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Producing Successful Business Models to Support Sustainable Technology Measures

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Sustainability as related to a business model

Business models: designs for producing value for a business venture

Private sector = “profit”



Public sector = “sustainability”



- For technology infrastructure, a business model provides uninterrupted, sustained financial and process support to fulfill the public mission
- Public mission is to support environmental data stewardship:
  - innovation
  - transparency
  - data sharing
  - responsible financial expenditures

Business model must accommodate data sharing

Federal Open Data Policy

Executive Order of May 9, 2013, “Making Open and Machine Readable the New Default for Government Information”:
“This Memorandum establishes a framework to help institutionalize the principles of effective information management at each stage of the information's life cycle to promote interoperability and openness. “

California’s Data-Sharing Mandates

California Senate Bill 1070 : “Require[s] that the Monitoring Council develop specific recommendations to improve the coordination and cost-effectiveness of water quality and ecosystem monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information.”

Beyond mandates: the demonstrated need for robust data sharing

- Huge natural resource management challenges
  - How do we derive timely information?
  - How do we share this information with policy makers and an engaged public?
- How do we work across agency boundaries to ensure that the best available science is not isolated in a single silo?
- Data visualization is the vanguard of a key output from standards-based data sharing
  - How do we foster data visualization to distill big ideas into comprehensible forms?

Business model as a challenge and requirement

- Lack of clearly communicated value proposition
- Lack of Understanding of User Needs
- Perceived Redundancy of Services and Products
- Ineffective Coordination
- Insufficient Resources
  - Funding fluctuations:
    Trammell, Madnick, Moulton (MIT), “Effect of Funding Fluctuations on Government Funded Software Development”

Fostering innovation and collaboration

"Disruptive innovation" is the dominant term in our technology centers (Silicon Valley)

Disruption in the private sector = profit

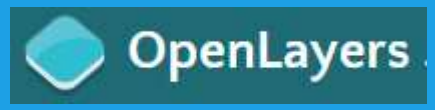
Disrup[illegible]n the [illegible] sector = [illegible]s, discontinuit[illegible]er than acceptab[illegible]ublic funds

Must foster increased innovation without "disrupting"/ displacing / supplanting many of the state's current investments

Recommendations

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

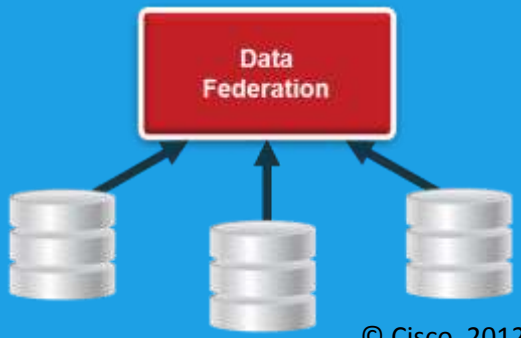
The evolutionary, incremental approach

Recommendations

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

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Recommendations

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:
  Develop common data standards

Recommendations

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

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

Questions?

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