Introduction

Data Governance ensures that an organization's data is formally managed to facilitate the effective use of information for strategic planning and key decision-making. As a corporate asset, data has value well beyond immediate needs so it must be carefully managed throughout its entire life cycle.

Data life cycle management is key to the flow of the information assets throughout an organization: from planning and creation to the time when data becomes obsolete and is no longer needed. Therefore, in March 2015, the Florida Department of Transportation (FDOT) launched an initiative to define a clear path for the agency-wide adoption of data governance and master data management.

The long-term goal of the initiative, known as Reliable, Organized and Accurate Data Sharing (ROADS), is to improve data reliability and simplify data sharing across FDOT to have readily available and accurate data to make informed decisions. The ROADS initiative will streamline information across the organization to enable better, faster decision making by removing current barriers that prevent the efficient sharing of information.

ROADS will also support the development of a comprehensive Enterprise Information Management Structure that will ultimately be governed by FDOT Transportation Technology.

In support of these efforts, FDOT has established data governance as a priority for the agency in its Data Governance Policy (001-325-064-b).

Vision

FDOT's vision for data governance is based on a foundation of reliable and consistent data that helps drive its business, is well understood by internal and external stakeholders, and is collected, managed, and clearly and openly communicated.

To accomplish this vision, FDOT is implementing a data governance framework. This framework is intended to improve data management practices while remaining focused on delivering value to stakeholders, thereby positively impacting business results and operational efficiencies. FDOT will also establish, maintain, and measure the desired outcomes of data governance in order to track progress towards this objective.

Approach

In 2014, the Florida Department of Transportation's (FDOT) Office of Information Technology (IT) sponsored a critical assessment of the Department's information technology capabilities, personnel and infrastructure.

The intent of this effort was to align the Department's technology assets with its functional business units. The results of this assessment provided recommendations for the future state of data governance within FDOT.

A comprehensive IT Strategic Plan was implemented that included five high-level recommendations that identified the scope of information the Department held as well as any gaps that may exist.

A key recommendation highlighted within the Strategic Plan was the implementation of a comprehensive Enterprise Information Management structure. The Reliable, Organized and Accurate Data Sharing (ROADS) Initiative, launched in March 2015, was the answer to attaining this strategic goal.

ROADS Introduction

The introduction of the Reliable, Organized and Accurate Data Sharing (ROADS) Initiative achieved multiple objectives, including:

- Implementing Enterprise Information Management Recommendations
- Defining an Enterprise Data Governance Model
- Inventorying the Department's information assets
- Providing recommendations for an Information Management Architecture
- Developing policies, procedures and an Information Architecture Framework implementation plan

Steering Committee, Survey and Interview

Phase 1 of the ROADS Initiative was overseen by a Steering Committee consisting of ten individuals who serve in a variety of technical and business capacities throughout FDOT.

These individuals represent stakeholders from the Central Office as well as multiple Districts and they serve as a sounding board for ideas and captured data elements while providing guidance and strategic direction for the initiative.

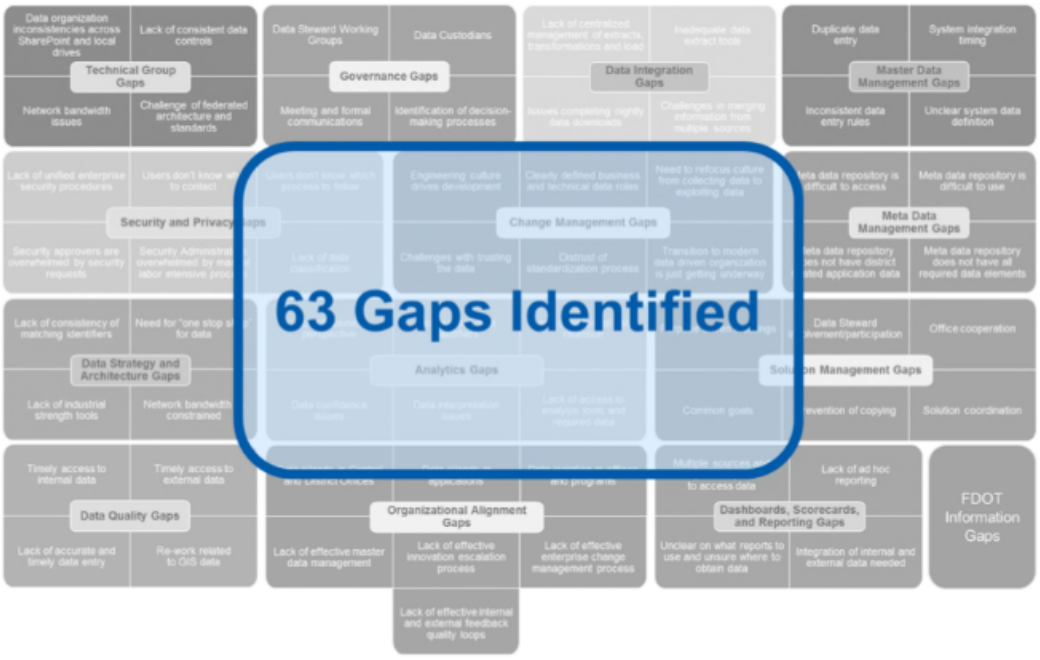
To have a better understanding of the state of the Department's current data governance structure, the team engaged individuals across the agency to gain an initial set of data. This was done by distributing an information survey to staff that yielded numerous responses from the Central and District Offices. In-person interviews were then conducted that built upon the survey findings.

Gap Analysis

The analysis identified 63 gaps in the Department's information management and highlighted unmet information needs across the enterprise. Recognizing the need for a wide variety of data across the agency and seeking opportunities for improvement within a collected inventory of information assets provided a foundation for the development of solutions to address the information gaps.

The information management gaps identified were ultimately categorized as follows:

- Analytics
- Change Management
- Dashboards, Scorecards and Reporting
- Data Integration
- Data Quality
- Data Strategy and Architecture
- Governance
- Master Data Management
- Metadata Management
- Organizational Alignment
- Security and Privacy
- Solution Management
- Technical Group



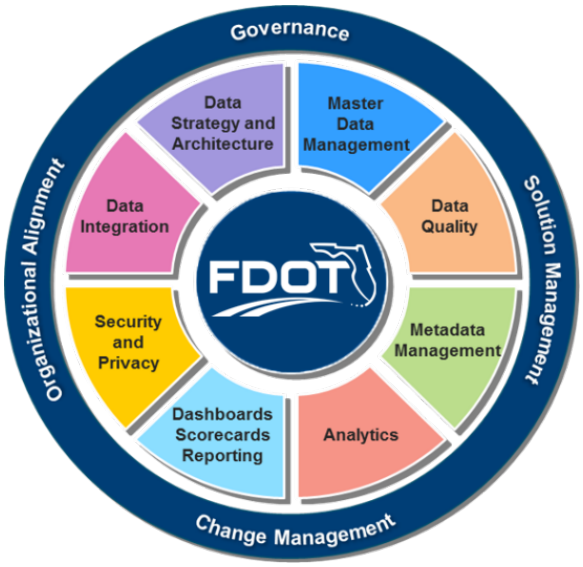
Solutions

With this knowledge, the project team developed solution blueprints to bridge these gaps as well as a solution roadmap for implementation. The following high-level categories provide an overview of each targeted solution:

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

Data Governance Components

The data collected for the Inventory of Information Assets and Gap Analysis was organized into 12 key enterprise information management areas. These 12 areas allow for a holistic view of the ways that FDOT can improve information management.



Closing the Gaps

The ROADS Initiative will help to close the data and information gaps identified early in the project by:

- **People** - Establishing a formal data governance structure to make key decisions related to data and information.
- **Process** - Training FDOT staff on the Data Governance Component Model and implementing standard processes and routines to provide a formal approach to data governance.
- **Technology** - Providing common standardized tools, technologies and frameworks that will be used across FDOT to make data/information more accessible.

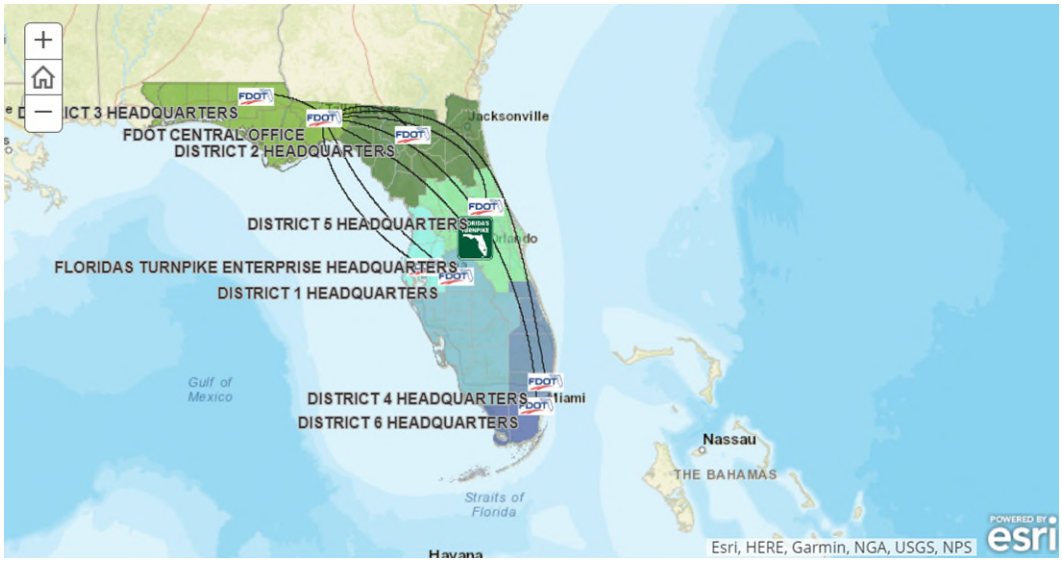
ROADS Agency initiatives

Various efforts to close the information gaps are also underway, including the implementation of new tools, processes and procedures. These include:

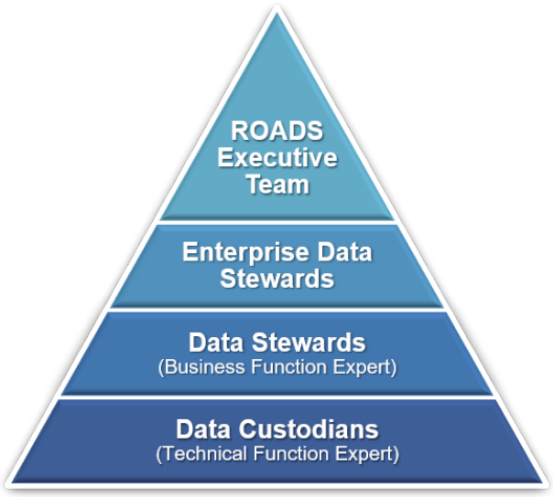
- **Applications and Reporting Inventory** - A listing of internal/external applications and other information assets used across the agency.
- **Data Governance Checklist** - A quick-reference guide for data governance considerations in transportation technology projects.
- **Data Governance Roles** - Common position description language for the Enterprise Data Steward, Data Steward and Data Custodian roles and responsibilities.
- **Data Management Handbook** – A data management tool that is based on the data life cycle and provides additional documentation for each phase, such as metadata templates.
- **Enterprise Business Glossary** - Defines key terms and definitions for agency-wide use.
- **Enterprise Data Management** - Defines key considerations and provides related resources for each phase of the data life cycle.
- **Technology Process Proposal** - A comprehensive process for evaluating promising technology projects.

Engagement

A formal data governance structure is critical to the implementation and sustainment of the Florida Department of Transportation's data governance program. Four primary data governance roles have been established to support the ROADS initiative. These individuals will ultimately uphold the priority of managing data as an asset throughout the Department.



The members of each governance role span many different functional areas across the Districts, Florida's Turnpike and Central Office.



ROADS Executive Team (RET)

The ROADS Executive Team (RET) consists of data governance stakeholders. Leadership from across the Districts, Florida's Turnpike and Central Office are responsible for overall data governance and provide decision-making, oversight, and strategic directions to the organization.

The RET is responsible for establishing data governance policies and championing data accessibility and quality improvements.

High level responsibilities include:

- Approving actions, resolving issues and providing advice/feedback to the EDS, DS and DC
- Adopting the ROADS Component Model and ensuring data governance compliance
- Establishing overall data governance rules, processes, and procedures
- Driving cultural changes needed to communicate data as an asset and managing it effectively across business functional area boundaries
- Balancing business priorities with operational needs across the enterprise
- Reviewing and evaluating current data governance performance and effectiveness
- Encouraging active participation from both the business and Information Technology areas

Enterprise Data Stewards (EDS)

The Enterprise Data Stewards (EDS) are business experts from across the Districts, Florida's Turnpike, and Central Offices who report directly to the ROADS Executive Team. These individuals are responsible for leading their assigned functional work groups and ensuring data governance compliance throughout the Department. The EDS also serve as advocates for the Department regarding data quality and project prioritization with the understanding that the EDS is responsible for data and systems usage, not control.

High level responsibilities include:

- Leading the Data Steward Working Group for their functional area or office
- Ensuring data governance compliance
- Advocating for future data initiatives for the Department
- Operating in alignment with Functional Managers
- Adopting the ROADS Component Model
- Working with Data Stewards and Data Custodians regularly to provide leadership and guidance
- Acting as a liaison between the ROADS Executive Team, Data Stewards and Data Custodians

Data Stewards

A Data Steward (DS) serves as functional data expert in support of the ROADS Initiative. They are 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 functional area and they ensure that the requirements of the data governance policy and procedures are followed. Individuals who 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:

- Understanding strategic priorities of the business (Enterprise, Central, District, and/or Florida's Turnpike) related to their functional area along with the processes and data that support the business
- Participating in defining rules, processes, and quality metrics
- Acting as a strong communicator and champion of data quality within functional area
- Assisting with the gathering of requirements for tools used in the transformation of data into meaningful and useful information for business analysis purposes, including reporting

Data Custodians

A Data Custodian (DC) serves as a technical functional expert in support of the ROADS Initiative, ideally from a business office, who is responsible for implementing data governance and best practices for data elements within their functional areas, such as applications or purchased/collected data.

Data Custodians may work with other technical resources within the business functional area or IT resources may be relied on to support the responsibilities. Individuals that are selected as Data Custodians are typically already performing some or many of the activities of a Data Custodian, but in an informal manner.

High level responsibilities include:

- Responding to research and information requests of the Data Stewards
- Escalating any items which have an impact on data quality requirements for reporting tools
- Implementing data transformations, resolve data issues, and collaborate on system changes
- Maintaining quality of the data that they manage

Innovation

As progress is made with the implementation of the ROADS initiative, the value of data governance within the agency is also evident. FDOT is ensuring that:

- Information is secure, accurate, reliable and at the appropriate level
- Accessing relevant business data becomes quicker and more efficient
- There is a reduction in the amount of time needed to locate data
- Sharing information across the organization is streamlined to enable better and faster decisions
- There is a greater capability to link data together from different Districts, functional areas and systems
- Barriers that prevent the efficient sharing of information are removed

These changes inspire innovation within the department by giving FDOT employees the reliable, organized, accurate data sharing to make informed decisions. The following are ROADS projects that span across the Districts, Florida's Turnpike and Central Office:

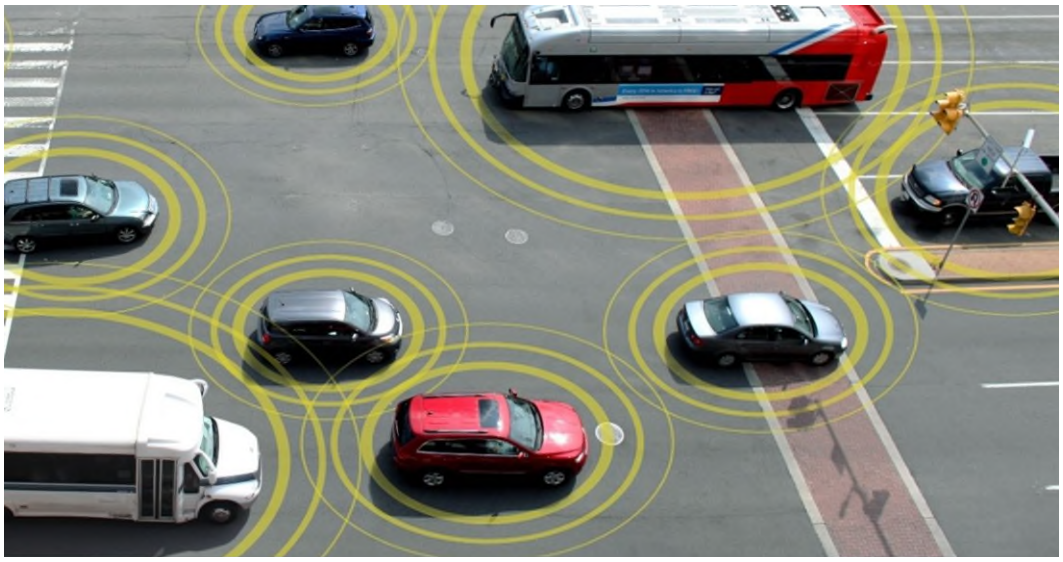
- **BI/DW** - The Business Intelligence/Data Warehouse provides the tools and capabilities needed to improve the quality and accessibility of FDOT's data.
- **ECTS** - The Enterprise Correspondence Tracking System is used to submit online requests, report issues and access self-help resources.
- **EDMS** - The Electronic Document Management System is for the storage, searching, and retrieval of documents and associated metadata.
- **IAMG** - The Identity Access Management and Governance will help to ensure appropriate access to resources across our diverse technology environments.
- **IRAIS** - The Integrated Roadway Asset Identification System will incrementally replace the Roadway Characteristic Inventory, technical architecture and business processes.
- **SoE** - The System of Engagement provides a single enterprise view where FDOT workers and partners can consume, analyze and contribute to enterprise data.
- **WCMS** - The Website Content Management System provides authoring, collaboration and administrative tools to create and manage website content

Future

As technology advances, the Florida Department of Transportation (FDOT) has built and will continue to build upon the foundation of data governance throughout the agency. Success for the ROADS initiative can be measured in many ways, one of which is the support and growth of innovation throughout the organization.

The measurable effects of the ROADS initiative are evident in the tools, processes and procedures that are actively being reassessed and implemented Department-wide. Other effects are also visible in the increased staff awareness of the need to gain greater value from data integration, interoperability and data

quality.



The Florida Department of Transportation will continue its efforts to ensure that vital data and technology assets are formally managed. Data governance will continue to be established as a priority within the agency and the value of managed data will be promoted through the Reliable, Organized and Accurate Data Sharing Initiative. Through these efforts, FDOT will:

- Protect the needs of data stakeholders
- Train management and staff to adopt common approaches to data issues
- Build standard, repeatable processes
- Reduce costs
- Increase effectiveness through the coordination of efforts

Contacts

For additional information on the FDOT data governance initiative, please contact:

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Related Resources

Data Governance Policy (PDF-174KB)

ROADS Data Governance Checklist (PDF-112KB)

ROADS Data Management Planning Resource (PDF-1.65MB)

ROADS Executive Team Overview (PDF-682KB)

ROADS Enterprise Data Stewards Overview (PDF-684KB)

ROADS Data Stewards Overview (PDF-257KB)

ROADS Data Custodians Overview (PDF-318KB)

Partners

AASHTO: Committee on Data Management and Analytics
https://data.transportation.org/

FHWA: Data Governance
https://www.fhwa.dot.gov/datagov/

Florida Digital Service
https://digital.fl.gov/

US GSA: Federal Data Strategy
https://strategy.data.gov/