

DYI Systems Analysis

an essential first step for integrated IT
systems and enterprise level GIS

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Our objectives

- Outline our planning process for a GIS supported agency-wide information management and workflow system (How we think we are going to get where we think we are going.)
- Share thoughts on “bottom-up” leadership as a crucial element in technical innovation. (A follow-up to WRTT discussions about how states have managed to start and implement major technical changes in their business process.)

Unexpected Results from OTT (or, it really, really works)

- Asked to present North Dakota's work on e-permitting at several OSM forums and workshops in 1999 and 2000
- Impressed with Kentucky's e-permitting and workflow system at a MCRCC forum in August, 1999.
- Sticker Shock - Cost of commercial workflow applications unfeasible for PSC
- John Riley's presentation on the Colorado information management system at an OTT workshop in Steamboat Springs, CO in 2000 – many workflow attributes
- John's comments on information and workflow management stressed importance of systems analysis

Unexpected Results from OTT

(or, it really, really works)

- Diverting PSC IT personnel to develop DB and workflow system for 8 of 41 people unfeasible
 - Buy-in of entire PSC needed to get resources for implementation (Agency also needs IT efficiencies from cohesive design)
 - Exposure to Colorado system seen as likely motivator for the agency to undertake development of DB and workflow system
- Strong support for strategy received from Reclamation Division Director and others
 - OTT agrees to fund John Riley technical assistance visit to ND
 - John and Colorado program agree to the visit
 - John Riley presentation and discussions in Bismarck in July, 2001 stimulated interest in an integrated database and workflow management system for the PSC.

The SAM Team

Team composed of staff from each Division to analyze Division inputs, workflow and outputs; formed following Riley's visit and made significant progress in 2001-2003. The team was largely inactive during the "IT Wars"; but has made significant progress 2005-2006.

- Feasible to "expand" central DB to encompass most functions, accommodate others
- Many similarities across divisions
- Increased efficiency possible
- Customization of "look and feel" familiar to divisions and their customers feasible
- "Amateurs" can produce substantive systems science results.



The SAM Team

A bootstrapped (a/k/a, just us chickens) systems analysis of the North Dakota Public Service Commission

Never a real systems scientist in sight!
This was largely by necessity but partly by design to foster more ownership of the project across the agency.



Industry-Interagency Shared Hydrologic Database

Data Resources

- All mine-related hydrologic data to be housed in SWC state-wide database online with public access
- Task Force addressed questions of database structure, QA/QC, transmittal, editing, records of submission and receipt, etc.
- Initial testing and demo between SWC and Falkirk Mining Co. undertaken
- May, 2003, project deferred until impact of HB1505, mandating complete consolidation of state computer facilities, on continued operation of SWC database and GIS Hub known.

Outcome - the good guys won the war.

On Track

- Work on Western States' vision of OSM and WRTT/OTT helped to maintain PSC focus and resolve
- January, 2004; Long range plans formalized in OTT/WRTT questionnaire
- Strategy of full use of available resources to achieve these goals. "Everyone into the pool!"
- Good progress on goals considering a year lost to fighting IT consolidation.

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Next-Step or Short-term Goals (1-2 yr.)

1. Develop an effective, interim DBMS for converted and existing digital information, preferably with a WEB interface.
2. Establish a WEB-based system for e-transfer of data from mines and other regulated entities.
3. Migrate toward database based electronic permits rather than the current digital versions of paper permits.
4. Build staff skills in GIS development and usage.
5. Build mining industry understanding of GIS as a government data management tool that will not compromise industry use of CAD, but can increase government's ability to integrate and use CAD data.
6. Build interagency cooperation in data submission, management and WEB availability.
7. Advance the PSC systems analysis effort (SAM Team) to point where testing of commercially available workflow management software is feasible.

Second Phase or Intermediate-term Goals (1-4 yr.)

1. Successfully encourage an OSM initiative to acquire ND GIS environmental data, such as remote sensing imagery and climatic data, as part of a regional effort to acquire and organize such data for GIS use for all western states.
2. Successfully encourage an OSM initiative whereby TIPS develops standard WEB interfaces for both GIS and other data from western states programs.
3. Have individual PSC staff develop GIS coverages of selected data specific to their areas of expertise.
4. Completion of conversion of agency data to digital format.
5. Expand GIS training and skill-building in the PSC beyond the Reclamation and AML Divisions; begin design of an agency-wide GIS and integrated workflow management system.
6. Adoption of a workflow management system and development of a permanent DBMS for digital data.
7. Completion of agency-wide management and workflow design study; incorporation of results into workflow management and DBMS.
8. Have most data inflow electronic (or converted to digital format upon receipt).
9. Successfully encourage interagency cooperation to put in place an initial "Submit Once or One Window" program for regulatory data submissions.

THE FUTURE – building partnerships

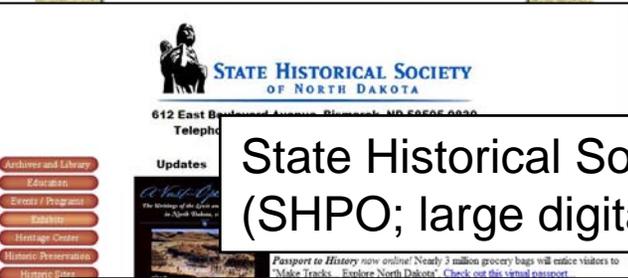
(... that should have been the past.)



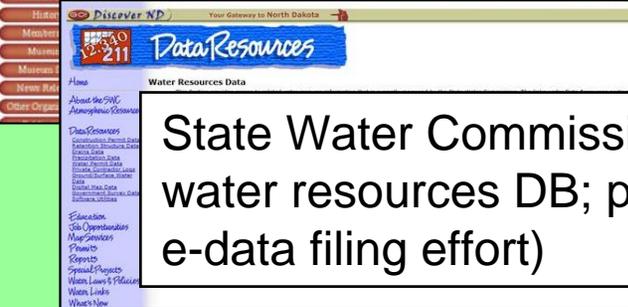
Department of Transportation (highway relocation; premier mapmaker)



State Health Dept. (NPDES lead agency; solid waste regulation)



State Historical Society (SHPO; large digital DB)



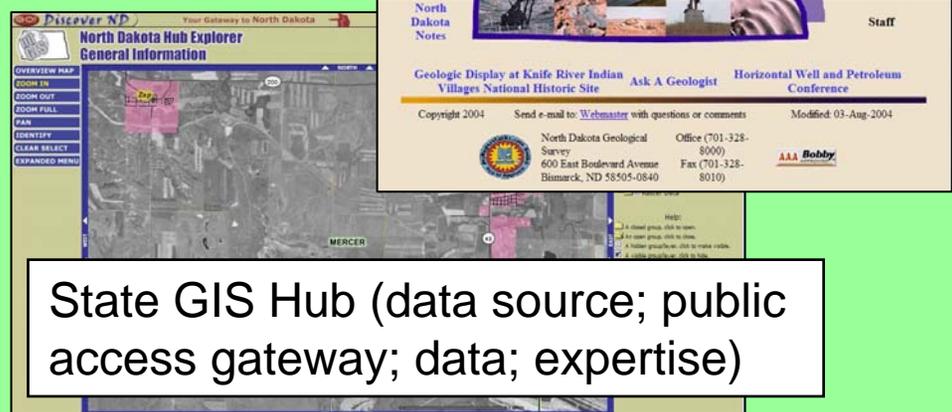
State Water Commission (main water resources DB; partner in e-data filing effort)



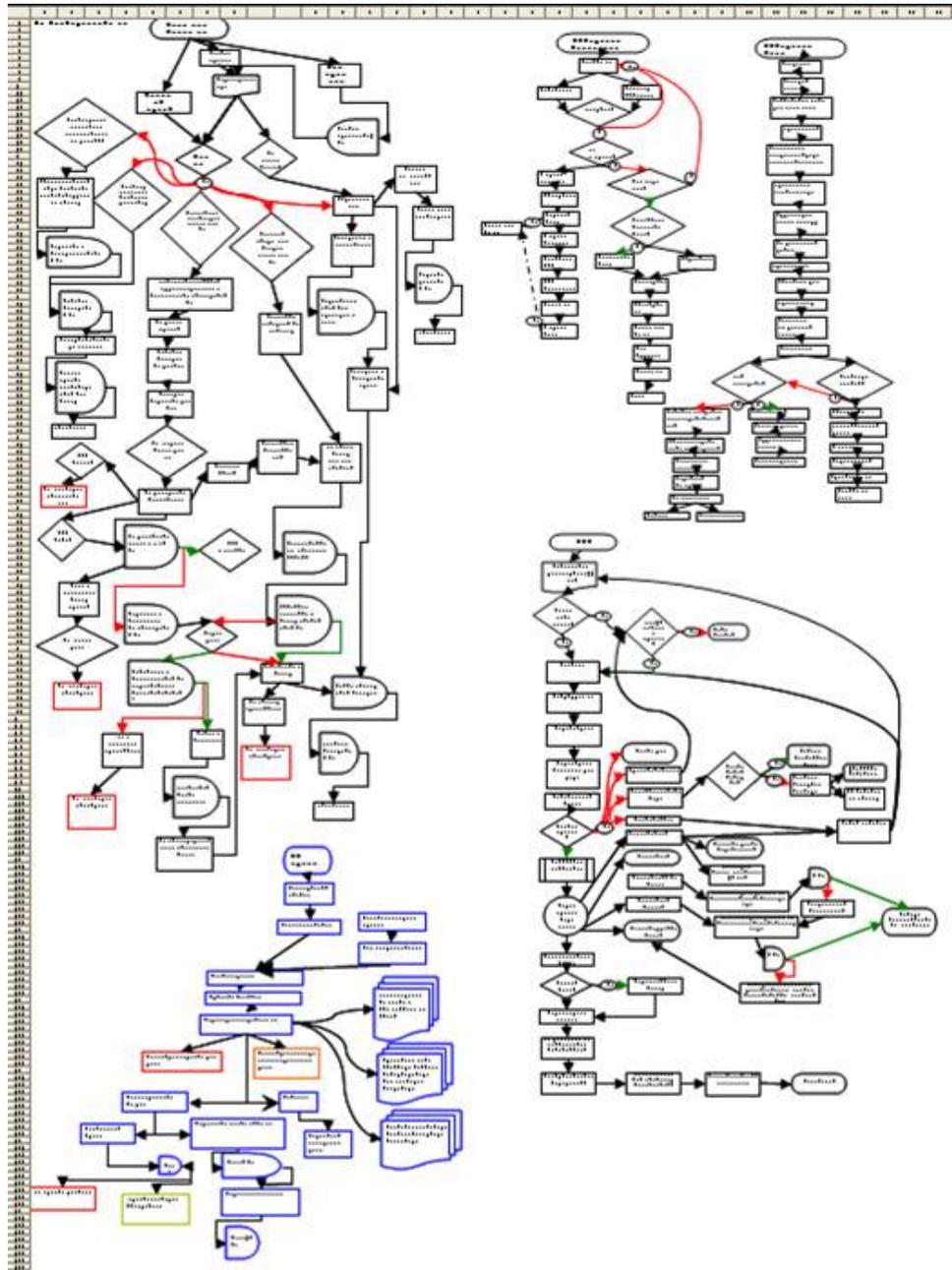
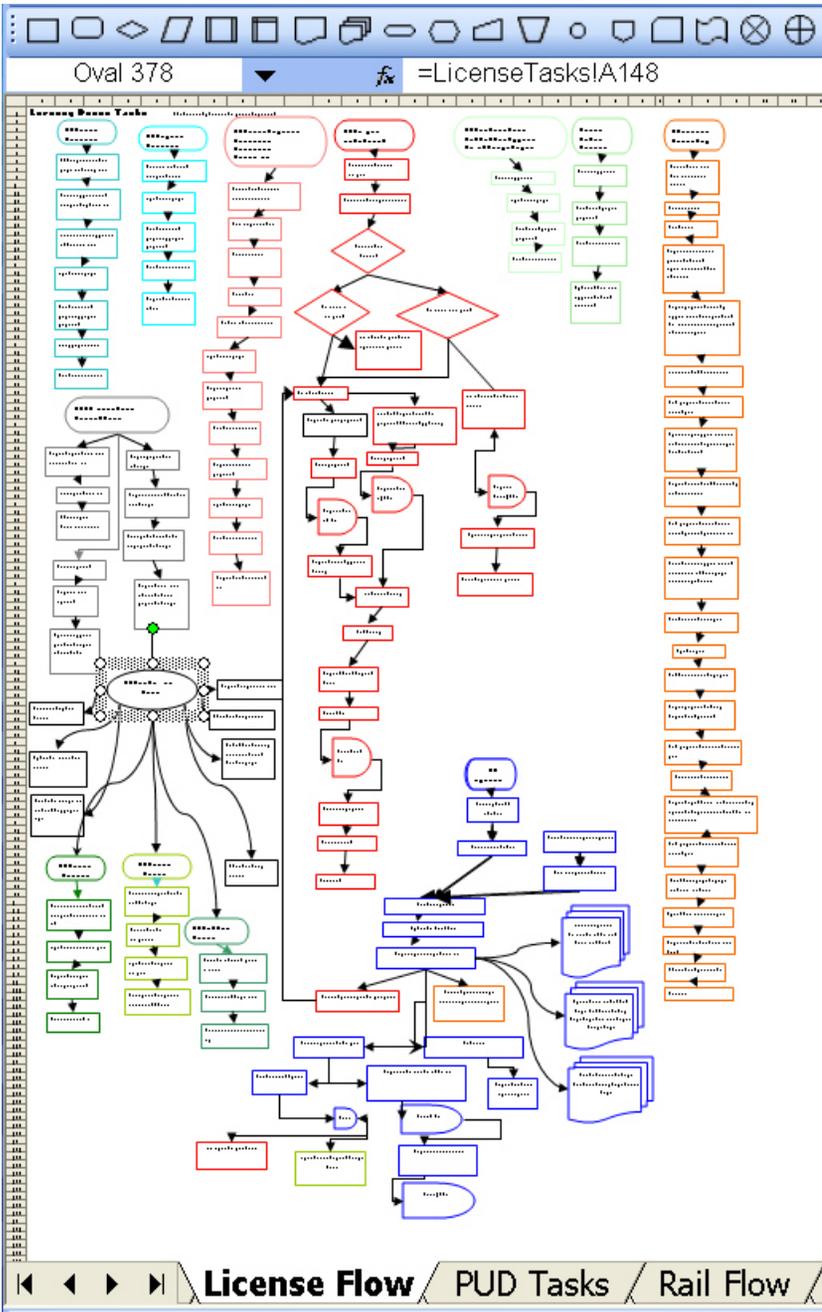
State Geological Survey (enforces our coal exploration regulations; GIS user)



State Land Dept. (landowner in permits, mobile computing)



State GIS Hub (data source; public access gateway; data; expertise)



Inspection Domain - W&M

Weights & Measures Division Tasks

