Unification & Simplification Through:
• Cooperation
• Innovation
• Opportunity

Authoritative Data Source Strategy Overview
July 2007
Agenda

• Authoritative Data Source (ADS) Strategy
• ADS Alignment to Department of the Interior’s (DOI’s) Methodology for Business Transformation (MBT)
Authoritative Data Source (ADS) Strategy
What is an ADS? Why is it Important?

What is an Authoritative Data Source (ADS)?
- Cohesive set of data assets that provide trusted, timely, and secure information to support a business process
- Information is visible, accessible, understandable, and credible to information users

Who are Information Consumers?
- Business Users – View Data
- Internal Application – Share/Reuse Data
- Business Partners – Exchange Data

FY07 Department Goal
- Develop an ADS Strategy
- Pilot the ADS Approach

Benefits
- Leverage the Modernization Blueprint efforts to document and designate trusted, timely, and reliable data sources
- Support data consolidation, reuse, and exchange
- Provide a foundation for an integrated, business-driven data solution that is tied to DOI’s performance goals
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**ADS Framework**

**Top Down Analysis**

- **“To-Be” Business and Data Architecture Development**
  - Data Taxonomy and Cohesion, Business Processes

  **Rationalization and Designation**
  - **Database Assessment and Registration**
    - Database Fit
    - Registered Metadata and Access Mechanisms
  - **Database Harmonization and Structuring**
    - Common Ontology
    - Logical Model
  - **Data Analysis and Rationalization**
    - Trusted Authoritative Data Source
    - Migration Plans

- Approved System Inventory

**Bottom Up Analysis**

- **“As-Is” System Architecture Assessment and Scoring**

Visible and Accessible
Understandable
Trusted and Reliable
ADS Strategy – Designation

“To-Be” Data Requirements

“As-Is” Legacy Data Sources

“To-Be” Function/Data Actions and Exchanges

“To-Be” Functional Requirements

“As-Is” Legacy Systems

Authorization Data Sources
(Best “Fit” for Service Component Data and Functional Requirements)

- Duplicative Data Source
- Data Source Characteristics (e.g., DQ, Security, and Privacy)
- Requirements (Function/Data) for a Service Component
- Legacy System Disposition
# Data Quality (DQ) Dimensions

<table>
<thead>
<tr>
<th>DQ Dimension</th>
<th>Description</th>
<th>Measure (Example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy</td>
<td>Qualitative assessment to which data accurately reflects real-world object or matches original source of data</td>
<td>Percent of values that are correct when compared to actual value</td>
</tr>
<tr>
<td>Completeness</td>
<td>Degree to which values are present in the attributes that require them</td>
<td>Percent of data fields having values entered into them</td>
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<tr>
<td>Consistency</td>
<td>Degree to which redundant facts are equivalent across two or more databases</td>
<td>Percent of matching values across tables/files/records</td>
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<tr>
<td>Precision</td>
<td>Degree to which data is known to the right level of granularity</td>
<td>Percent of data fields having the appropriate level of granularity</td>
</tr>
<tr>
<td>Timeliness</td>
<td>Degree to which data is up-to-date and available to support a given knowledge worker or process</td>
<td>Percent of data available within a specified threshold timeframe</td>
</tr>
<tr>
<td>Uniqueness</td>
<td>Degree to which there are no redundant occurrences or records of the same object or event</td>
<td>Percent of records having unique primary key</td>
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<tr>
<td>Validity</td>
<td>Degree to which data conforms to its definition, domain values, and business rules</td>
<td>Percent of data having values that fall within their respective domain of values</td>
</tr>
</tbody>
</table>
ADS Strategy – Transition and Implementation

Recommendations
- Recommend data sources that should be converted and retired
- Recommend data sources that should exchange data with ADS
- Recommend data stewards for ADS
- Identify data quality, security, and privacy concerns (high-level)

Transition Plan
- Schedule data standardization, assessment, and correction task
- Sequence and schedule legacy data source transition to ADS

Implementation
- Harmonize and standardize data requirements for ADS
- Assess data quality against standardized requirements and rules (data converted and exchanged)
- Correct and transform data
- Implement monitoring and improvement

Diagram:
- Authoritative Data Source
  - Convert and Retire
  - Openly Exchange

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**ADS Vision**

**Information Service Consumers**
*DOI Bureaus, Federal and Industry Partners, Citizens*

**Information Dissemination**
*Portal Presentation – Context, Navigation, and Search*

**Information Service Providers**
*Business Applications and Services*

**Authoritative Data Sources**
*Enterprise Operational Data Sources and Metadata Catalog*

**Technical Infrastructure**

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**Able to search, understand, and retrieve relevant and trusted information services**

**Serves information based on business utility and policy requirements to appropriate internal and external users**

**Encapsulates ADS with business process and policy for business usage**

**Provides trusted and reliable data source documented and managed by a data steward**

**Enables access to data sources on various platforms and databases**
ADS Alignment to DOI’s Methodology for Business Transformation (MBT)
DOI’s Methodology for Business Transformation

1. Perform Blueprint Project Management
2. Analyze stakeholders & drivers and set the target business strategy
3. Analyze the business and define the target business environment
4. Analyze the IT and develop the target conceptual solution architecture
5. Author the Modernization Blueprint and obtain governance approvals
6. Incorporate approved Modernization Blueprint into enterprise architecture
7. Perform business transformation initiation tasks
8. Conduct Business Process Reengineering (as necessary)
9. Conduct Data Standardization
10. Execute funding strategy for minor recommendations
11. Define detailed solution architecture
12. Implement solution and conduct change management tasks
13. Maintain the Blueprint and the architecture

Create the Blueprint (6-9 months)

Implement Business Transformation (1-5 years)

Maintain the Architecture (continuous)
ADS Alignment to MBT
Blueprint Phase

1. Perform Blueprint Project Management
2. Analyze stakeholders & drivers and set the target business strategy
3. Analyze the business and define the target business environment
4. Analyze the IT and develop the target conceptual solution architecture
5. Author the Modernization Blueprint and obtain governance approvals
6. Incorporate approved Modernization Blueprint into enterprise architecture

Create the Blueprint (6-9 months)

- Define Target Information Services Requirements
- Identify Data Steward Organizations
- Align As-Is Data Sources to Target Architecture
- Qualitatively Assess and Score As-Is Data Sources
- Recommend ADS and As-Is Data Source Disposition
- Plan ADS Transition and Data Disposition (e.g., Migration, Retirement)
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**ADS Alignment to MBT Implementation Phase**

- Define DOI Data Standards
- Quantitatively Assess ADS Data Quality (Value Chain, Content, and Dissemination)
- Perform Gap Analysis between Target and As-Is Data Sources
- Describe ADS Structure and Business Utility (Metadata)
- Establish Data Correction and Transition Plans
- Implement Data Improvement and Monitoring Controls
Summary and Questions

• An ADS is a cohesive set of data assets that provide trusted, timely, and secure information to support a business process.

• The ADS approach is a Departmental goal to enable data consolidation, reuse and exchange.

• The ADS framework uses a top down and bottom up approach to designate, standardize and certify data sources.

• The ADS process is an integral set of activities in DOI’s Methodology for Business Transformation (MBT).