Data Governance

A FDOT Case Study
Outline

• BIM for Infrastructure and data governance
• An orientation to ROADS (Reliable, Organized, Accurate, Data Sharing)
• Assessing needs, gaps and approach
• Data governance structure
• What’s next?
BIM is About Data

Illustration: HDR, used with permission
BIM Gains Value When Shared
Sharing BIM

• Using data to populate databases
• Only works with known data structures
Overview and Mission

The goal of the ROADS initiative is to improve data reliability, simplify data sharing across the FDOT, and have readily available and accurate data to make informed decisions.

Reliable, Organized, Accurate Data Sharing across all of the FDOT
### Why ROADS?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Description</th>
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<tbody>
<tr>
<td>It’s hard to know what data is available</td>
<td>Information is organized around applications instead of around perspectives end users can relate to (e.g., business subject areas).</td>
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<tr>
<td>Data is hard to access</td>
<td>Security controls are scattered across many different tools and processes (e.g., RACF, AARF, applications, SharePoint, etc.) throughout 170+ centralized and local systems.</td>
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<td>Lack of standardized approach</td>
<td>Many districts are moving toward the adoption of the GIS as the entry point for information searches, but the approach has not been standardized across the districts.</td>
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<td>No enterprise-level view of data</td>
<td>A majority of the district data efforts appear to focus on singular business issues without the added benefit of looking at the data from an overall business view to improve performance or reduce risk.</td>
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<td>Teams want a “one stop shop”</td>
<td>Teams consistently stated they would like a &quot;one stop shop&quot; to access all information they need in one place, with a &quot;Google type&quot; search. Over 40 &quot;search criteria&quot; elements have been identified.</td>
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Benefits of ROADS

- **BETTER**: Ensure information is secure, accurate, reliable, and at the appropriate level to empower you to do your job better.
- **EASIER**: Provide the ability to access relevant business data more quickly and efficiently by knowing where to find it.
- **FASTER**: Reduce the amount of time to locate the data you need and provide more time to analyze the data.
- **SHAREABLE**: Effectively share information across our organization to enable better and faster decisions.
- **INTEGRATED**: Enable a greater capability to link data together from different districts, functional areas, and systems.
- **STREAMLINED**: Remove the barriers currently in place that prevent the efficient sharing of information.
ROADS Journey to Date

MARCH 2015
Start of the ROADS Journey—moving the FDOT to Reliable, Organized, and Accurate Data Sharing

SUMMER/FALL 2015
Establishment of data governance structure

SPRING/SUMMER 2016
"Invitation to Negotiate" completed with interest from 45+ vendors and review process and "short list" completed

SUMMER/FALL 2016
Charters created to define responsibilities and the path forward for the EDS and ROADS Executive Team

SPRING 2015
270 interviews and 237 surveys of FDOT, identifying 63 gaps in data and information

FALL/WINTER 2015
Determination of Tool Requirements completed after reviewing survey and interview results

SUMMER 2016
Applications and Reports Inventory assessments
ROADS Journey to Date

**FALL 2016**
ROADS Town Hall and Knowledge Sharing Sessions occurred to educate stakeholders on Metadata concepts.

**WINTER 2017**
ROADS is aligned under the Civil Integrated Management Office and Town Hall conducted.

**SUMMER/FALL 2017**
SAS contract executed; pilot of select data governance processes; BI/DW Project – Initiation Phase and project kick-off, including scoping of future iterations; Safety Office selected as first iteration.

**WINTER 2017-SUMMER 2021**
BI/DW Project – Iterative Implementation Phases and continued Knowledge Sharing.

**FALL 2016**
Three-short listed vendors performed test cases and oral presentations for ITN.

**SPRING 2017**
Public meeting announced SAS as intended award vendor for BI/DW ITN.

**FALL/WINTER 2017**
Begin Knowledge Sharing Sessions on select data governance Best Practices.
Assessing Our Needs

STEERING COMMITTEE
10-person team
Technical and business members
Central and district office representatives

SURVEY EMPLOYEES
75 survey invitations
60 minutes to complete
70 questions
237 responses

INTERVIEW EMPLOYEES
7 districts and central offices visited
2-hour interview durations
24 interviews completed
270 participants

Image: Florida Department of Transportation (FDOT), used with permission
Approach

The data collected for the Inventory of Information Assets and Gap Analysis was organized into twelve key enterprise information management areas.
Solutions to Close Gaps

- Implement Architecture
- Move and Synchronize Data
- Implement Solution Management
- Address Bandwidth Issues
- Enable Data Consistency and Accountability
- Implement Change Management
- Establish Data Awareness
- Institute Enhanced Reporting Capabilities
- Implement Organizational Alignment
- Streamline Data Security
- Implement Data Governance
Data Governance Structure

ROADS Executive Team
- Champions data quality improvement
- Represents data governance stakeholders
- Prioritizes data issues
- Sets data governance rules and procedures

Enterprise Data Stewards
- Leads the data steward and data custodian working group
- Acts as liaison between ROADS executive team and the data stewards and data custodians
- Ensures data governance compliance

Data Stewards
- Business Function Expert
  - Supports BI/DW initiatives
  - Collaborates across department on data governance activities
  - Defines and maintains business metadata
  - Coordinates adequate documentation
  - Develops data quality process and standards
  - Remediates data quality defects
  - Approves data access
  - Manages data confidentiality and security classification

Data Custodians
- Technical Function Expert
  - Supports and implements data governance activities
  - Supports and prepares documentation
  - Maintains knowledge of data structure
  - Resolves data quality defects
  - Provides data access to approved users
  - Implements data confidentiality and security requirements
Data Governance Structure

ROADS EXECUTIVE TEAM

Leadership from across the Districts, Turnpike, and Central Office supporting the ROADS Initiative. The ROADS Executive Team members are responsible for overall data governance and provide decision-making, oversight, and strategic direction to the organization. High-level responsibilities include:

- Approve actions, resolve issues, and provide advice/feedback to the EDS (and DS/DC)
- Adopt the ROADS Component Model and ensure data governance compliance
- Establish overall data governance rules, processes, and procedures
- Drive cultural changes needed to communicate data as an asset and manage it effectively across business functional area boundaries
- Balance business priorities with operational needs across the enterprise
- Review and evaluate current data governance performance and effectiveness
- Encourage active participation from both the business and IT areas

Image: FDOT, used with permission
Data Governance Structure

ENTERPRISE DATA STEWARDS (EDS)

Business-focused individuals from across the Districts, Turnpike, and Central Offices supporting the ROADS Initiative. The Enterprise Data Stewards are responsible for managing their functional area working group. They report directly to the ROADS Executive Team. High level responsibilities include:

- Lead the Data Steward Working Group for their functional area/office
- Ensure data governance compliance
- Advocate for future data initiatives for the Department
- Operate in alignment with Functional Managers
- Adopt the ROADS Component Model
- Work with Data Stewards and Data Custodians regularly to provide leadership and guidance
- Act as a liaison between the ROADS Executive Team and the Data Stewards and Data Custodians
Data Governance Structure

DATA STEWARDS

Business functional expert supporting the ROADS Initiative, ideally the Functional Application Coordinators or other delegates within the business functional area, responsible for business aspects of data management and governance, which includes definition, control, and accountability for data elements within their data sources, such as applications or purchased/collected data. A Data Steward works with business personnel to define data needs for their particular functional area. Individuals that are selected as Data Stewards are typically already doing many of the activities of a Data Steward, but just in an informal manner. High-level responsibilities include:

• Understand strategic priorities of the business related to functional area along with the processes and data that support the business
• Participate in defining rules, processes, and quality metrics
• Act as a strong communicator and champion of data quality within the functional area
• Involved in gathering requirements for tools used in the transformation of data into meaningful and useful information for business analysis purposes
Data Governance Structure

DATA CUSTODIANS

Technical functional expert supporting the ROADS Initiative, ideally from a business office; responsible for supporting and implementing data governance and best practices for data elements within their data sources, such as applications or purchased/collected data. Data Custodians may work with other technical resources within the business functional area or OIT resources may be relied on to support the responsibilities. Individuals that are selected as Data Custodians are typically already doing some or many of the activities of a Data Custodian, but just in an informal manner. High-level responsibilities include:

• Respond to research and information requests of the Data Stewards
• Escalate any items which have an impact on data quality requirements for reporting tools
• Implement data transformations, resolve data issues, and collaborate on system changes
• Maintain quality of the data that they manage
Ongoing Approach

The ROADS Initiative will continue to help close the data/information gaps identified early in the project through:

**People:** Managing a formal data governance structure to make key decisions related to data/information.

**Process:** Training the FDOT on the Data Governance Component Model and implementing standard processes and routines to provide a formal approach to data governance.

**Technology:** Providing common standardized BI/DW tools, technologies, and frameworks that will be used across the FDOT to make data/information more accessible.
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