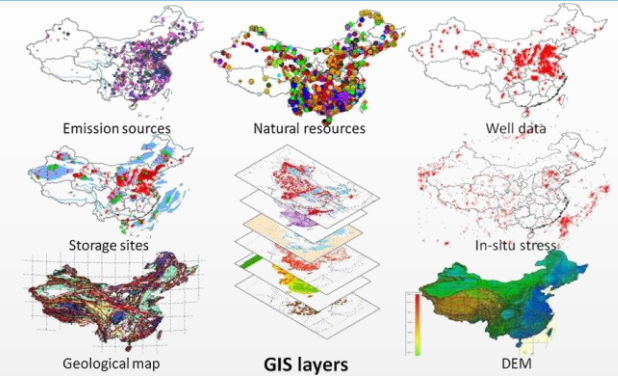
**Utility Infrastructure**

# GIS in Civil Engineering

**5. Site Analysis:** GIS integrates Environmental protection regions, city and zoning designations, soil and topographic maps for Site Analysis.

**6. Surveying:** Surveyors can easily assess environmentally sensitive regions, forestry, government control, road networks, previously established boundaries, and other vital information using GIS technologies.

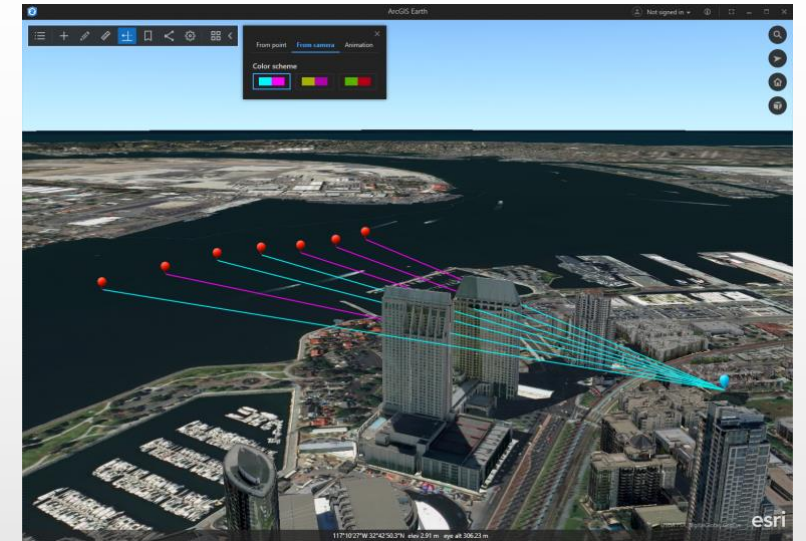
**7. CAD Integration:** Create a coordinate system in AutoCAD to project maps without having to change CAD designs or convert GIS data





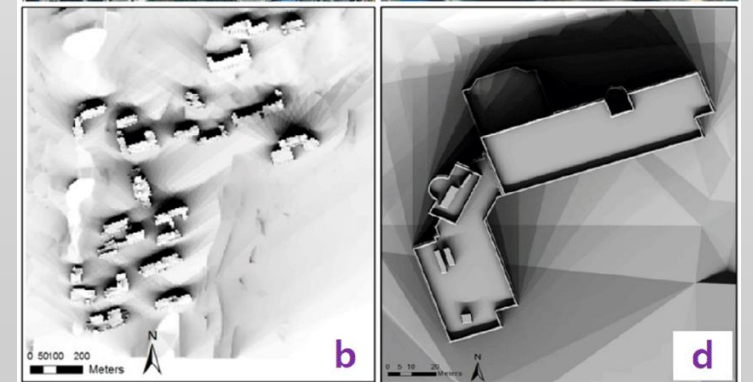
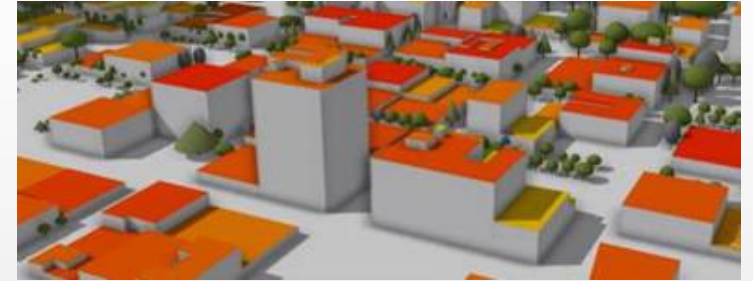
# GIS in Architecture

1. **Line of Sight:** GIS helps architects to plan the line of sight perfectly so that the buildings do not obstruct important features in the horizon.
2. **Exposure to Noise:** GIS helps in urban high-rise buildings to be designed and positioned in areas that have little or no interference to the environment.
3. **Development Planning:** GIS helps in planning various development projects in urban areas to help citizens understand the importance of urban development holistically and the bigger picture with Map & Database.
4. **Crowd Simulation:** GIS helps in Crowd Simulation at time-scales approaching “real time”.



# GIS in Architecture

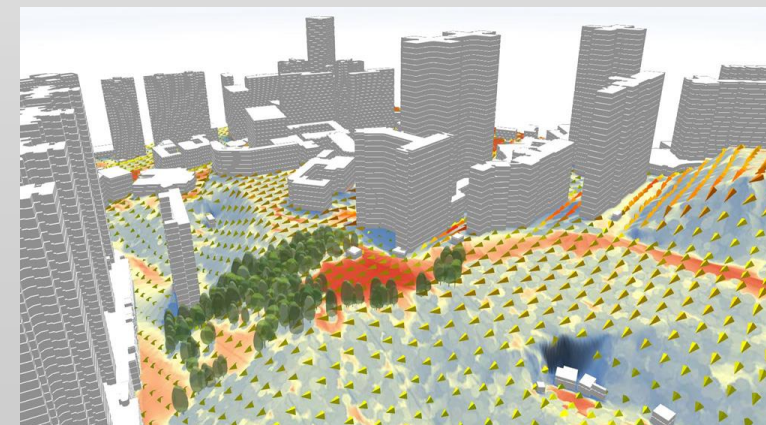
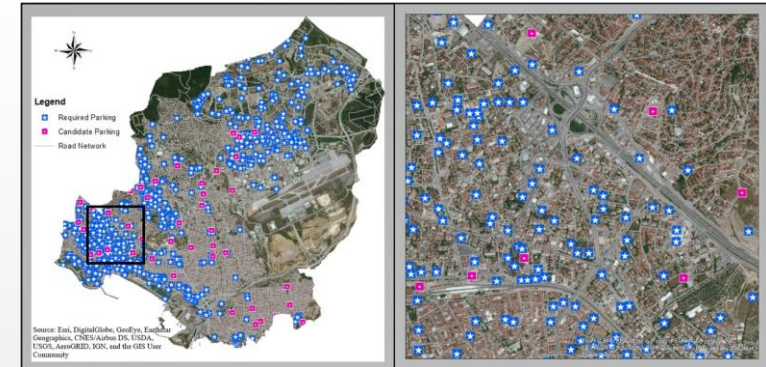
- 5. Solar Exposure:** Harvesting light is easy to assess the suitability of installing solar panels on roofs using 3D GIS city models and geometric information such as the tilt, orientation and area of the roof.
- 6. City Engine:** Assessing feasibility and plan implementation using Esri's City Engine improving urban planning, architecture, and overall design.
- 7. Pedestrian Behavior:** GIS can help to discern the possible movement of pedestrians and vehicles and help in creating artistic impressions of cities.
- 8. Shadow Analysis:** GIS helps to create exact impressions of shadows that would be cast during every preconstruction phase of a project.





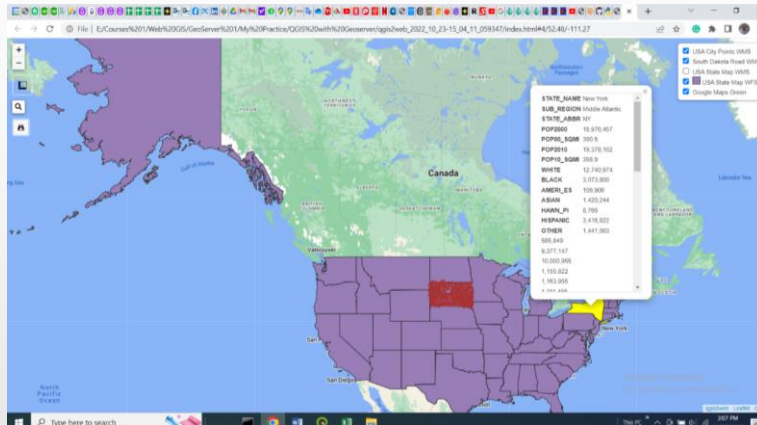
# GIS in Architecture

9. **Parking Availability:** GIS can also be used to determine the number of parking spaces that would be available and the amount of time that would be required to locate one.
10. **Integration of GIS and BIM:** Operating a facility with BIM (building information modeling) because of its ability to analyze information and integrate data from different systems.
11. **Tangible Landscape:** GIS can also be used to create life-size sketches of buildings and create proper models of the actual buildings that need to be constructed.
12. **Geodesign:** Conceptualizing building plans with focus on stakeholder participation and collaboration to closely follow natural systems.

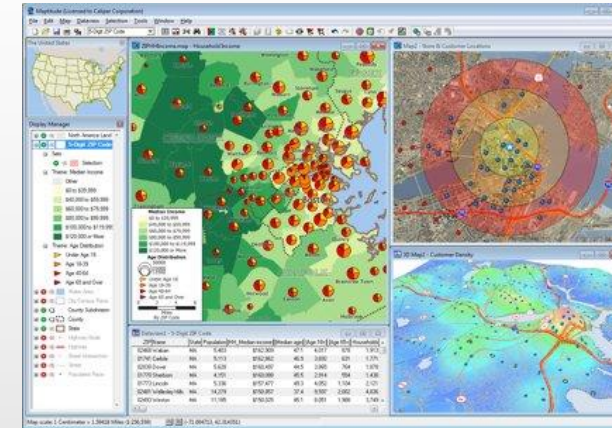


# GIS in Computer Science and Engineering

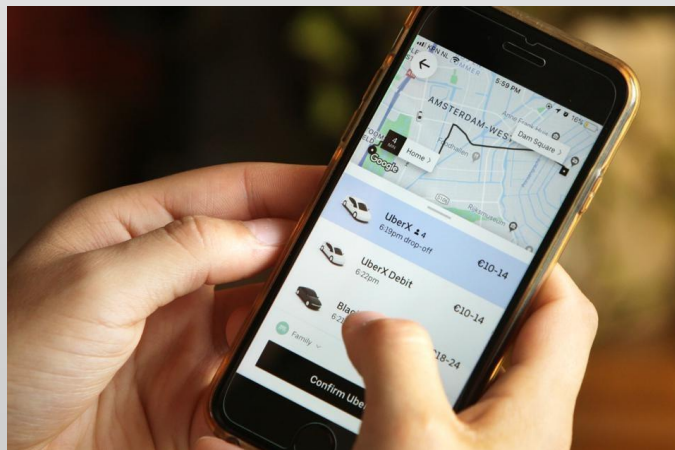
## Web GIS



## GIS Based Software Development



## Ride Sharing Apps Development



## Vehicle Tracking Software Development



And Many More...

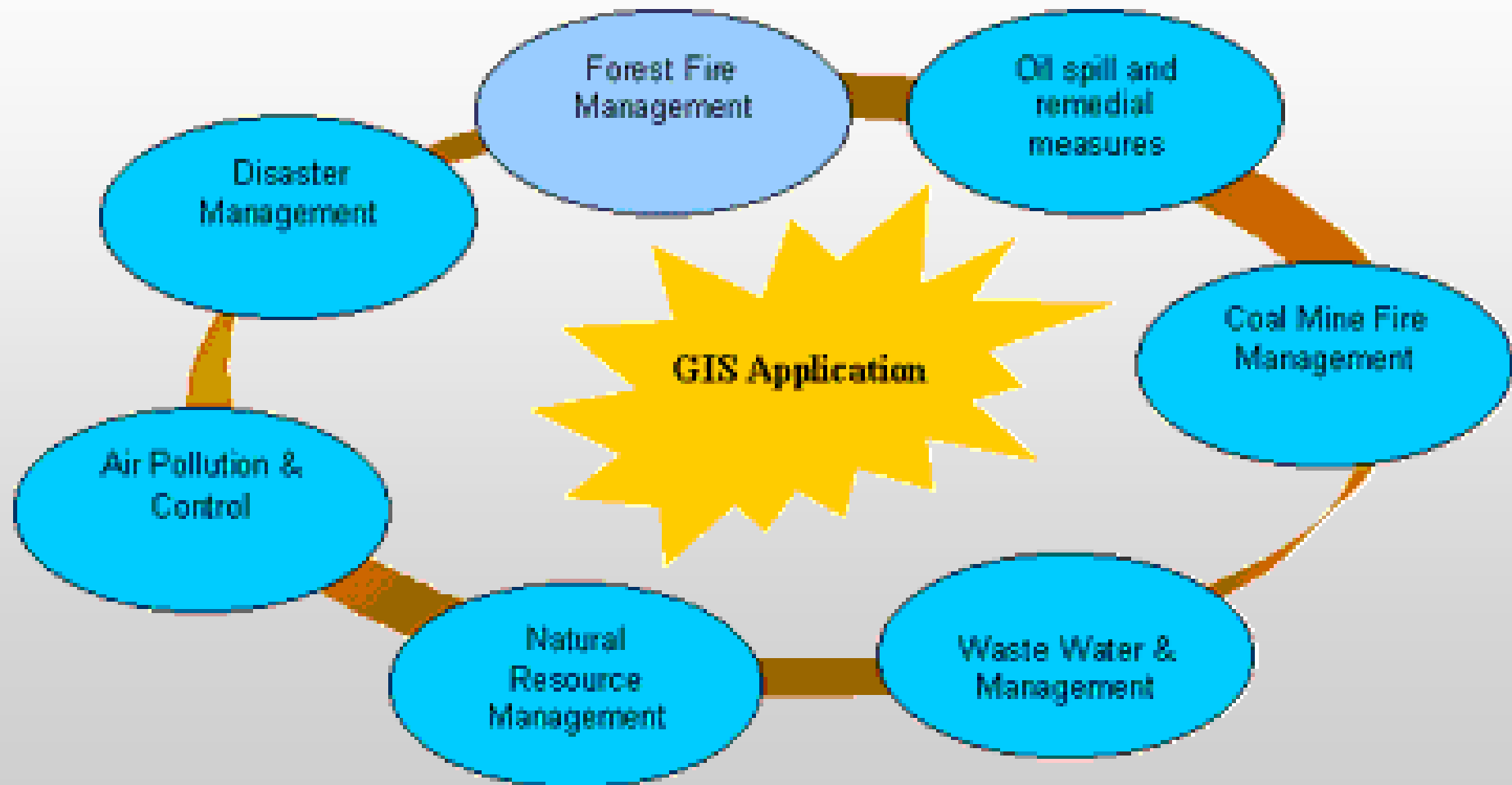


# GIS in Agriculture

1. Agricultural mapping
2. Soil analysis
3. Crop Information & Data combination
4. LIS (Land Information System)
5. Assemble information as soil moisture, nutrients, elevation, and topography, to aid in the production of a map
6. Store geospatial data and produce maps for land inventory
7. Analyze and visualize agricultural environments
8. Increase production



# GIS in Environmental Science



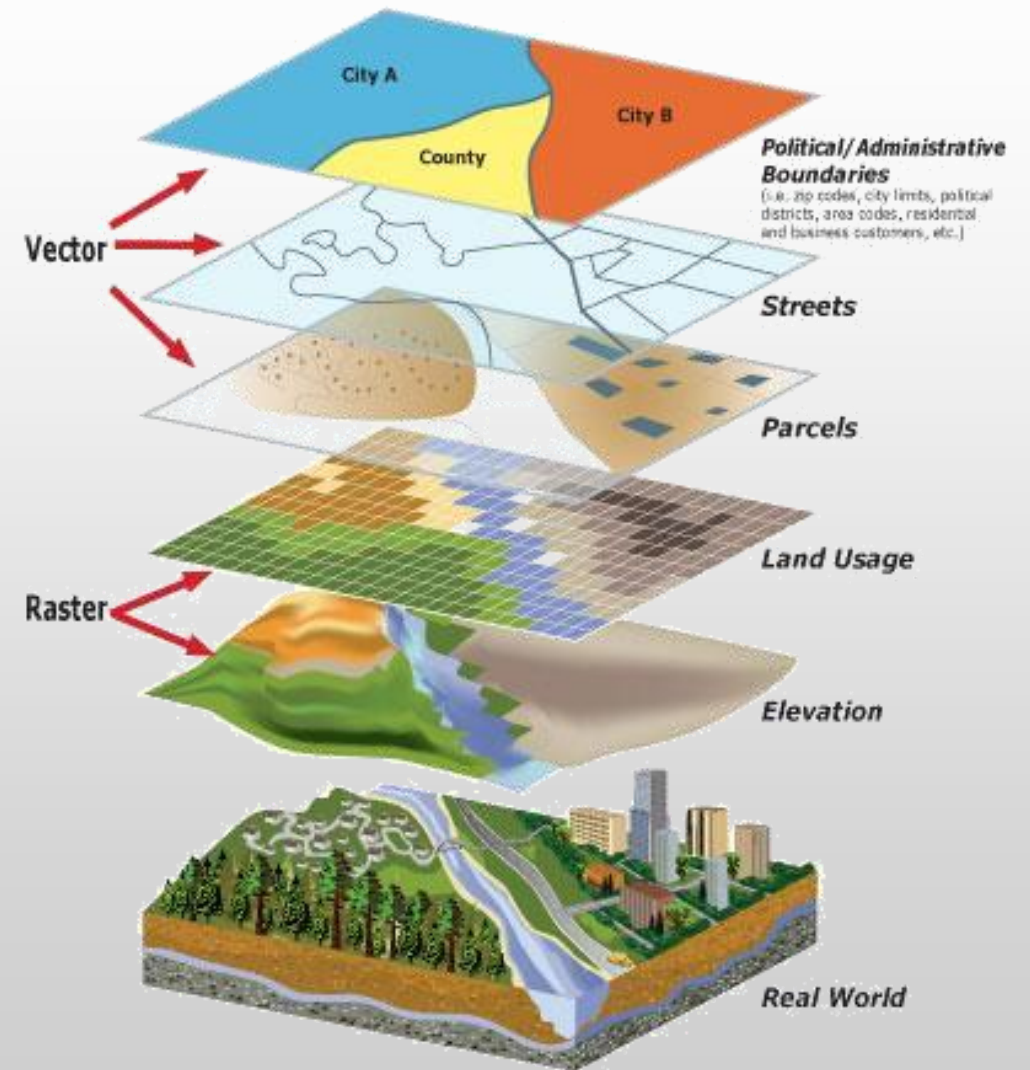
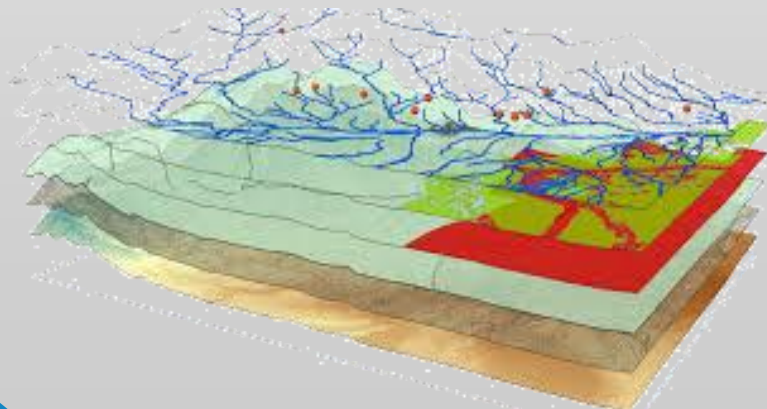
# GIS in Urban Planning

1. Resource inventory
2. Creating land-use maps & plans
3. Planning applications
4. Analyzing socioeconomic & environmental data
5. Land suitability analysis/site selection
6. Measuring connectivity
7. Impact assessments
8. Evaluation, monitoring, & feedback



# GIS in Geography

1. Geographical Analysis
2. Geographic Survey
3. Environment Analysis
4. Disaster management
5. Watershed
6. Land suitability
7. Land Use Mapping





**Thank You**

**Enjoy GIS...!**



# Section 2: GIS and Web GIS

## | Lecture 3: Introducing Desktop GIS |



# Lecture: 3

**After completing this lecture, you will learn:**

1. Simple Definition of GIS
2. Types of GIS
3. What is Desktop GIS
4. Desktop GIS Software
5. ArcGIS
6. ArcGIS Pro
7. QGIS
8. SuperMap iDesktop 10i



# Simple Definition of GIS

## GIS or Geographic Information System:

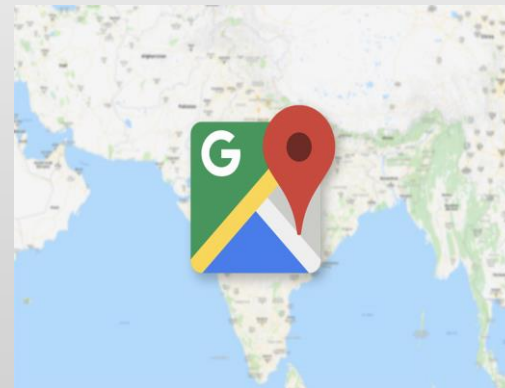
A System that provides Geographic Information.

Example:

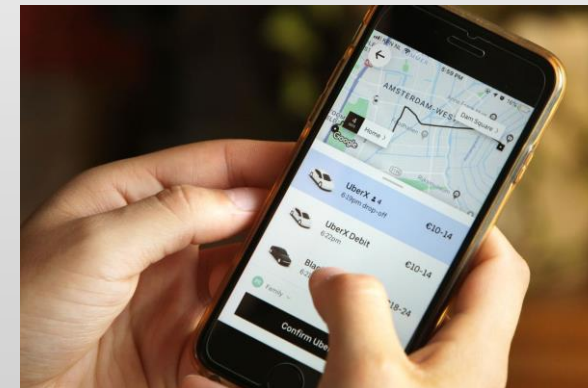
Geographic Software



Google Map



Uber



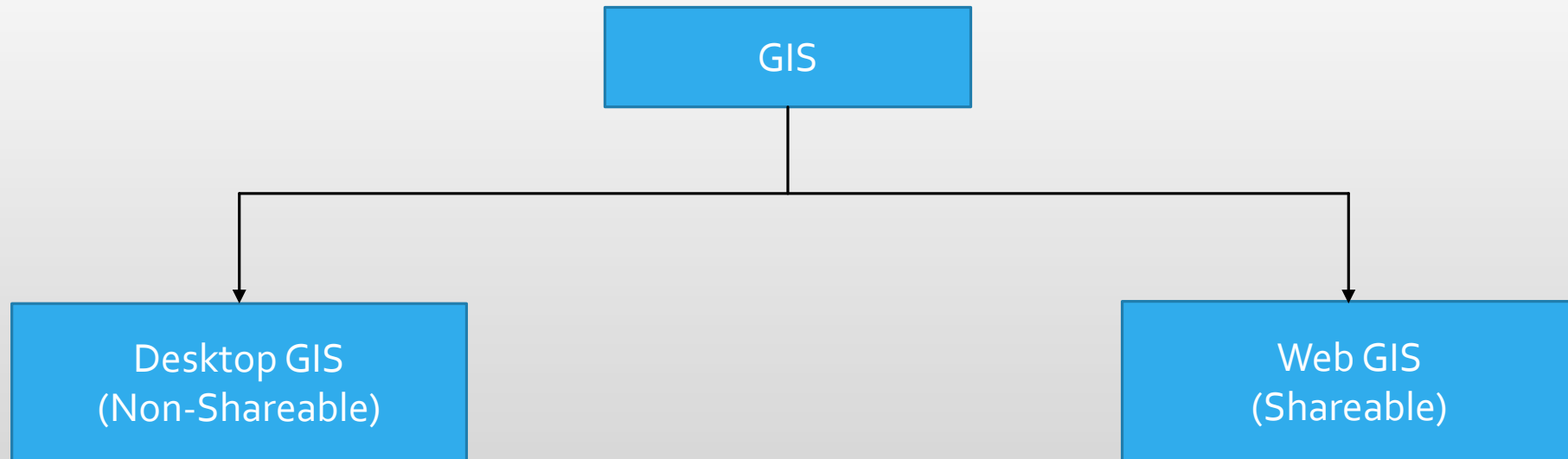
And So on





# Types of GIS

Based on Web and Publicly Share Option, there are 2 types of GIS:



# What is Desktop GIS

Desktop GIS is a Mapping software that is installed onto and runs on a personal computer and allows users to display, query, update, and analyze data about geographic locations and the information linked to those locations.

Desktop GIS Software:

ArcGIS



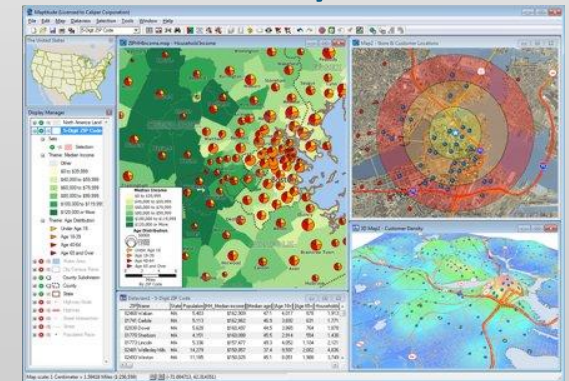
QGIS



SuperMap iDesktop 10i



And many more...



# ArcGIS

ArcGIS Desktop includes the following Windows desktop applications:

 ArcCatalog

 ArcMap

 ArcGlobe

 ArcScene



# ArcGIS®

# ArcGIS Pro

ArcGIS Pro is the latest professional desktop GIS application from Esri. With ArcGIS Pro, you can explore, visualize, and analyze data; create 2D maps and 3D scenes; and share your work to your ArcGIS Online or ArcGIS Enterprise portal.



**ArcGIS<sup>®</sup> Pro**

# QGIS

QGIS, previously known as Quantum GIS is a free and open-source cross-platform desktop geographic information system application that supports viewing, editing, and analysis of geospatial data.





# SuperMap iDesktop 10i

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SuperMap focuses on providing innovative GIS platform software and solutions for various industries, such as smart city, land management, real estate, urban planning, pipeline management, public service, etc. For Desktop GIS SuperMap Provides us “SuperMap iDesktop 10i” Software.

The logo consists of the word 'SuperMap' in a large, red, italicized serif font. A golden arc with a small orange sphere at its end curves over the top of the text.

*SuperMap*

**Thank You**

**Enjoy GIS....!**



# Section 2: GIS and Web GIS

| Lecture 4: Web GIS |

# Lecture: 4

After completing this lecture, you will learn:

1. What is Web GIS?
2. Definition
3. Desktop GIS vs Web GIS
4. Key Elements of Web GIS
5. Basic Steps of Web GIS
6. Model of Web GIS
7. Advantages of Web GIS






# What is Web GIS?

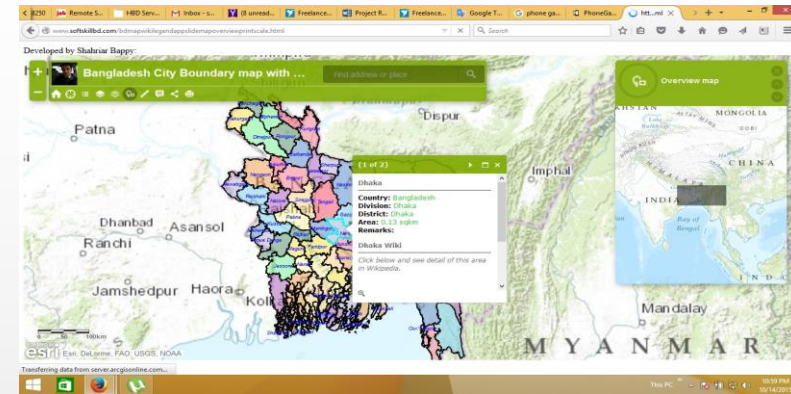
 Web GIS is the Combination of two Systems:

1. Web/Internet and
2. GIS (Geographic Information System)

 It Is a technology that is used to display and analyze spatial data on the Internet.

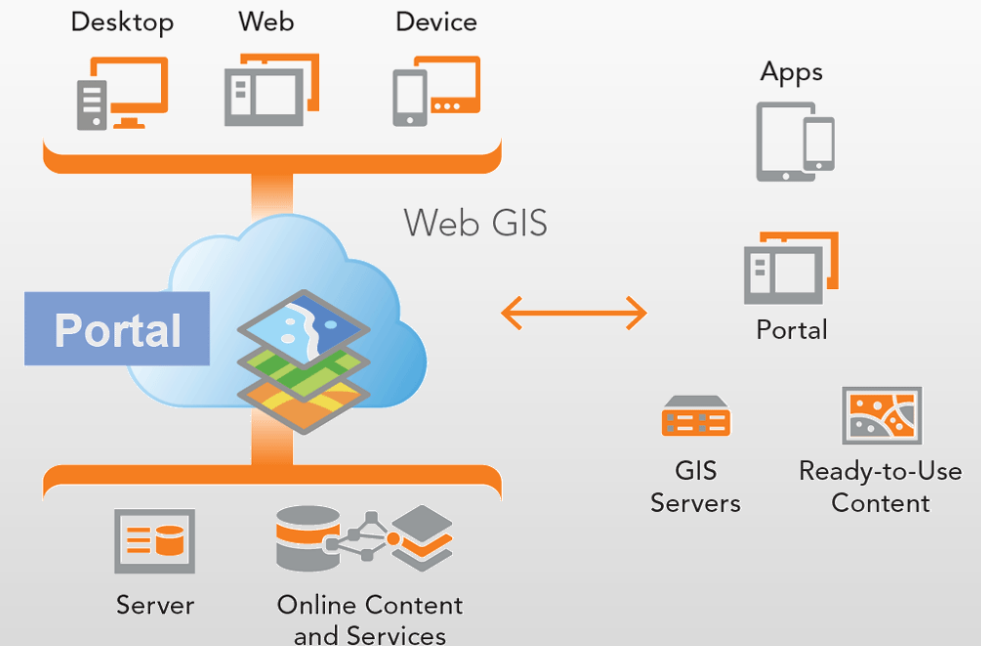
 It combines the advantages of both the Internet and GIS.

 It offers public a new means to access spatial information without owning expensive GIS software.



# Definition

Web GIS defined as a distributed information system, comprising at least a server and a client, where the server is a GIS server and the client is a web browser, desktop application, or mobile application and much more. The server has a URL so that clients can find it on the web.



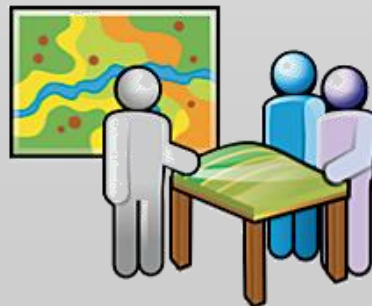
# Desktop GIS vs Web GIS

Simple a Desktop GIS is installed and operates on a personal computer. User can only display, update, query and analyze geographic data locally. A Desktop GIS is not accessible on a server or externally, therefore limiting access to how and where it can be managed. Compare this to a Web GIS and an organization can Reduce lead times. Web GIS creates the way of access for the group of users. Web GIS can be used by dozens or hundreds of users simultaneously.



By Individuals

By Groups



By Society on the Web



# Key Elements of Web GIS

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There are 5 essential elements in every Web GIS application. These include:

 A Web Application

 Digital Base Maps

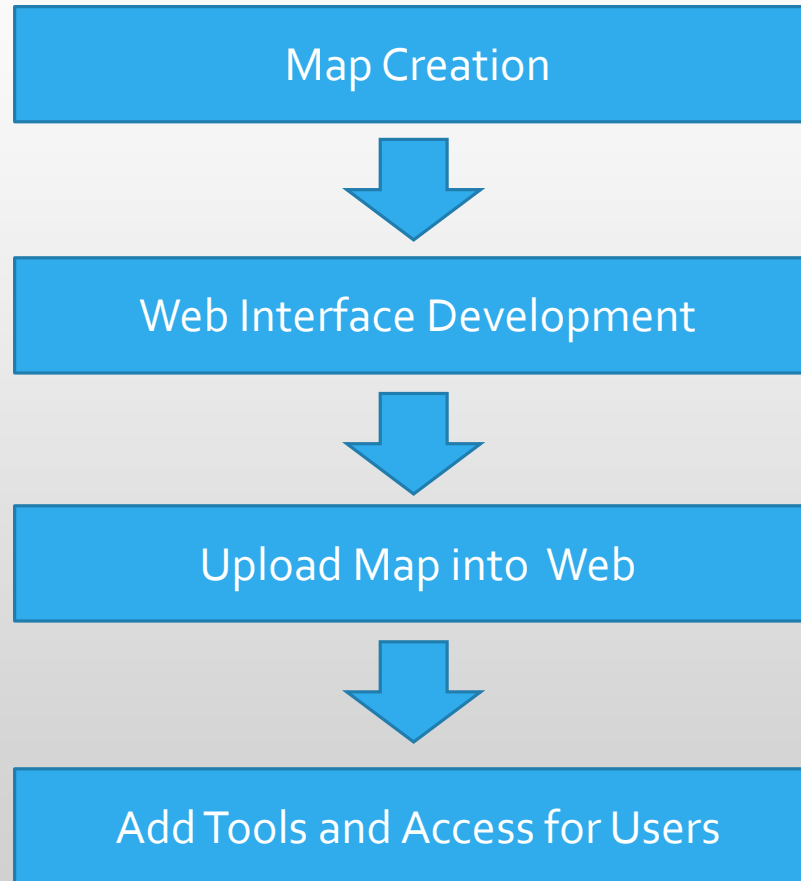
 Operational Layers

 Tasks and Tools

 One or More Geodatabase



# Basic Steps of Web GIS



# Model of Web GIS



# Advantages of Web GIS

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Web GIS is a powerful mapping and analytical functionality expressed within a web browser. Because of the increased power and customization, Web GIS can now better support learning standards-oriented content in the natural and social sciences. No longer is it necessary to teach learners how to use GIS before teaching the disciplinary content of interest.

# Advantages of Web GIS

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Web GIS introduces distinct advantages over traditional desktop GIS, including the following:

-  A Global Reach
-  A Large Number of Users
-  Better Cross-Platform Capability
-  Low Cost as Averaged by the Number of Users
-  Easy to Use
-  Unified Updates
-  Diverse Applications



**Thank You**

**Enjoy GIS...!**

