Delta Science Vision – Sustaining Data Integration Efforts while Taking Advantage of Constantly Evolving Technology

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"Only a synthetic, integrated, analytical approach to understanding the effects of suites of environmental factors [stressors] on the ecosystem and its components is likely to provide important insights that can lead to the enhancement of the Delta and its species."

National Research Council, 2012

Challenges to Data Integration

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- Evolving expectations for “transparency”
- Data quality standards and documentation
- Heterogeneous data
- Unanticipated costs
- Lack of cooperation and coordination

A Path Forward

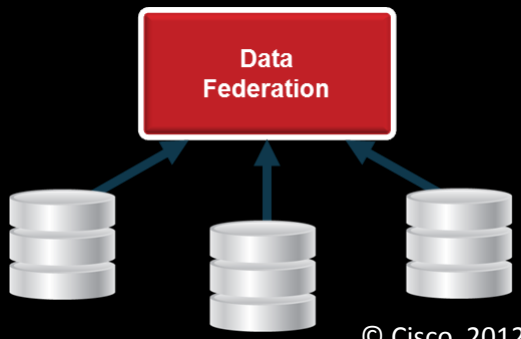
- Sign on to a federated data model

Data Federation

Data federation offers collective power while preserving individual agency mandates

Standards-based approach

Agencies would retain autonomy but could also achieve greater coordination and deeper insights



Federation would require an incremental implementation: evolution over revolution

A Path Forward

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- Promote and document metadata standards

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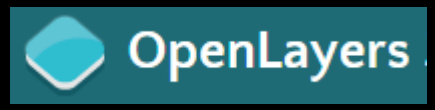
- Embrace open-source software whenever practical

Open-Source Software

Adopt evolutionary rather than revolutionary change



Geoportal Server

Embrace open-source software

Open source software
is cost-effective
attracts the best talent to serve as solution co-creators
Offers reproducibility within a scientific context
can integrate into a proprietary solution via a hybrid design

The evolutionary, incremental approach

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- Develop and use web services for data sharing

Governance Along the Path

Empower a task force to address the many gaps in the state's business model

- Lack of clearly communicated value proposition:
  Perform inventory analysis
- Lack of understanding of user needs:
  Conduct market segmentation analysis
- Perceived redundancy of services and products:
  Perform cost-benefit analysis
- Insufficient resources:
  Recommend funding model
- Ineffective coordination:
  Implement common data standards

Governance Along the Path

Pursue Funding opportunities

The funding model should seek opportunities to overcome budgetary constraints through, for example:

- Public-private partnerships
- Technology innovation fund
- Grant funding
- Federal program partnerships
- Identifying fiduciary agents for grants

The Key Benefits

For Agencies:

- An engaged and innovative technical staff
- A much clearer measure of the value of data, as it is used more synthetically and easily traced to decision-making
- Steadier funding for technology infrastructure
- Leverage over respective agency data while also employing data “beyond the silo”

For Scientists and Decision-Makers:

- Easier access to the best available, most timely data
- Stronger data visualizations to aid in decisions and communication to public stakeholders
- Increased collaboration opportunities
- Greater confidence in the fulfillment of data-sharing mandates

For the public stakeholders:

- Data resources are more easily discoverable and able to be aggregated
- Greater confidence in the integrity of natural resource decisions
- Greater confidence in the responsible innovation of the public sector