



The National Transportation Systems Center

GIS in Decision Support

Business Models for Implementing Geospatial Technologies in Transportation Decision-Making



U.S. Department of Transportation
Research and Innovative Technology Administration

GIS-T Symposium

April 8, 2009

BACKGROUND

- **Study impetus**
 - FHWA outreach, scan
 - FHWA/TRB workshop recommendations
- **Research purpose**
 - Document factors contributing to DOTs' GIS program development
 - Share lessons learned and resource of effective practices

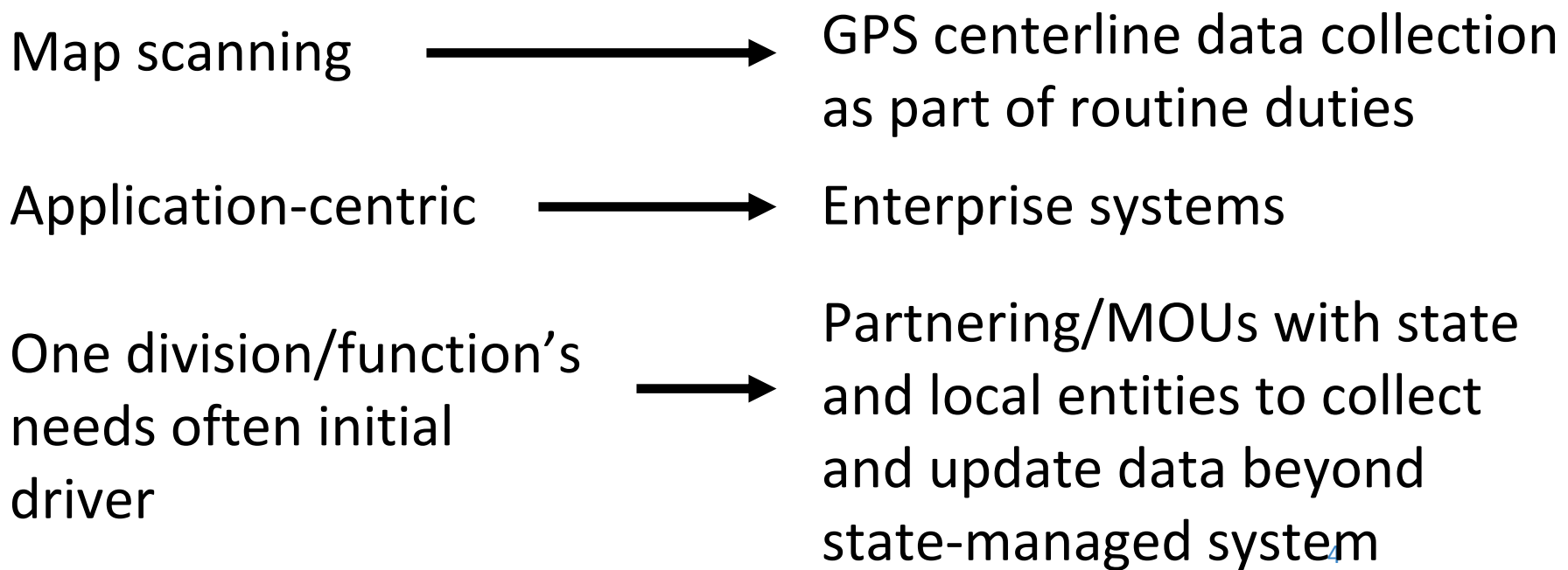
METHODOLOGY

- **Two phases**
 - Proof of concept: 6 state DOTs
 - Follow-on: 36 additional state DOTs
- **Phone discussions with 2007 GIS-T participants**

FINDINGS

DOTs' GIS activities have evolved over time

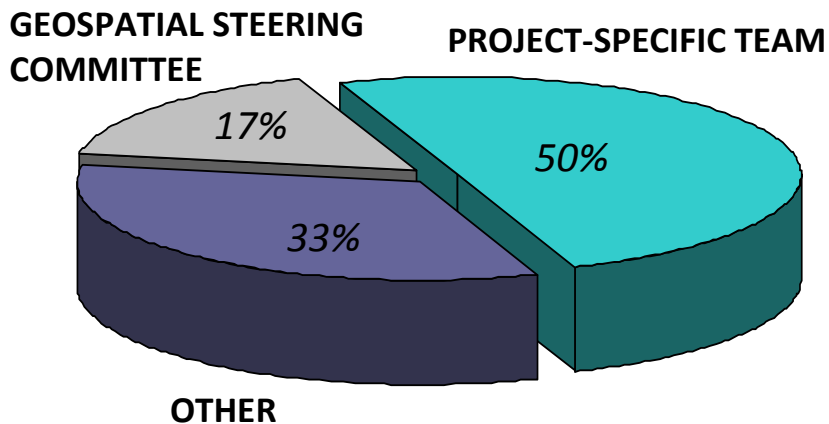
– Began mid 1970s to early 2000



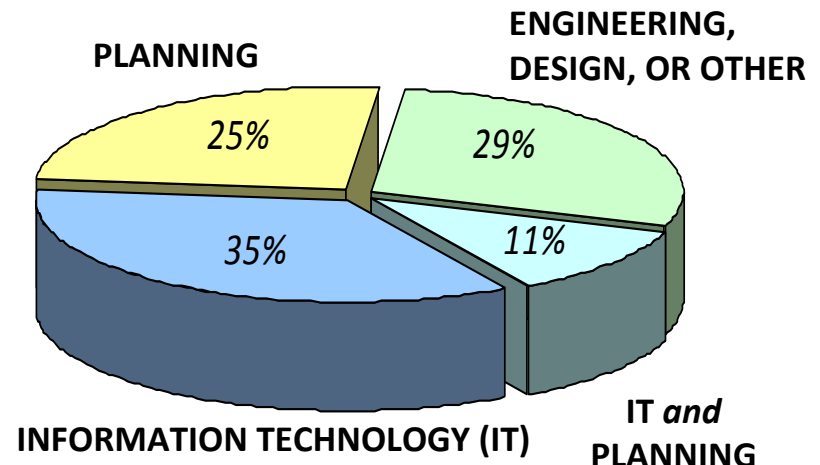
FINDINGS *(continued)*

No predominant way GIS programs managed and organized

PRIMARY GIS DECISION-MAKING



ORGANIZATIONAL UNIT



FINDINGS *(continued)*

Movement toward service-oriented architecture

- Where expert staff develop/maintain base layers
- End users throughout DOT customize enterprise-wide technology and data according to needs
- Assignment of coordinating role to one division
- Coordination with state clearinghouse or GIS council for spatial data management

CHALLENGES

- **Staffing**

- Inadequate staff levels
- Unclear position descriptions
- Potential loss of map-making expertise

- **Data**

- Lack of standards
- Lack of internal, open data-sharing environments

SUCCESS FACTORS

- Develop both “vertical” and “horizontal” support
- Provide adequate end user training
- Have collaborative interaction with users
- Focus on DOT’s business needs
- Develop program incrementally and have strategic plan

RECOMMENDATIONS FOR FHWA

- Provide funding
 - To meet HPMS requirements
 - For continual learning
- Allocate portion of SPR to certain GIS costs
- Explore alternative software licensing agreements
- Develop repository of documentation, schema, and data libraries

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RECOMMENDATIONS FOR FHWA *(continued)*

- Advocate
 - For unified data standard
 - That GIS efforts keep transportation focus
- Promote increased communication
 - National data standards
 - Reduced duplication of application development
- Continue GIS-T support

QUESTIONS?

Full report available at:

www.gis.fhwa.dot.gov/reports.asp

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