

An Introduction to DIGGS

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Data has value

- Cost to obtain – ODOT \$55 million/year
- Value to the project
- Value to future projects

Why do we treat it this way?



Geotechnical Management Savings

- Ohio DOT 10-20% less drilling, savings \$12-24M per year
- Florida DOT fewer borings saving \$250,000 - \$500,000 on one project
- Missouri DOT a 10-15% fewer borings per bridge
- Missouri DOT \$81,000 savings per year in boring log preparation by using electronic data entry in the field

Management System Basic Elements

■ Data

- Investigation
- Testing
- Monitoring
- Construction

■ Assets

- Inventory
- Evaluation & Condition

■ GeoHazards

- Inventory
- Risk Assessment

Data Transfer Standard Needed

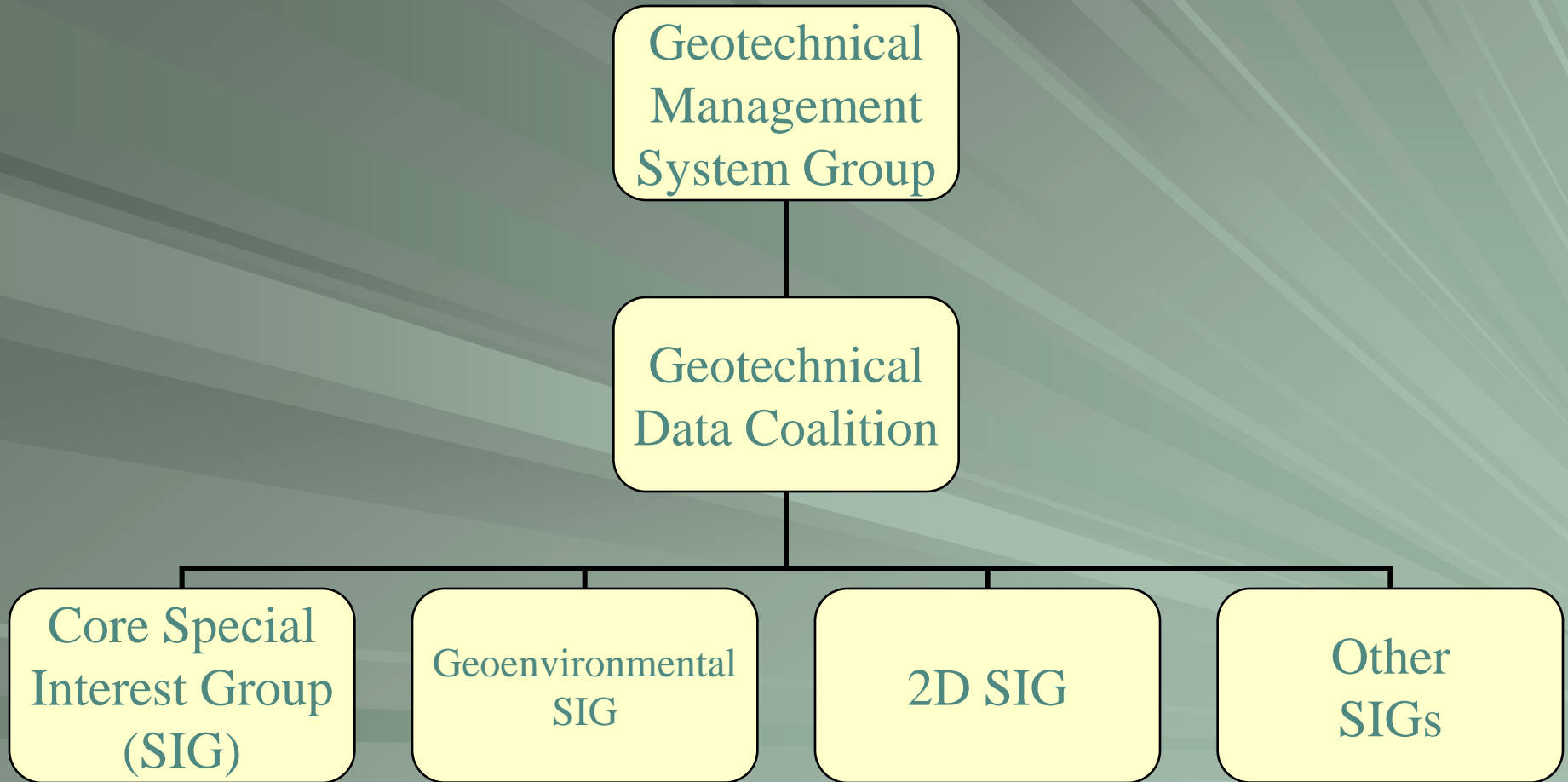
- Database interfacing
- Software interfacing
- Data validation through software

The bottom line:
SEAMLESS DATA FLOW

Pooled Fund Project TPF-5(111)

- Combine existing geotechnical data interchange standards
- Expand to include other data (i.e. geohazards, geotechnical assets)
- Survey state DOTs and others
- Finalize standards

Organization



GMS Group Members

- CALTRANS
- Connecticut DOT
- Florida DOT
- Georgia DOT
- Indiana DOT
- Kansas DOT
- Kentucky DOT
- Minnesota DOT
- Missouri DOT
- North Carolina DOT
- Ohio DOT
- Tennessee DOT
- FHWA Ohio Division
- FHWA Federal Lands
- United Kingdom Highway Agency
- US Army Corps of Engineers
- USEPA
- USGS

Standards Subsumed in DIGGS

- AGS (United Kingdom)
- COSMOS (international)
- University of Florida (Florida DOT)
- SEDD (EPA & USACE)

Participants

- Association of Geotechnical and Geoenvironmental Specialists (AGS)
- Bridge Software Institute at the University of Florida
- Consortium of Organizations for Strong-Motion Observation Systems (COSMOS)
- Construction Industry Research and Information Association (CIRIA)
- Delta Environmental Consultants, Inc.
- Earthsoft
- FHWA
- gINT Software Inc.
- Keynetix Ltd
- Mott MacDonald
- Petrochemical Open Standards Consortium
- United Kingdom Highways Agency (UKHA)
- United States Army Corps of Engineers (USACE)
- United States Environmental Protection Agency (U.S. EPA)
- United States Geological Survey (USGS)
- United States Navy
- University of New Hampshire
- 11 State DOTs

International Standard

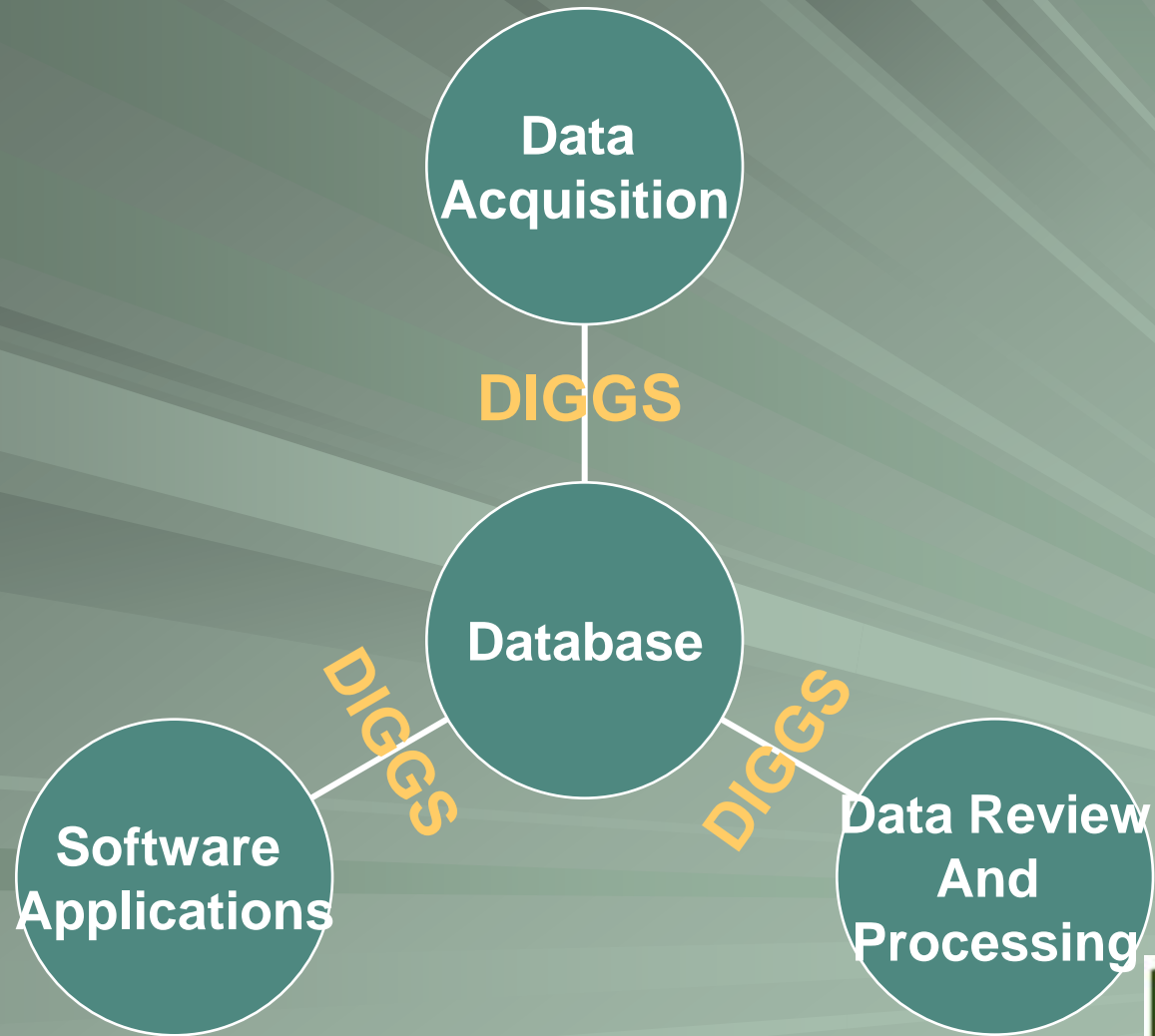
- International cooperation in development
 - US federal agencies
 - AGS
 - CIRIA
 - COSMOS
- Joint Technical Committee 2
 - International Society of Rock Mechanics
 - International Society for Soil Mechanics and Geotechnical Engineering
 - International Association for Engineering Geology and the Environment

DIGGS Design

- GML Compatible
 - Geography Markup Language
 - International GIS standard compatible with mapping software
- Extensible
 - Has built in methods for local additions
 - Allows profiles (local definitions of acceptable portions of standards – but sharable)



Mapping Databases



Version 1.0

- Boreholes
- In-situ tests
- Laboratory tests
- Deep foundations
- Borehole geophysics
- Geoenvironmental

DIGGS Format

- DIGGS format has two parts
 - A Data Dictionary
 - Defined tables and fields
 - User defined tables and fields
 - Transfer Format Rules (Schema)
 - Hierarchy of data (Sample from a hole)
 - Tags (<hole>), data type (string, number) etc
 - Rules to structure and verify the data

Version 1.0 Tools

- Manuals
- AGS/DIGGS Translator
- GIS enabled database
- Compatible commercial software

New SIGs

- Scanned Documents
- 2D/Test Pits
- Surface Geophysics
- Geohazards
 - Karst, mines, slides, rock fall, etc.
- Shallow foundations
- Retaining Walls
- Other assets
- Other tests

Advantages to using DIGGS

- Interchange of data between databases
- Interchange of data between software
- Data validation
- Interchange of data with others
- Seamless flow of data from generation, through use, to storage, and reuse

DIGGS

Moving us from the past to the future

■ Past:

- Paper management of data - fragmented, time consuming and expensive
- Manual information manipulation and analysis

■ Future:

- Seamless electronic data transfer and management system - efficient, fast and economical
- Unlimited electronic data manipulation and analysis

www.diggsml.org

