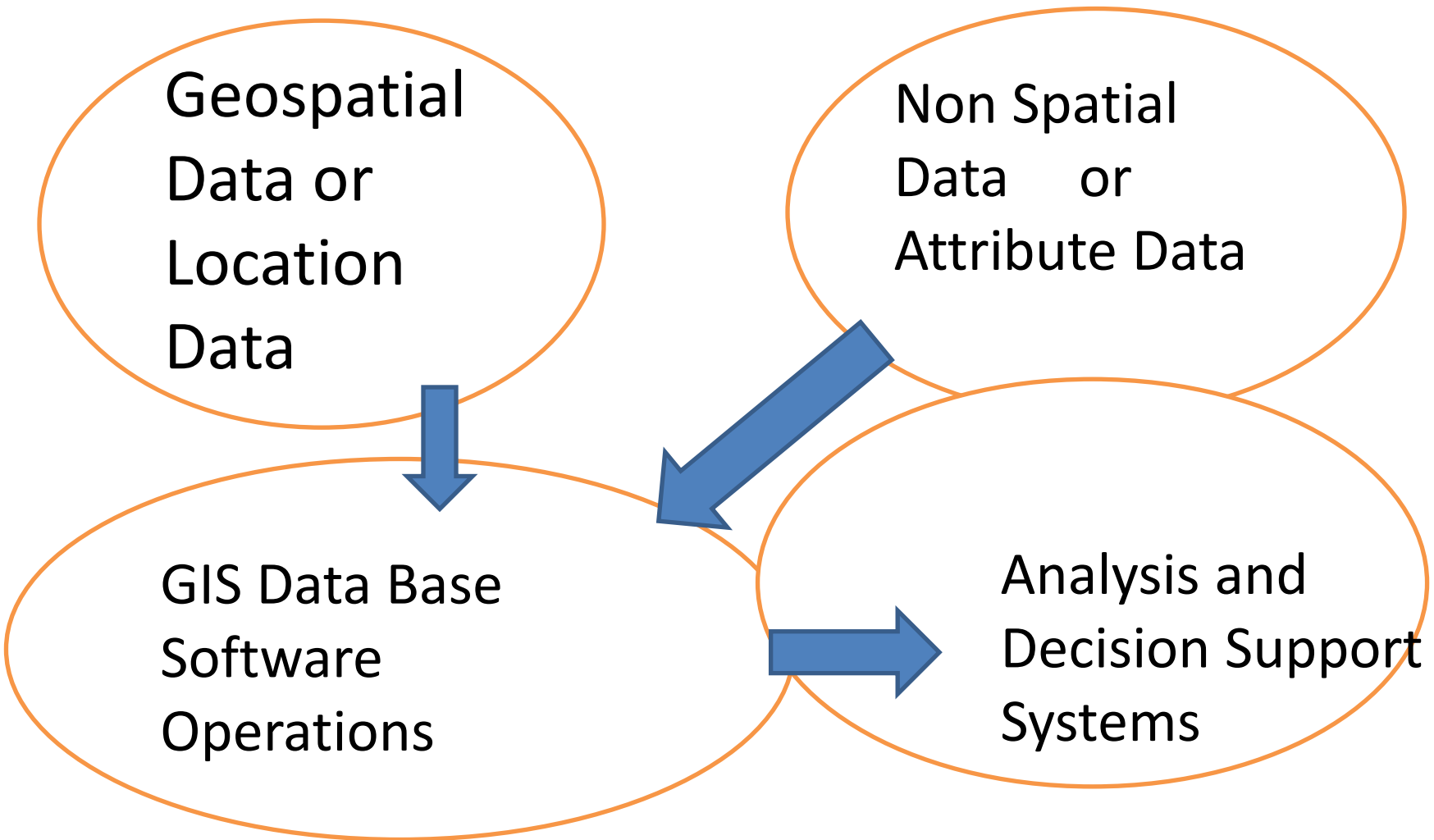


# Geospatial Technology in India

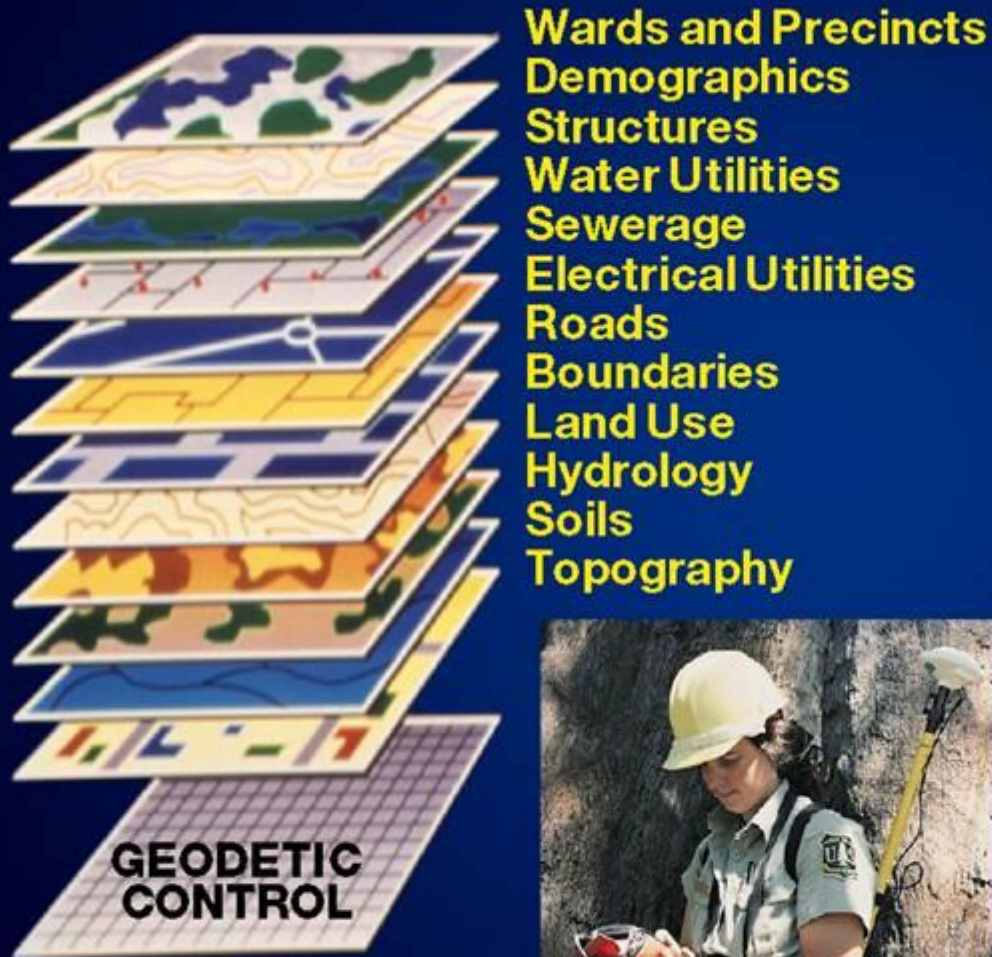
Dr. Swarna Subba Rao

Former Surveyor General of India

# GIS –GEOGRAPHIC INFORMATION SYSTEM



# *Geographic Information Systems*



# Development of Geospatial Technology

- Survey of India started in 1857.
- Post independence became National Mapping Agency
- Has pioneered in Analogue Mapping and Analogue Photogrammetry.
- Map ... Basic Infrastructural tool.
- Attribute data... for planning or designing a project.
- Integration of Spatial and non-spatial data.

# Geospatial Data

- Sources.. Map
- Aerial platform .1940 to 1990 Air Photography. Photogrammetry.
- Satellite Imagery.
- Drone Photography



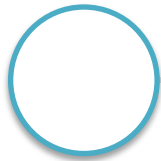
**LOCATION  
FUNDAMENTAL  
TO DECISION  
MAKING**



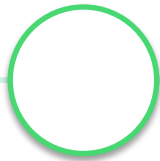


**MAPS ARE NOT JUST  
DRIVING APPS TODAY;  
THEY ARE DRIVING  
ECONOMIES TOO**

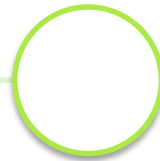
# VALUE OF MAPS IN INDIAN ECONOMY



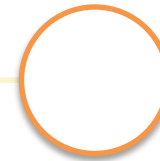
*In 2010, McKinsey Global Institute's report had highlighted that land market distortions in India lead to **1.3% loss in GDP** annually.*



*This amounts to **\$34.45 billion** each year at current values (Indian GDP is currently valued at \$2.65 trillion).*



*In other words, effective use of mapping & digital technologies in our land records management can **unlock \$34 bn.***



*This is almost **equal to FDI equity inflows into India** between April and Dec 2017, making it one of top FDI destinations in the world.*



# CONTRIBUTION TO GLOBAL ECONOMY



**\$1trn** business sales facilitated by digital maps in 2016



**\$550bn** consumer benefits derived from map services



**4 mn** direct jobs generated by mapping services globally



**5%** improvement in revenues and cost savings by companies

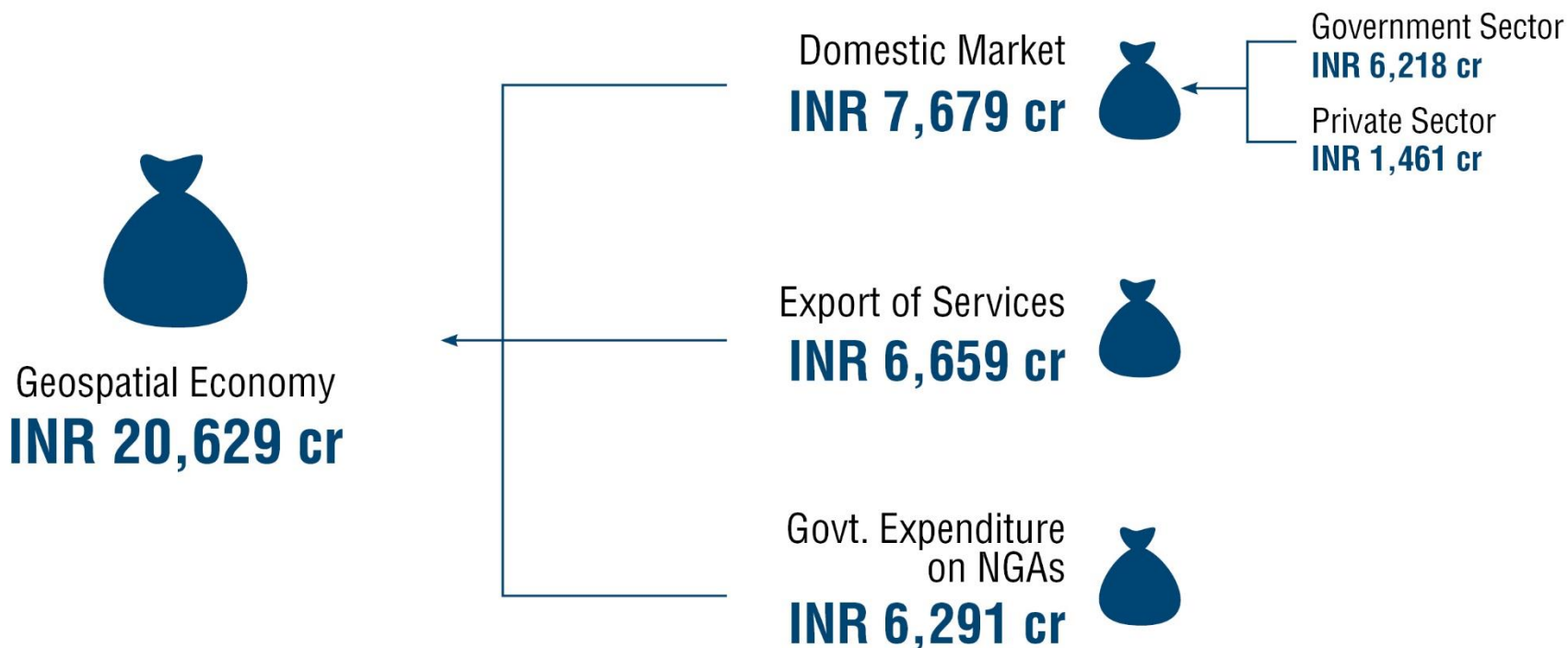


**75%** sectors representing global GDP directly benefitted



1,686 mn Mt reduction in vehicular emissions because of digital maps

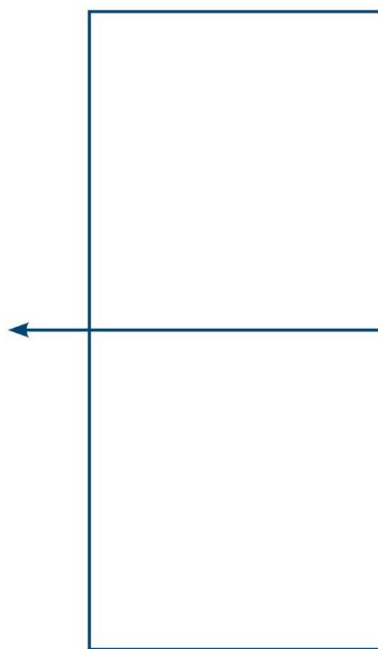
## Estimated Value of Indian Geospatial Economy in 2017-18



## Employment within Indian Geospatial Economy in 2017-18



Employment  
**2,51,300**



Domestic Market  
**145,400**



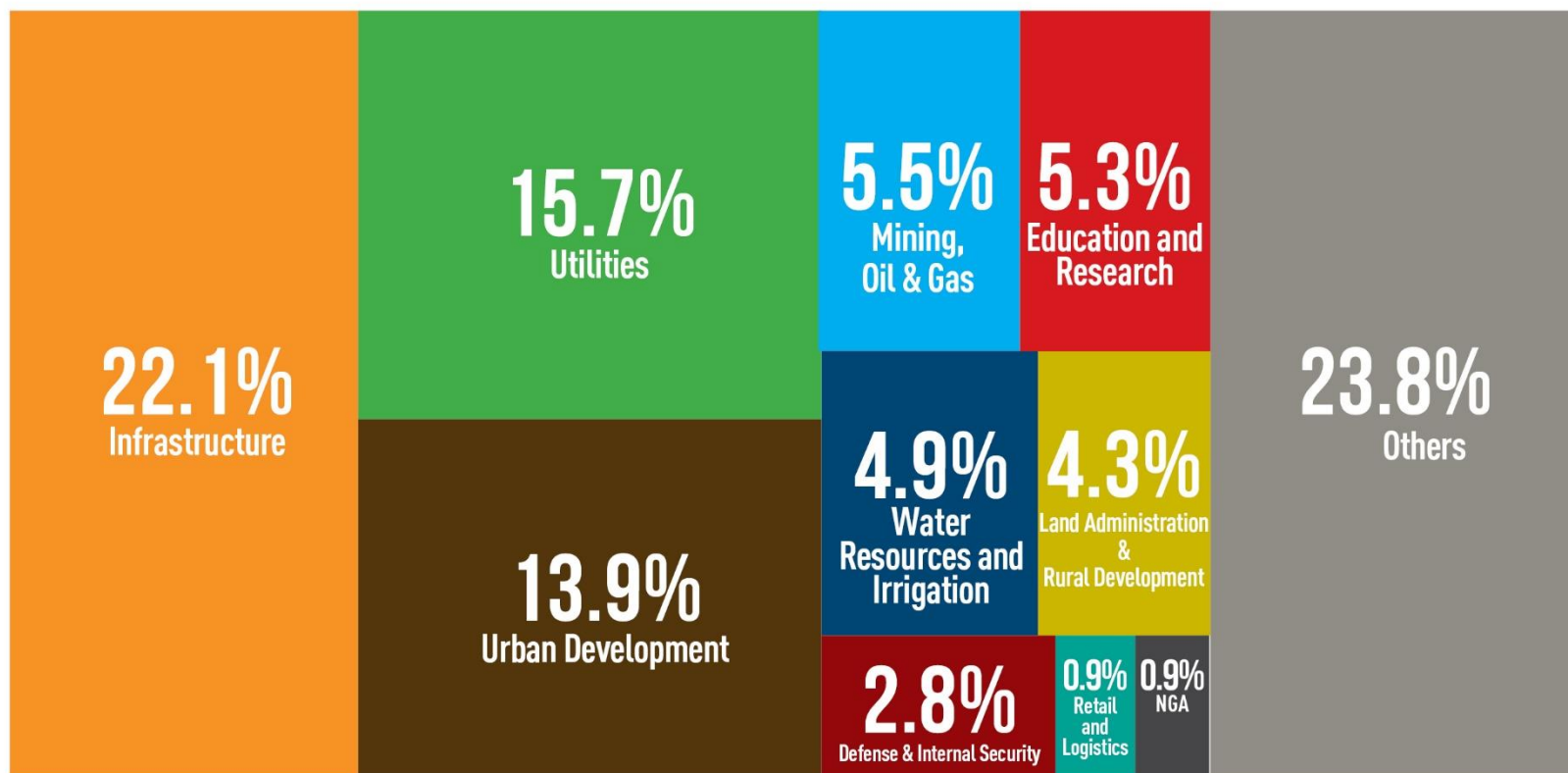
Export of Services  
**66,600**



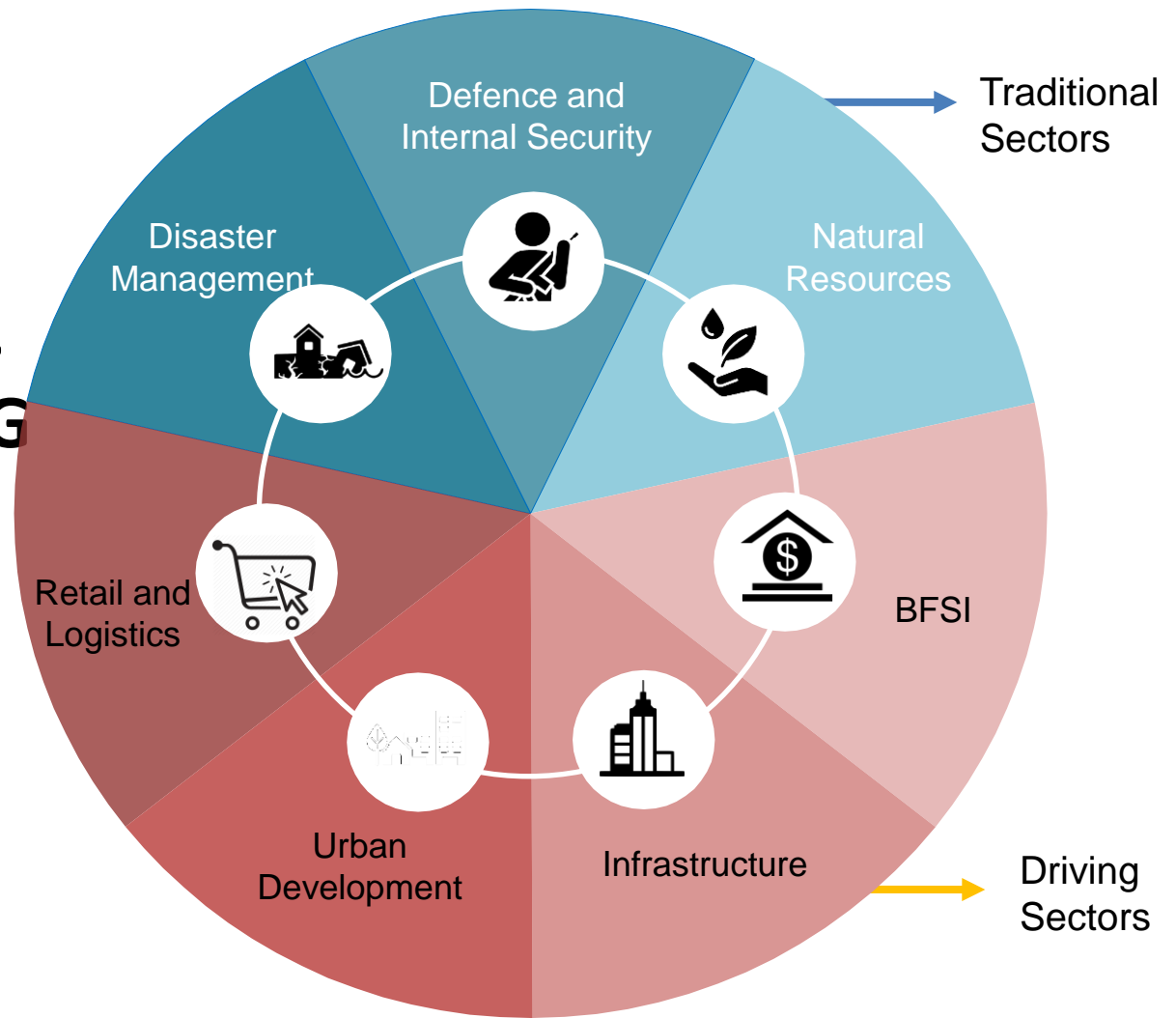
Government Services  
**39,300**



## Market Distribution as per Application Areas (FY 2017-18)



# GEOSPATIAL DIVERSIFYING INTO NEW MARKETS



# KEY TAKEAWAYS

**01**

Services segment the largest part of the Indian geospatial market with 74.4% mkt share in FY 2017-18

**02**

Sizeable part of Indian geo industry caters to overseas market, exporting a range of services

**03**

India imports almost all of its hardware requirement for surveying and special purpose measurement stations.

**04**

Land & survey segment alone is estimated to have more than 5,000 enterprises, employing nearly 2 lakh

**05**

Industry lacks a solution centric approach and is more inclined to sell software boxes/hardware

**06**

In EO sector, there is huge scope for commercialization for pvt industry in both upstream and downstream

## SWOT ANALYSIS OF GEOSPATIAL INDUSTRY

### Strenghts

- Presence of local as well as global technology leaders
- Globally acknowledged remote sensing programme
- Strong workforce catering to local and overseas services requirements

### Opportunities

- Increased government focus on use of geospatial solutions
- High growth in internet-led consumer services
- Strong growth expected in value added services

### Weaknesses

- Absence of a robust geodetic infrastructure
- Strict controls on data access
- Missing domestic hardware manufacturing capacity

### Threats

- Heavy reliance on government project
- Delays in geodetic infrastucture update
- Inadequate planning and coordination



# Scope of Applications of GIS

- GIS technology yields Decision Support Systems based on the data in the project.
- Can be applied effectively in any Engineering, Municipal or Revenue projects.
- In modernizing Cadastral Mapping and creating a National Land Data System. Less cases in courts.
- Integration with AI enhances it's power multifold.

# Drones in GIS

- Best source of capturing Geospatial data of high resolution.
- Fastest.
- Scope for around 10 drone companies in Land Surveys.
- Can be used in Traffic Management, Agricultural Mapping, Hydrology and Disaster and crowd management.

# Legal Issues

- Data Collection Policies.
  - a. Geospatial data b. Attribute data
- Field Survey Policies.
  - a. Restrictions on field surveys?
- Infrastructure related policies.

Control data. CORS, Map Restriction Policy, Air Photography Related Policies, Geospatial Data Policy

- Software related policies.
- Mobile and Internet Related issues.

# THANK YOU

If any participant intends, he/she can send the query to  
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Acknowledgement: I thankfully acknowledge that some of the slides  
used here are from

Sh. Sanjay Kumar, CEO,

