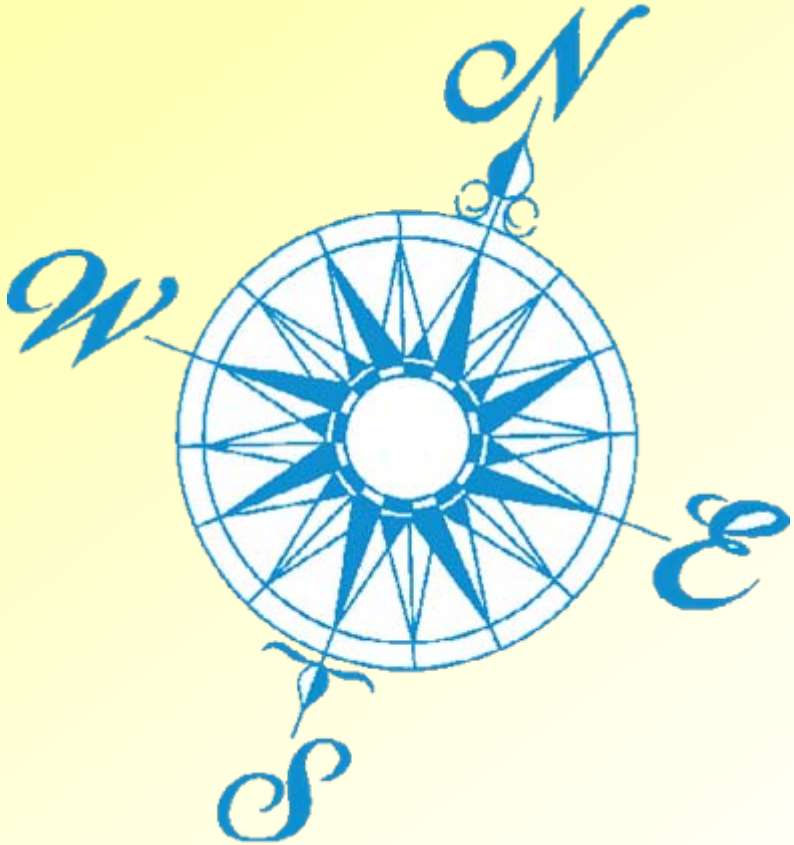
D2E GIS Coordination Initiative

Workshop for State Stakeholders



Workshop for State Stakeholders
August 19, 2008

D2E GIS Coordination Initiative

Workshop for State Stakeholders

OVERVIEW

- Welcome and Introductions
- Our Journey to Here *(David Arbeit)*
- Enterprise Opportunities Review *(Michael Terner)*
- Breakout Group Discussions *(All)*
- Breakout Findings and Wrap Up *(Michael Terner/All)*

D2E GIS Coordination Initiative

Workshop for State Stakeholders

Our Journey to Here

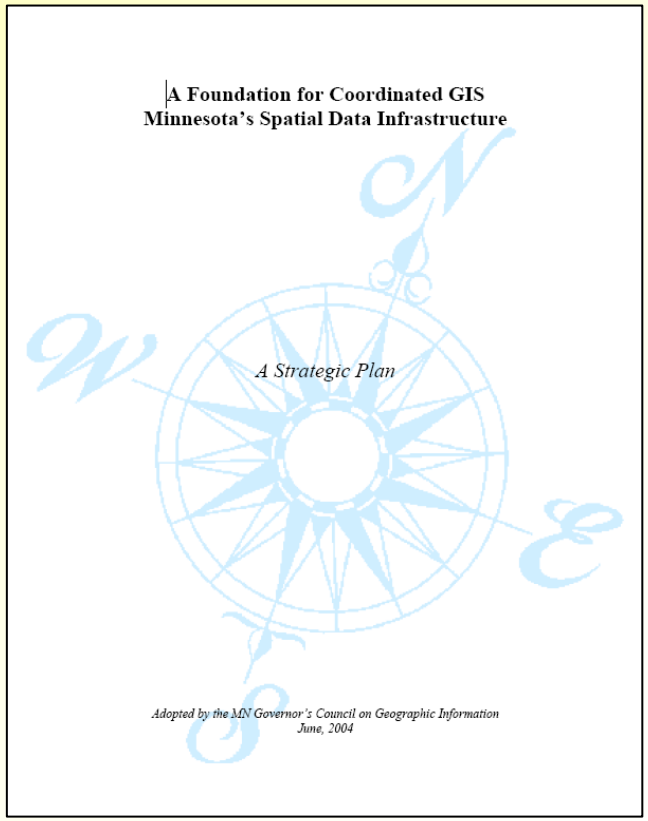
David Arbeit
Director
Office of Geographic & Demographic Analysis

D2E GIS Coordination Initiative

Our Journey to Here

2004 Strategic Plan

A Foundation for Coordinated GIS: Minnesota's Spatial Data Infrastructure



A Foundation for Coordinated GIS
Minnesota's Spatial Data Infrastructure

Recommendations

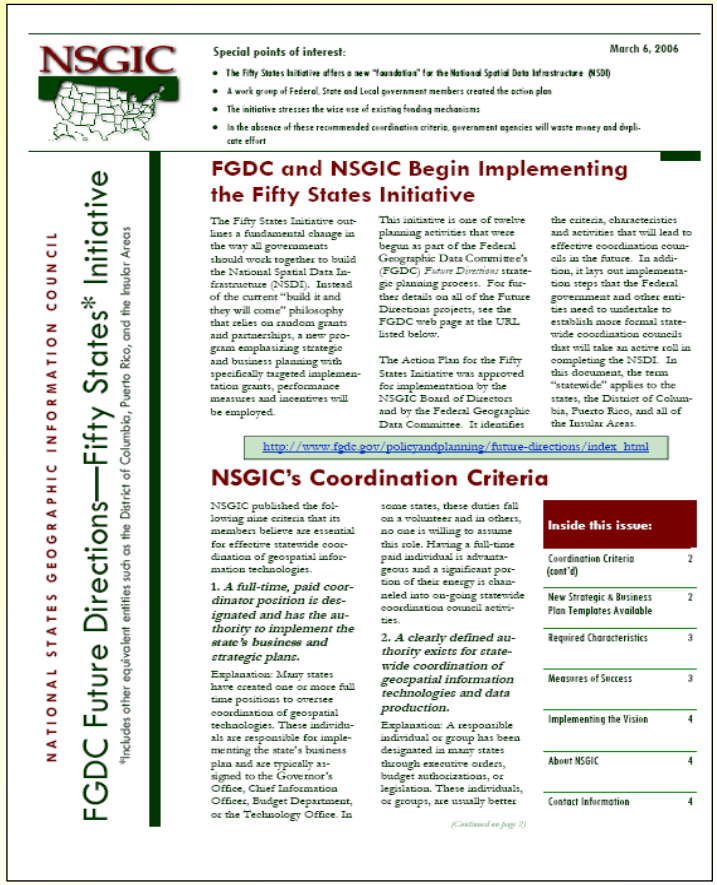
- Explicit authority and responsibility for GIS coordination should be assigned to a state cabinet level agency.
- GIS implementation by state agencies should be coordinated with the state's IT architecture framework.
- GIS implementation by state, local, regional and federal agencies should be coordinated.
- Emphasis should be placed on emerging opportunities for using GIS, joint projects and leveraging resources.

D2E GIS Coordination Initiative

Our Journey to Here

National States Geographic Information Council

NSGIC's criteria for successful state coordination reinforced the recommendations in *A Foundation for Coordinated GIS.*



NSGIC

March 6, 2006

Special points of interest:

- The Fifty States Initiative offers a new "foundation" for the National Spatial Data Infrastructure (NSDI)
- A work group of Federal, State and Local government members created the action plan
- The initiative stresses the wise use of existing funding mechanisms
- In the absence of these recommended coordination criteria, government agencies will waste money and duplicate effort

NATIONAL STATES GEOGRAPHIC INFORMATION COUNCIL

FGDC Future Directions—Fifty States* Initiative

*Includes other equivalent entities such as the District of Columbia, Puerto Rico, and the Insular Areas

FGDC and NSGIC Begin Implementing the Fifty States Initiative

The Fifty States Initiative outlines a fundamental change in the way all governments should work together to build the National Spatial Data Infrastructure (NSDI). Instead of the current "build it and they will come" philosophy that relies on random grants and partnerships, a new program emphasizing strategic and business planning with specifically targeted implementation grants, performance measures and incentives will be employed.

This initiative is one of twelve planning activities that were begun as part of the Federal Geographic Data Committee's (FGDC) *Future Directions* strategic planning process. For further details on all of the Future Directions projects, see the FGDC web page at the URL listed below.

The Action Plan for the Fifty States Initiative was approved for implementation by the NSGIC Board of Directors and by the Federal Geographic Data Committee. It identifies the criteria, characteristics and activities that will lead to effective coordination councils in the future. In addition, it lays out implementation steps that the Federal government and other entities need to undertake to establish more formal statewide coordination councils that will take an active roll in completing the NSDI. In this document, the term "statewide" applies to the states, the District of Columbia, Puerto Rico, and all of the Insular Areas.

http://www.fgdc.gov/policyandplanning/future-directions/index_html

NSGIC's Coordination Criteria

NSGIC published the following nine criteria that its members believe are essential for effective statewide coordination of geospatial information technologies.

1. *A full-time, paid coordinator position is designated and has the authority to implement the state's business and strategic plans.*

Explanation: Many states have created one or more full time positions to oversee coordination of geospatial technologies. These individuals are responsible for implementing the state's business plan and are typically assigned to the Governor's Office, Chief Information Officer, Budget Department, or the Technology Office. In some states, these duties fall on a volunteer and in others, no one is willing to assume this role. Having a full-time paid individual is advantageous and a significant portion of their energy is channeled into on-going statewide coordination council activities.

2. *A clearly defined authority exists for statewide coordination of geospatial information technologies and data production.*

Explanation: A responsible individual or group has been designated in many states through executive orders, budget authorizations, or legislation. These individuals, or groups, are usually better

(Continued on page 2)

Inside this issue:

Coordination Criteria (cont'd)	2
New Strategic & Business Plan Templates Available	2
Required Characteristics	3
Measures of Success	3
Implementing the Vision	4
About NSGIC	4
Contact Information	4

National States Geographic Information Council
Coordination Criteria

Criteria for Success

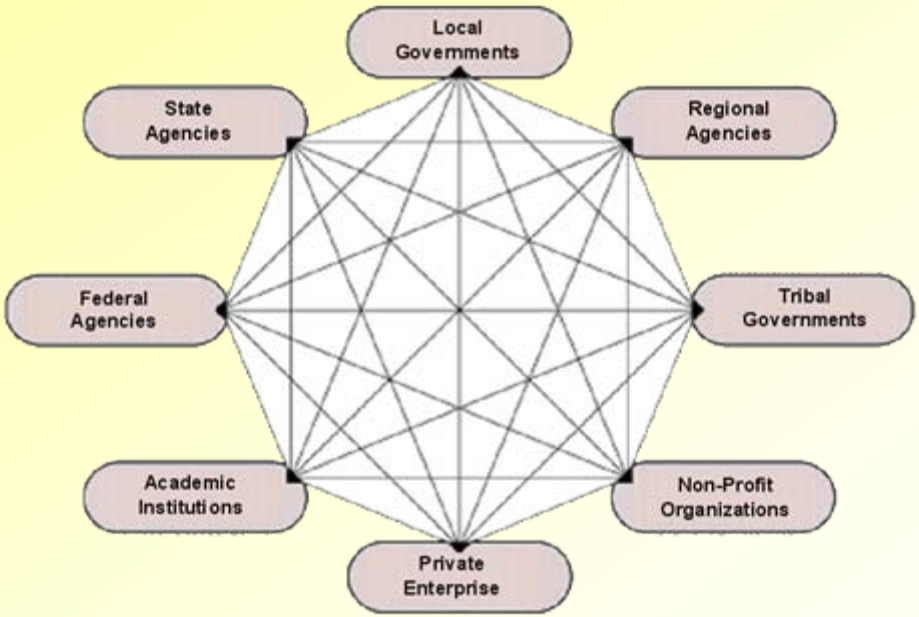
- Clearly defined authority exists for statewide coordination of GIS geospatial information technologies and data production.
- A full time, paid coordinator position is designated and has the authority to implement the state's business and strategic plan.
- The Statewide coordination office has a formal relationship with the state's Chief Information Officer.
- A champion (political or executive decision maker) is aware and involved in the process of coordination.

D2E GIS Coordination Initiative

Our Journey to Here

Compass Points

Setting a Direction for Minnesota's GIS Future



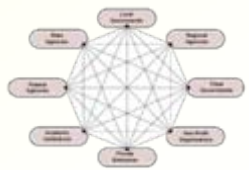
June 25, 2007

Compass Points

Setting a Direction for Minnesota's GIS Future

Strategic Planning retreat held to confirm a vision for coordinated GIS and set a direction for achieving it.

- Full day retreat held on June 25, 2007
- Attended by 54 invited participants
  - Legislators and legislative staff
  - Agency CIOs and GIS Coordinators
  - GI Council members
  - Local, regional, and federal representatives
  - Educators/researchers/non-profit representatives
  - Business
- Professionally facilitated



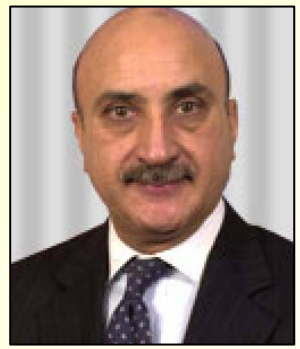
Compass Points

Setting a Direction for Minnesota's GIS Future

Executive Sponsors

Dana Badgerow
Commissioner
Department of Administration

Gopal Khanna
Commissioner and State CIO
Office of Enterprise Technology



Compass Points Planning Retreat

Setting a Direction for Minnesota's GIS Future

Facilitated Discussions – Large and Small Groups

- Achievements
- Setbacks
- Strengths
- Weaknesses
- Opportunities
- Threats
- Issues

Compass Points

Setting a Direction for Minnesota's GIS Future

Coordination Service or Function

- Policy
- Priorities and Strategies
- Investments
- Standards and Architecture
- Communications
- Coordination
- Data Library
- Technology
- Tools
- Assistance
- Consulting

Compass Points
Recommendations

Vision Statement Should Focus on Minnesota

Revise the vision statement to reflect concerns raised at the retreat.

GIS Coordination within State Government is Critical

Develop a strategy for State agency GIS coordination.

Coordinated Strategies

The community needs to coordinate funding priorities for discussion with the legislature in advance of the next budget cycle.

Compass Points

Mission Statement

Minnesota improves services statewide through the coordinated, affordable, reliable, and effective use of GIS.

Coordinated
Affordable
Reliable
Effective

GIS

Compass Points
Next Steps

Focus on GIS Coordination for State Government

- ✓ **Establish a Steering Committee**
- ✓ **Hire consultant to support effort**
- ✶ ***Analyze business functions to determine GIS needs***
- ✶ ***Identify GIS functions that could be coordinated or centralized***
- ✶ ***Develop organizational and operational recommendations***
- ✶ ***Identify governance structure with active community involvement***
- **Present to Executive Sponsor(s) by fall of 2008**

The Excellence Report

Delivering effective, efficient, economical government

The State of Minnesota's Drive to Excellence

A monthly update on Minnesota's Drive to Excellence

Drive to Excellence Sub-Cabinet Launches Enterprise GIS Project

The Drive to Excellence Sub-Cabinet has launched the next Drive project, *Enterprise GIS* (Geographic Information Systems). So what is GIS?

A GIS is a computer-based system used to capture, manage, manipulate, analyze and output geographically referenced information. Today, as much as 80 percent of government information includes some geographic component, such as land and buildings, public utilities, roads and the distribution of public services.

Examples of how GIS can be applied to law enforcement and emergency services include tracking crime patterns or finding the fastest route to an emergency.

A GIS integrates of data: informatio a feature (a floodpl of land) represente and information ab

Enterprise GI

Please see Page 3

January 2008

Enterprise GIS: Geography as a Decision-Making Tool

Continued from the Front Page

acteristics (elevation, street address or property ID number).

Different types of data can be mixed, matched and analyzed to reveal complex relationships between features. An example would be the location of all state-owned buildings with more than 2,000 square feet of vacant space located on a floodplain – where property insurance will be at a premium.

Using the right combination of accurate data, critical decision-making can be supported in ways not previously possible on such important issues as preparing for a pandemic, adjusting services to a changing population, redistricting legislative boundaries and maintaining critical infrastructure.

As Minnesota's use of GIS data and technology expands, no state agency is currently assigned responsibility for coordinating investments in GIS.

The project's goal is to develop, recommend and implement an organizational and governance framework that would coordinate GIS as an "enterprise" activity of state government. Expected outcomes include a new GIS governance structure with responsibilities for setting policies, standards and priorities for enterprise GIS investments; serving as the state's point of contact for GIS; and a new shared technology infrastructure offering improved efficiencies, effectiveness, responsiveness and reliability for state agencies.

Brad Moore, Commissioner of the Minnesota Pollution Control Agency, is the project's Executive Sponsor, and David Arbeit, Director of the Office of Geographic and Demographic Analysis within the Department of Administration, is the project leader.

D2E GIS Coordination Initiative

Project Overview

Objective

Develop, recommend and implement a framework to coordinate and manage GIS as an "enterprise" activity of state government.

Elements

1. **Organizational Transformation**
   Focuses on organizational changes and governance framework to institutionalize capacity for coordination.

2. **Functional Transformation**
   Focuses on technical aspects of providing GIS services needed to support the State functions and programs.

D2E GIS Coordination Initiative

Project Overview

Objective

Develop, recommend and implement a framework to coordinate and manage GIS as an "enterprise" activity of state government.

Scope and Timing

- **Scope**
  Focuses on State Government
- **Time Frame**
  Fast tracked to impact next budget/legislative cycle.

D2E GIS Coordination Initiative

Steering Committee

Team Leadership

Brad Moore, Sponsor
Commissioner, Pollution Control Agency

Team Members

David Arbeit, Department of Administration

Michael Barnes/Kathy Hofstedt, Department of Transportation

Janet Cain, Department of Public Safety

Margaret Kelly/Karen Nelson, Department of Health

John Lally, Office of Enterprise Technology

Fred Logman, Department of Administration

Robert Maki, Department of Natural Resources

Larry Palmer, Department of Agriculture

Leo Raudys, Pollution Control Agency

Dan Storkamp, Department of Corrections/Human Services

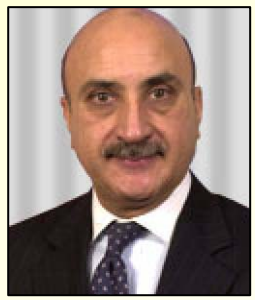
D2E GIS Coordination Initiative

Functional Transformation Kick-Off Meeting

May 13, 2008

Brad Moore
Project Sponsor
Commissioner
MN Pollution Control Agency

Gopal Khanna
Commissioner and State CIO
Office of Enterprise Technology



Dana Badgerow
Commissioner
Department of Administration

D2E GIS Coordination Initiative

Workshop for Non-State Stakeholders

Workshop for GIS community members who depend upon or are served by State agencies.

June 24, 2008

- Half day workshop held at Mn/DOT Arden Hills facility
- Attended by 29 invited participants
  - Local government 9
  - Academic institutions 5
  - Regional entities 4
  - Private non-profit 3
  - Regional GIS user groups 2
  - Federal government 2
  - Private industry 2
  - Utilities 2

D2E GIS Coordination Initiative

Workshop for State Stakeholders

Workshop for State agency stakeholders who have participated in study and would benefit from its result.

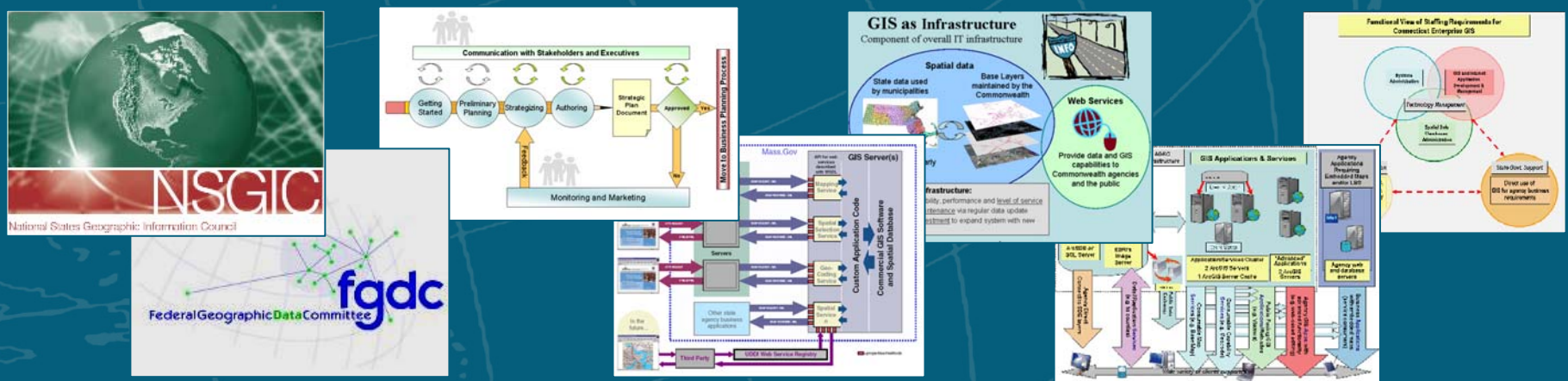
August 19, 2008

- Half day workshop held at Department of Revenue Building
- Attended by 65+ invited state agency participants

Michael Terner

Applied Geographics
Boston, MA

Geographic Information Systems Functional Transformation



State Government Stakeholder Workshop
Enterprise Opportunities Review

Prepared by Applied Geographics, Inc.

Aug, 2008

Objectives

- Share status
- Share findings
- Share proposed recommendations
  - The “job description” for a new coordination entity
- Solicit your input
  - On some of the thornier questions
  - Your ideas for making “GIS transformation” more effective
- Gauge level of consensus for this approach

Process for Workshop

- Formal presentation to brief all participants
- Small group breakout sessions
  - **4** groups
  - Organized to have a mix of agencies and job functions
  - Facilitated discussion
  - Based on questions raised in the handout
    - Seeking advice and answers to questions
    - Soliciting new ideas and/or addressing omissions
- Report back to the full group

Today's Agenda

1:00 – 1:45: **Overview and formal presentation**

1:45 – 1:50: Convene Breakouts

1:50 – 3:15: **Breakout session**

- Each table: 2 assigned question sets
- 1 set of questions chosen by table

3:15 – 3:30: Break

3:30 – 4:00: **Breakout findings & wrap-up**

Post Workshop Activities

- Preparation of a “turnaround document” from workshop
- Production of an on-line survey to prioritize program elements
  - 8 elements will be presented
  - ***One response* per agency**
    - Who should be agency contact?
- Distribution of “interview write-ups” to agencies
  - Seeking input for fact-checking and editing
  - Major omissions

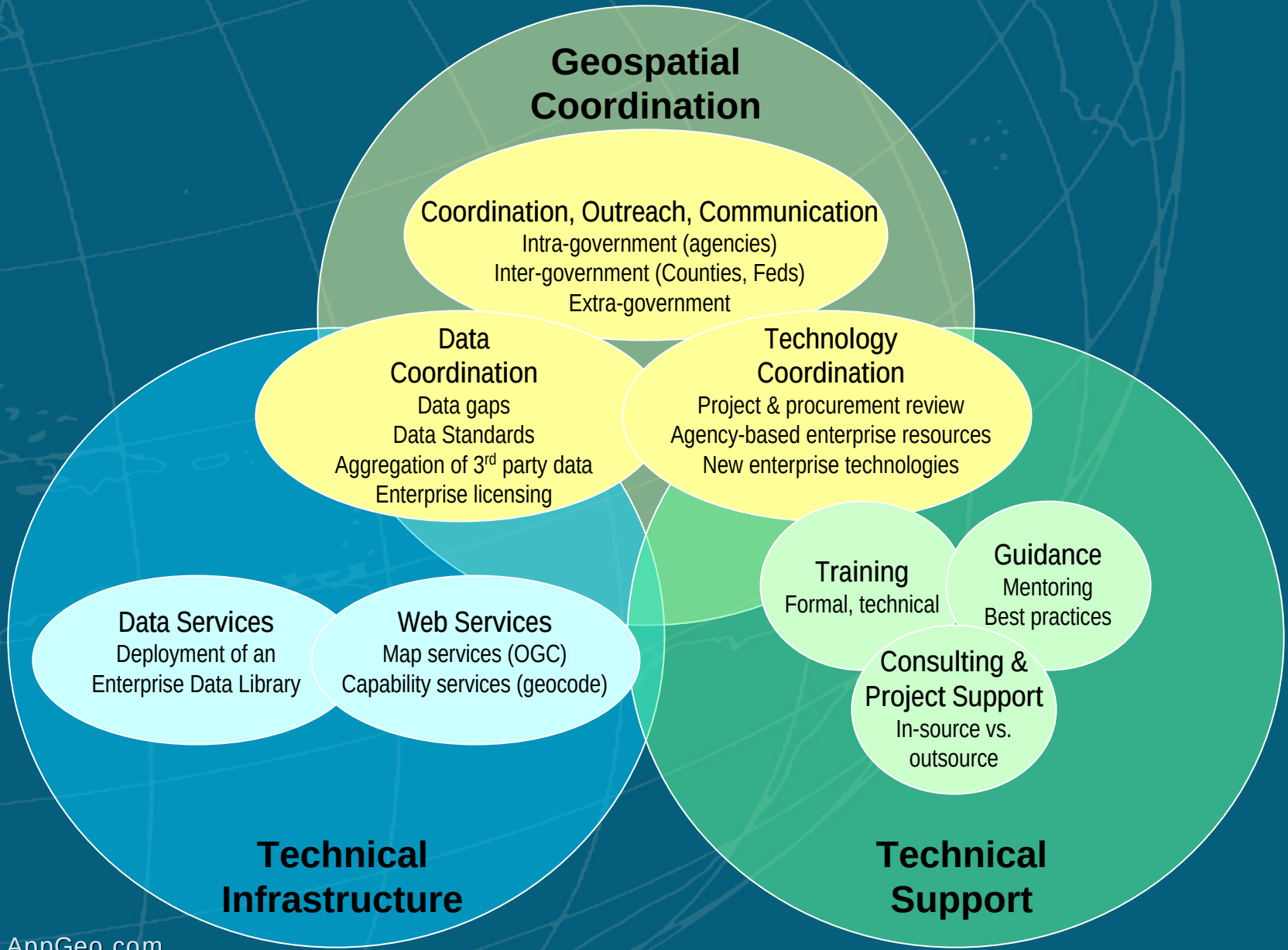
Project Status

- Information Gathering Completed to Date:
  - Project kickoff meeting
  - On-line survey with 165 completed surveys
  - 20 interviews
    - Executive branch agencies
    - Legislative Coordination Commission
    - Federal partner agencies
  - Non-state GIS stakeholder workshop
  - Review of relevant programs from other states
- Developed draft Enterprise Opportunities Document
  - Lays out 8 “program elements” for coordinated, enterprise GIS for MN
  - Input, review and conceptual agreement from:
    - MN Governor’s Council on GIS Strategic Planning Sub-Committee
    - Drive to Excellence GIS Project Steering Committee

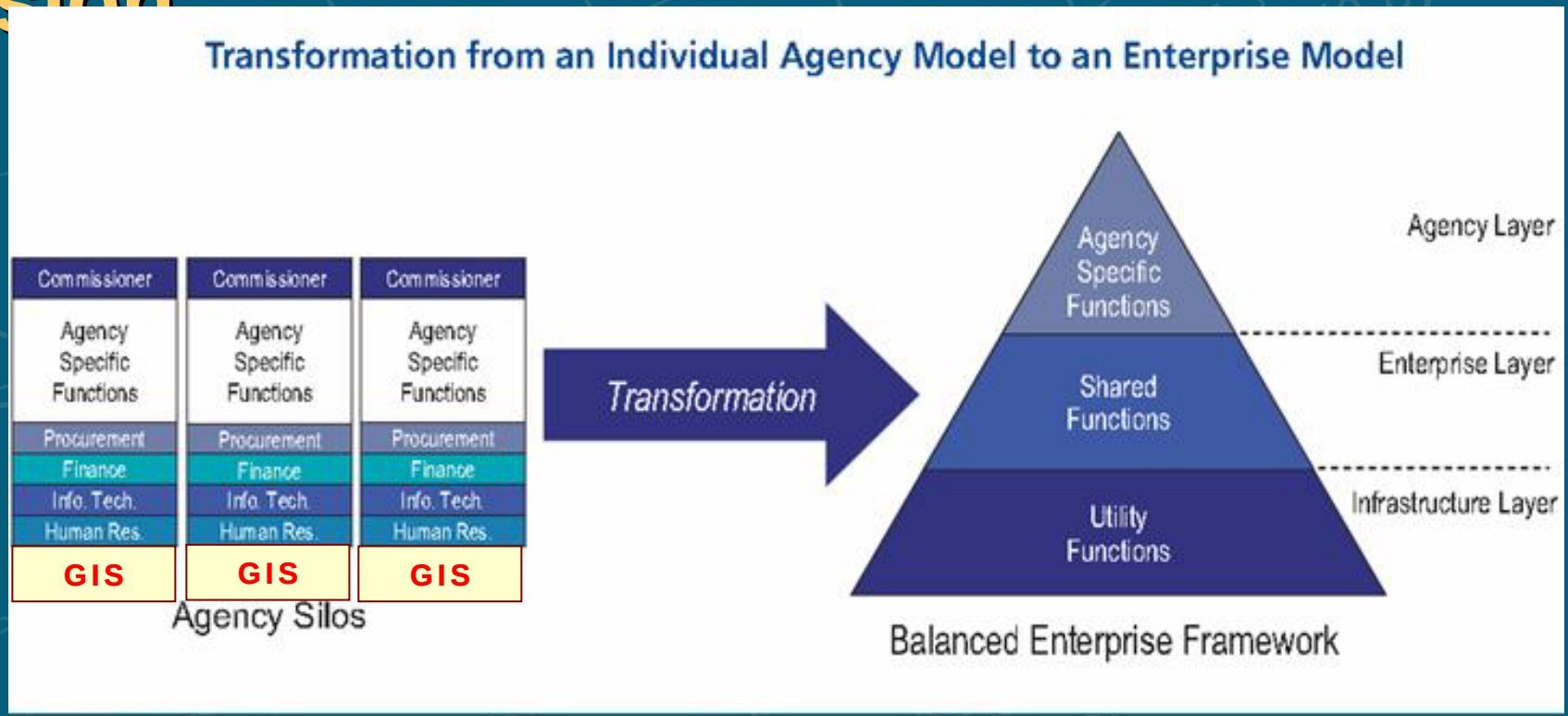
Formative Observations from Survey, Agency Interviews & Workshops

- **Effective GIS use**, over a long period of time use by many agencies
  - Departmental enterprise systems exist
  - But, feeling that national leadership has waned
- Many agencies are starting, or **growing new GIS efforts**
- Good, **collaborative attitude** among GIS stakeholders
- **Lack of formal coordination**, but lots of ad hoc coordination
  - Intra-*departmental* coordination can be lacking
- Many agencies share a **business requirement for inter-governmental** coordination and **data sharing**
  - With Federal agencies
  - With county governments
- Concerns about **organizational capacity,** readiness and effectiveness
  - Both OET and LMIC
  - Not a universal sentiment, but not isolated either
- **Data stewardship** has posed challenges
  - Defining data “owners” and custodial “responsibilities”

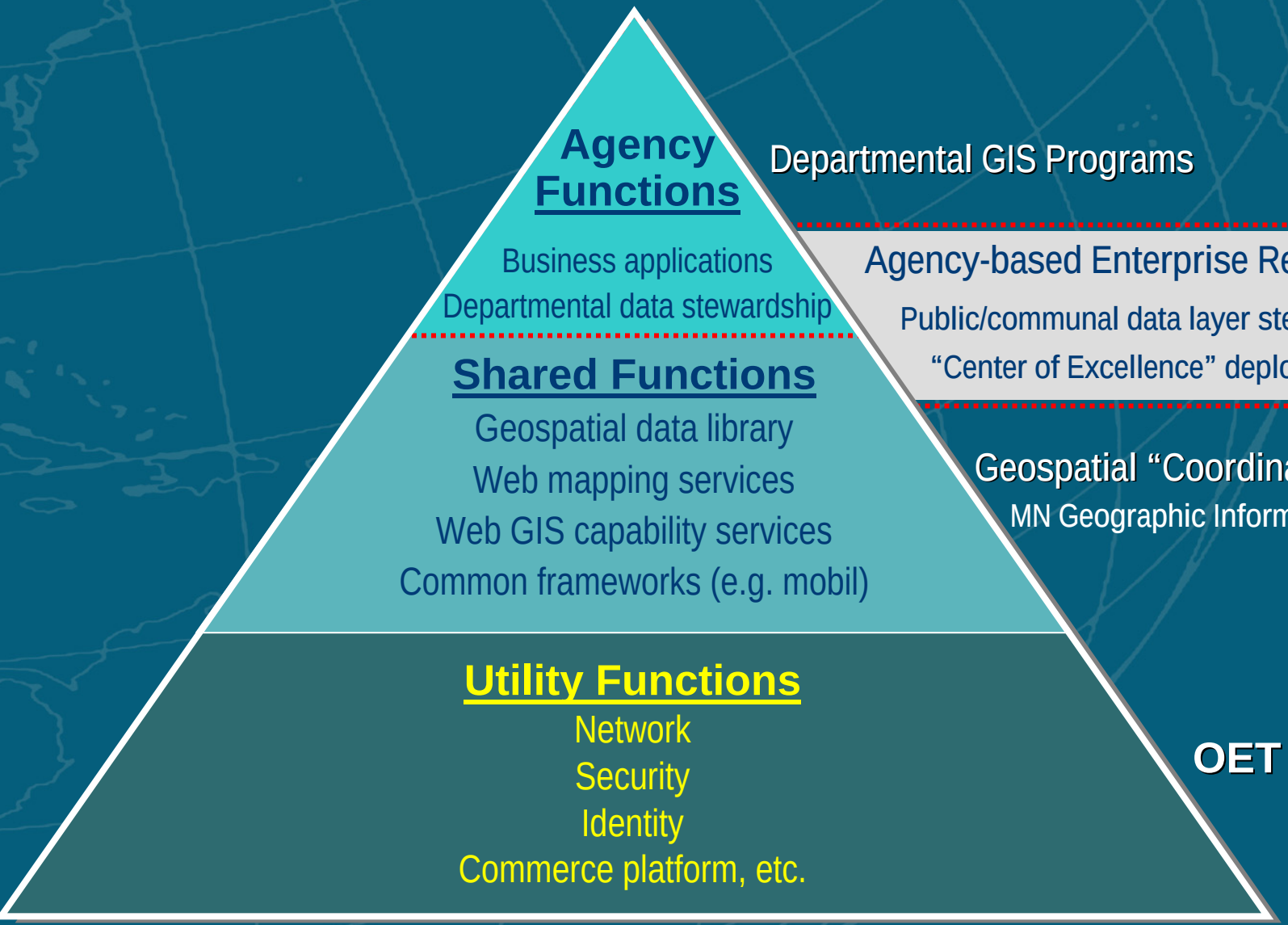
Job Description for a Minnesota Geospatial Coordination Entity



Reminder:
Drive to Excellence Shared Services Vision



Drive to Excellence Enterprise Framework
Applied to Geospatial Technology



Overview of Coordinated GIS for MN

The **8 major elements** of what the transformed organization should do

I. Leadership & Coordination

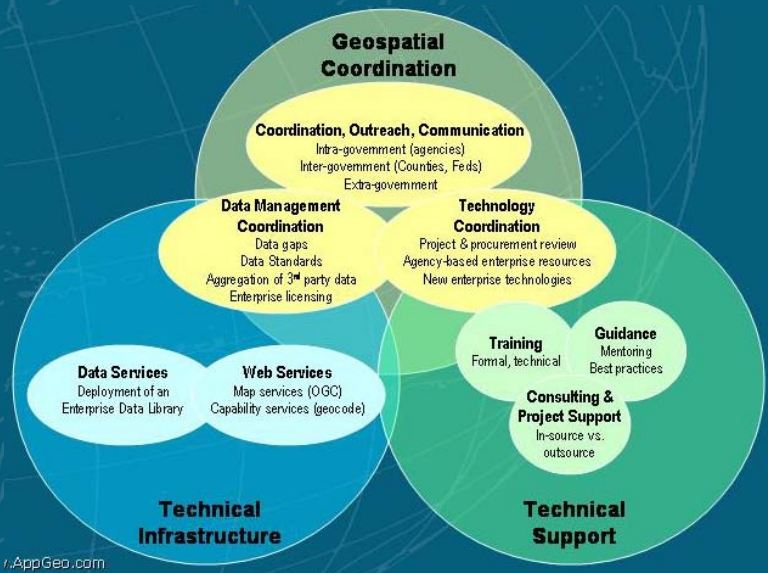
1. Coordination, outreach & communication
2. Data coordination
3. Technology coordination & leadership

II. Technical Capacity

4. Data services
5. Shared web services

III. Technical Guidance, Training & Project Support

6. Technical training
7. Technical guidance
8. Consulting & project support



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I. Leadership & Coordination

#1. Coordination, outreach & communication

- Currently done on an ad hoc basis
- Historic “collaborative culture” is being strained by the volume of GIS activity
- “Pure coordination” needs to be “someone’s job”

1. Intra-governmental coordination
   - Strategic planning
   - Policy, budget and legislative coordination
   - Identification and promulgation of agency best practices
   - Support for governance entity and user groups
2. Inter-governmental coordination
   - Federal, county & local government
3. Extra-governmental coordination
   - Utilities, academia, private sector, non-profits

Breakout questions:

#1. Coordination, outreach & communication

- Are there existing barriers to intra-governmental coordination?
  - If so, what are they?
  - How can they be overcome?

- What are the trade-offs you see having one group responsible for statewide coordination?

- Who are the most important non-state stakeholders? Please prioritize:
  - Local government (e.g. cities)
  - County government
  - Federal government
  - Academia
  - Private non-profits
  - Private sector
  - General public

I. Leadership & Coordination

#2. Data Coordination

- Multi-agency efforts for major projects to fill data gaps
  - E.g., High-resolution elevation data
- Development and promulgation of GIS data standards
  - Content, accuracy and metadata
  - Data models and schema
- Multi-agency/enterprise funding for recurring programs
  - E.g., Orthoimagery
- Orchestrate the collection and aggregation of county/local government data sets
  - E.g., Parcels
- Enterprise licensing of data products
  - E.g., Road centerlines, Business data, etc.
- Identify and clarify (and if need be, fulfill) data custodial responsibilities
  - E.g., Municipal boundaries

Breakout questions:

#2. Data Coordination

- Is there a willingness to have the data custodial role formalized?
  - If so, what might formalization look like?

- What data sets are in most need of a formal custodian? Municipal boundaries were identified as one during the interviews.

I. Leadership & Coordination

#3 Technology Coordination & Leadership

- GIS Project Review
  - To identify existing best practices and cross departmental synergies
- GIS Procurement Review
  - Identify/manage enterprise licensing opportunities
  - To maintain and track GIS software/equipment portfolio
- Geospatial integration with enterprise software that contains "geospatial modules"
- Identify agency "centers of excellence"
  - Existing capabilities that could be scaled for the enterprise
  - Assist agencies in meeting enterprise requirements
- Coordinate enterprise approaches for new and emerging technologies and/or applications
  - Multi-departmental efforts to fund new enterprise infrastructure
  - For example:
    - Technology: mobile technologies, AVL, etc.
    - Applications: real estate/facilities management

Breakout questions:

#3 Technology Coordination & Leadership

- Assuming that there are "centers of excellence" (i.e. "shared service providers") how could their communal elements be staffed?
  - Using "host agency" resources?
  - Embedded staff from coordination entity?
- What constraints (organizational, funding) might impact implementation of centers of excellence?
- What are the most important emerging technologies that might benefit from an enterprise infrastructure? For example:
  - Mobile applications
  - Automated vehicle location (AVL)
- What should the results of project/procurement review look like?

II. Technical Capacity

#4. Data Services

- There needs to be a one-stop shop for all the best data for MN
  - For agency users
  - For partners
  - For the public
- Flexible modes of access
  - Network, web-services, data download
- Actively managed
  - To ensure all holdings are present
  - To ensure data are kept current
- Clarifying agency custodial responsibilities
- Engaging custodial agencies to help manage the library

Breakout questions:

#4 Data Services

- There are several options for building a comprehensive “data library” for all of Minnesota’s geospatial data, including:
  - **Centralized repository** (i.e. everything in one place)
  - **Federated database** (i.e. multiple servers acting as a virtual repository)
  - **Data warehouse** (i.e. copies of data from multiple servers are periodically pulled together)

  What are the pros and cons, and a preferred approach for Minnesota?

- What is the proper role for data custodians in maintaining the “data library”?

Breakout questions:

#4 Data Services

MODEL	PROs	CONs
Centralized repository	• Unambiguous one-stop shop • Built-in data backup and disaster recovery	• Data custodians are subservient
Federated database	• Data custodians maintain control over their data • Metadata index can be centralized	• Performance can be uneven (database is only as fast as the slowest server) • Requires full participation, smaller agencies need sponsor.
Data warehouse	• Data structure can be optimized for performance • Data custodians control when/how holdings are made available • Built-in data backup and disaster recovery	• Requires additional hardware

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II. Technical Capacity

#5. Shared Web Services

- Web mapping services
  - Using OGC standards (e.g. WMS, KML)
- Consumable capability services
  - E.g., geocoding
- Index of available 3rd party services
  - “Web Services Mart”
- Ensure performance and availability
  - Service level agreements (SLA)

Breakout questions:

#5. Shared Web services

- What are the parameters for an acceptable “service level agreement” (SLA)
  - How fast is “fast enough”?
  - How reliable is “reliable enough”?
- What “capability services” are most needed?
  - Geocoding
  - Routing
  - Point-in-polygon (what district is this address in?)
  - *What else?*

III. Technical Guidance, Training & Project Support

#6. Technical Training

- Arrange/provide core software training
  - In-house capacity and/or academic and private partners

Breakout questions:

#6. Technical Training

- Does the state need an in-house training capability for GIS software?
  - Are academic and private sector capabilities sufficient?

III. Technical Guidance, Training & Project Support

#7. Technical Guidance

- Coaching and mentoring new adopters of GIS technology by advanced agencies
- Non-software training
  - Best practices
  - Common workflows
  - Related technologies (e.g. GPS)
- Technical support “hot line”

Breakout questions:

#7. Technical Guidance

- How could an inter-agency coaching and mentoring program work?
- What is the best method for sharing “Best Practices”?
- Is there a need for a support “hot line”? If so, what capabilities should it provide?

III. Technical Guidance, Training & Project Support

#8. Consulting & Project Support

- Core element of what LMIC has historically provided
- Options for providing the capability:
  - In-house technical team
    - If so, how big? What skills?
  - Master contracts with the private sector
    - Enable contractors to build expertise with state systems and data
  - Facilitation services to help agencies find appropriate partners (e.g., private sector, academia, etc.)

Breakout questions:

#8. Consulting & Project Support

- Does the state need an in-house, fee-for-service GIS consulting capability?
  - Are academic and private sector capabilities sufficient?
  - Would expedited contracting and an index of pre-qualified providers be acceptable?
  - Would “project design” support be sufficient?
  - What are the types of services that should be offered?