Florida DOT Implementation of Data Governance

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Overview and Mission

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

**Reliable, Organized, Accurate Data Sharing**
Why ROADS?

- **It’s hard to know what data is available**
  - Information is organized around applications instead of around perspectives end users can relate to (e.g., business subject areas).

- **Data is hard to access**
  - Security controls are scattered across many different tools and processes (e.g., RACF, AARF, applications, SharePoint, etc.) throughout 170+ centralized and local systems.

- **Lack of standardized approach**
  - Many districts are moving toward the adoption of the GIS system as the entry point for information searches, but the approach has not been standardized across the districts.

- **No enterprise-level view of data**
  - 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.

- **Teams want a “one stop shop”**
  - Teams consistently stated they would like a "one stop shop" to access all information they need in one place, with a "Google Type" Search. Over 40 "Search Criteria" elements have been identified.
Objectives

- **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 more time to analyze the data.

- **Sharable**: 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.
History

- In the fall of 2014, FDOT began to develop an Enterprise-wide Information Technology Strategy.

- Office of Information Technology sponsored a critical assessment of the Department’s information technology capabilities, personnel, and infrastructure.

- A recommendation was made to develop a comprehensive Enterprise Information Management structure, once the current information management practices at the Department had been assessed.

- To accomplish this task, Phase I of the Reliable, Organized, and Accurate Data Sharing (ROADS) Initiative began in March of 2015.

- The ROADS Initiative expects to drive many benefits by streamlining information across the organization to enable better, faster decisions by removing the current barriers that prevent the efficient sharing of information.
Approach

**People:** Managing a formal Data Governance Structure to make key decisions related to Data / Information.

**Process:** Training FDOT on the Data Governance Component Model and Implementing Standard Processes & Routines to provide a formal approach to Data Governance.

**Technology:** Providing common standardized BI / DW Tools, Technologies and Frameworks that will be used across FDOT to make data/information more accessible.
Data Governance Structure

- **Chaired by CIM Officer**
- Champions Data Quality Improvement
- Represents Organizational Stakeholders
- Prioritizes Data Issues
- Sets Data Governance Rules and Procedures

**Technical Function Expert**
- Supports and Implements Data Governance Activities
- Assists With Documentation
- Maintains Knowledge of Data Structure
- Identifies and Resolves Data Quality Defects
- Implements Data Confidentiality & Security Requirements

**Business Function Expert**
- Collaborates Across Dept. on Data Governance Activities
- Defines and Maintains Business Metadata
- Coordinates Adequate Documentation
- Develops Data Quality Process and Standards
- Drives Remediation of Data Quality Defects
- Manages Data Confidentiality & Security Classification

**ROADS Executive Team**

**Enterprise Data Stewards**

**Data Stewards**

**Data Custodians**
Reliable, Organized, and Accurate Data Sharing (ROADS) Initiative

Initiative

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

Key ROADS Executive Team Activities

The following provides an overview of most activities that a ROADS Executive Team member will be involved in as part of the overall data governance structure.

- Represent your District's data governance stakeholders
- Coordinate within your District with District leadership, DS, and DC
- Act as a strong facilitator, communicator, and champion of the ROADS vision, data governance, and data quality
- Remain informed regarding ROADS status, issues, and activities
- Attend scheduled ROADS Executive Team meetings and other key events
- Review information when it is distributed to the group and bring issues/concerns related to data or ROADS implementation to the ROADS Executive Team
- Interact regularly with data governance team members and provide input to team resources when necessary. Communicate with leadership and the FDOT workforce

Business Intelligence Tools, Solutions

The ROADS Executive Team plays a critical role in the defining requirements and business rules related to data and business intelligence tools, solutions, and services.

Set strategic direction for data and solutions

Make Decisions Regarding Tools

Authorize Data Governance Team Actions

Oversee the EDS and Work Groups

October 2016, ROADS Team
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 ROADS Executive Team & the Data Stewards and Data Custodians

Key EDS Activities

The following provides an overview of most day-to-day activities that an Enterprise Data Steward will be involved in as part of the overall data governance structure.

- Define activities for program and functional areas in conformance to ROADS goals
- Attend weekly EDS meetings and other key ROADS events (Town Halls, etc.)
- Interact on a regular basis with both Data Stewards and Data Custodians and provide input to project team resources when necessary
- Conduct bimonthly meetings with Data Stewards and Data Custodians, or as appropriate
- Provide feedback on Knowledge Sharing Module content and other ROADS deliverables
- Communicate with leadership as appropriate (e.g., ROADS Executive Team, Functional Managers)
- Develop and manage data governance artifacts, such as Standards and Rules

**Business Intelligence Tools, Solutions & Services**

The EDS plays a critical role in implementing requirements and business rules related to data and business intelligence tools, solutions, and services.
**DATA STEWARDS**

**Business functional expert** supporting the ROADS Initiative, ideally the Functional Application Coordinators or other delegate 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 (Enterprise, Central, District, and/or Turnpike) 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 functional area
- Involved in gathering requirements for tools used in the transformation of data into meaningful and useful information for business analysis purposes, including reporting
- Provide business function expertise to the Department, Central Office, District, or Turnpike
- Actively collaborate across the department on current and future data governance activities
- Provide business expertise and assess business impact for proposed data initiatives
- Define and maintain clear and unambiguous business metadata including descriptions, definitions, validation rules, and lineage information
- Coordinate adequate documentation including enterprise data glossary, business rules, data quality metrics, and sources of origin and downstream systems from business perspective
- Drive the remediation of data quality defects; develop and implement processes to improve data quality; prepare and update data quality standards and business rules
- Understand the security protocols related to data. Classify the confidentiality and security requirements for the data elements.
- Attend knowledge sharing sessions to learn and use new concepts, tools, and processes

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**Key Data Steward Activities**

The following provides an overview of most day-to-day activities that a Data Steward will be involved in as part of the overall Data Governance Structure.

- Provide business function expertise to the Department, Central Office, District, or Turnpike
- Actively collaborate across the department on current and future data governance activities
- Provide business expertise and assess business impact for proposed data initiatives
- Define and maintain clear and unambiguous business metadata including descriptions, definitions, validation rules, and lineage information
- Coordinate adequate documentation including enterprise data glossary, business rules, data quality metrics, and sources of origin and downstream systems from business perspective
- Drive the remediation of data quality defects; develop and implement processes to improve data quality; prepare and update data quality standards and business rules
- Understand the security protocols related to data. Classify the confidentiality and security requirements for the data elements.
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**Ongoing Approach**

The ROADS Initiative will continue to help close the Data / Information Gaps identified early in the project by:

- **People:** Managing a formal Data Governance Structure to make key decisions related to Data / Information.
- **Process:** Training FDOT on the Data Governance Component Model and Implementing Standard Processes & Routines to provide a formal approach to Data Governance.
- **Technology:** Providing common standardized BI/DW Tools, Technologies and Frameworks that will be used across FDOT to make data/information more accessible.
**Reliable, Organized, and Accurate Data Sharing (ROADS) Initiative**

**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

### Key Data Custodian Activities

The following provides an overview of most day-to-day activities that a Data Custodian will be involved in as part of the overall Data Governance Structure.

- Serve as the technical resource responsible for the day to day management of data including custody, safekeeping, usage, integration with the business functional area
- Support Enterprise Data Stewards (EDS) and Data Stewards on data governance activities
- Provide technical expertise and assess the technical impact of proposed data initiatives
- Assist with documentation including enterprise data glossary, entity relationship diagrams, data integration, data quality metrics, validation rules, and sources of origin and downstream systems from a technical perspective
- Identify and resolve data quality defects; help define and update data quality standards and technical rules as needed to improve data quality and for consistent usage of data
- Adhere to security protocols related to data. Implement data confidentiality and security requirements
- Attend knowledge sharing and training sessions to learn and use new concepts, tools, and processes

### Work Functions Represented

- Foot Work Functions
- CIM - Survey Mapping
- CIM - TDA
- Comptroller
- Construction
- Contracts Administration
- Design
- Emergency Management
- Environmental Management
- Freight & Logistics
- General Counsel
- GIS
- Information Systems
- Maintenance
- Materials
- Planning
- Procurement Services
- Program Management
- Public Information
- Research Center
- Right of Way
- Safety
- Support Services
- Work Program & Budget

November 2017, ROADS Team
BI/DW Project Structure

Other Key Roles for ROADS:

- Executive Sponsor (Chief of Transportation Technology)
- Project Sponsor (CIM Officer)
- Business Functional Coordinator (CIM Officer)
- Technical Functional Coordinator (IT Bureau Chief)
- ROADS Business Liaison
- BI/DW Project Manager
BI/DW Next Steps

Business Capability Iterations

Recurring iterations 1-10
- Enhance existing metadata
- Enhance current data quality process
- Improve data integration within business area
- Improve data integration with other Departmental Offices
- Develop dashboards
- Create enterprise reports
- Create self service reports
Questions?

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