Evaluating an Existing Data Management System

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The Problem

- Environmental data management systems often grow organically as data needs evolve, which can cause:
  - Data redundancy
  - Inefficient processes
  - Lack of standardization
  - Lack of sufficient documentation
  - Increased complexity, frustration, and cost
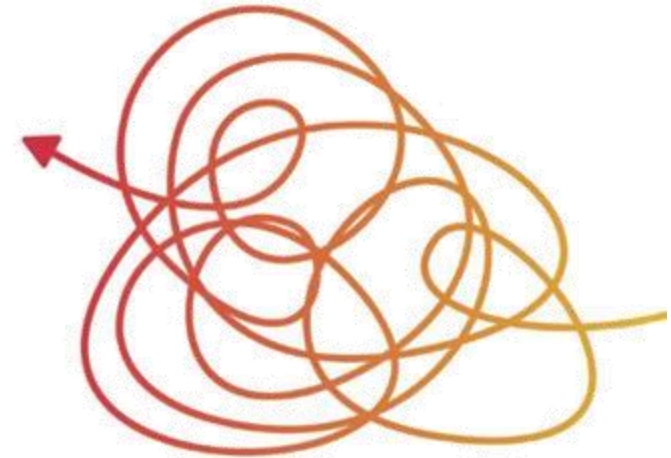
This is particularly true for complex organizations with data continually entering one or more data systems.

The Solution

- Identify where improvements can be made to the system to:
    - Increase data quality, integrity, and accessibility
    - Streamline processes and workflows
    - Standardize data and metadata
    - Maintain sufficient documentation
    - Decrease complexity, frustration, and cost

- Implement those improvements

Case Study – DOE LM

U.S. Department of Energy Office of Legacy Management

- Manages more than 100 legacy sites in the United States and Puerto Rico associated with the nation's World War II and Cold War nuclear weapons complex

- LM's mission never ends
  - Long-term surveillance and maintenance activities
  - Sites transferring into LM's portfolio
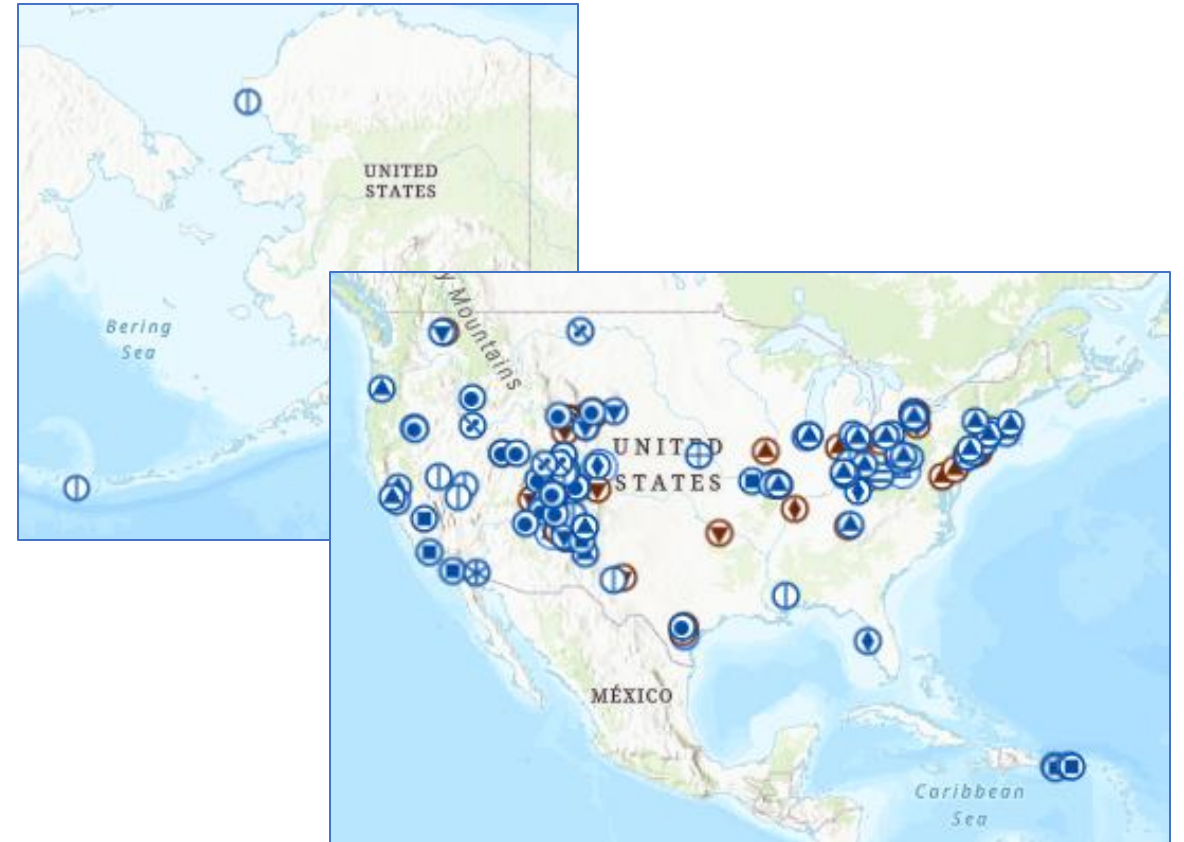
Case Study – DOE LM (continued)

To effectively manage the continual influx of data from both long-term monitoring activities and site transfers, LM recognized the need to increase data standardization, workflow efficiency, and system documentation.


If your organization transfers site data to LM, please help us out!

Case Study – DOE LM (continued)

- Where is LM's environmental data management system successful?

- Where can LM's system be improved?

- In November 2022, LM subcontracted ddms, Inc. to assess LM's environmental data management system:
    - Document and evaluate LM's environmental data workflows
    - Evaluate LM's EQuIS data system and integrations
    - Document a strategy for improving the system and associated workflows

Assessment Overview

- ddms assessed LM's EQuIS data system and workflows (November 2022 to April 2023)

- Focused on improving quality, integrity, and accessibility of LM's environmental data
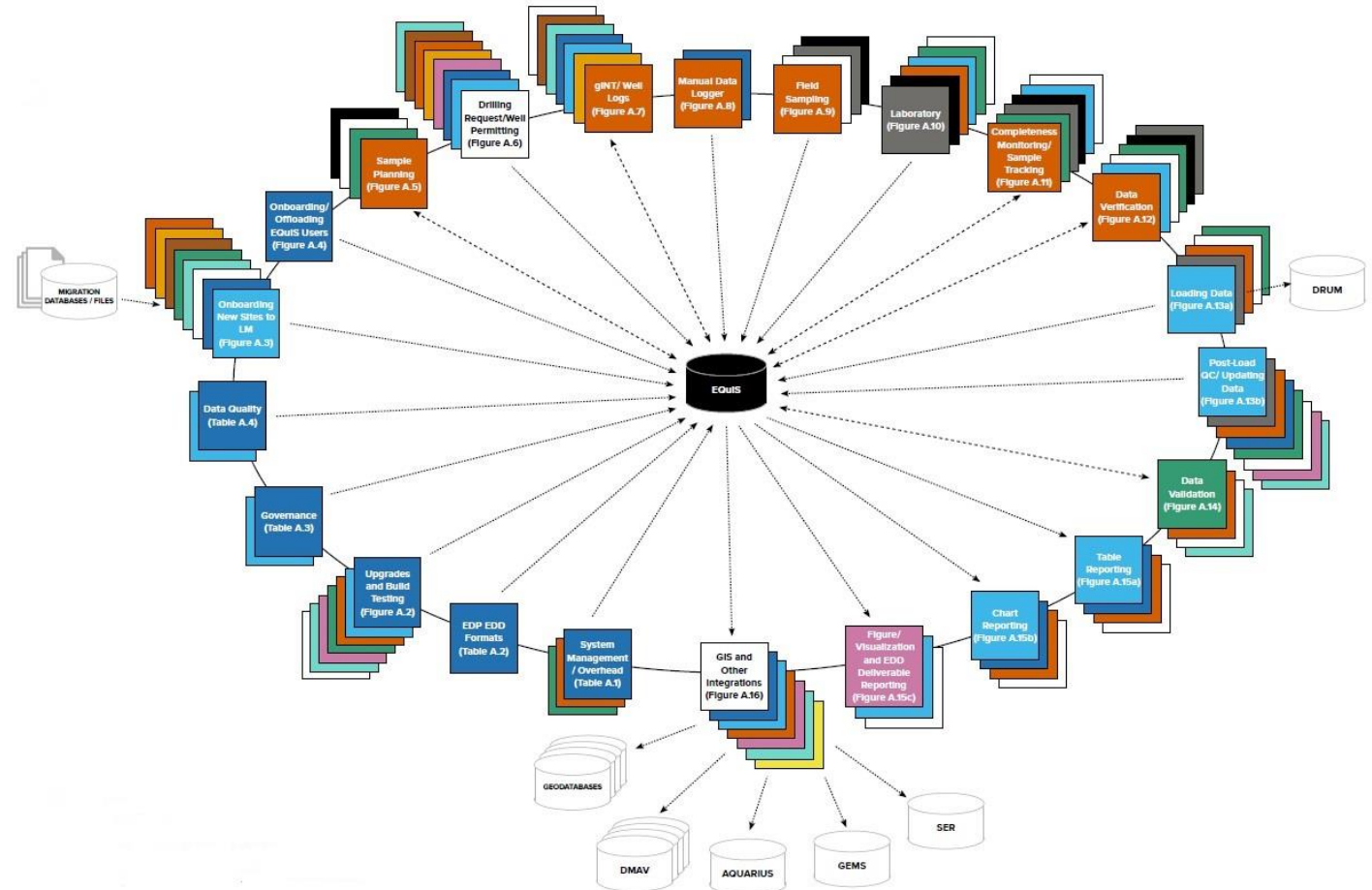
Assessment Discovery

- Information gathering:
  - Reviewed LM procedures and other documentation
  - Conducted workshops and interviews
  - Distributed questionnaires
  - Visited the Grand Junction, Colorado, Site
  - Conducted a SWOT analysis

Using different discovery methods allowed for input from diverse groups and individuals from across LM-staffed sites, accounting for different time zones, work schedules, and field work seasons.

Assessment Methodology
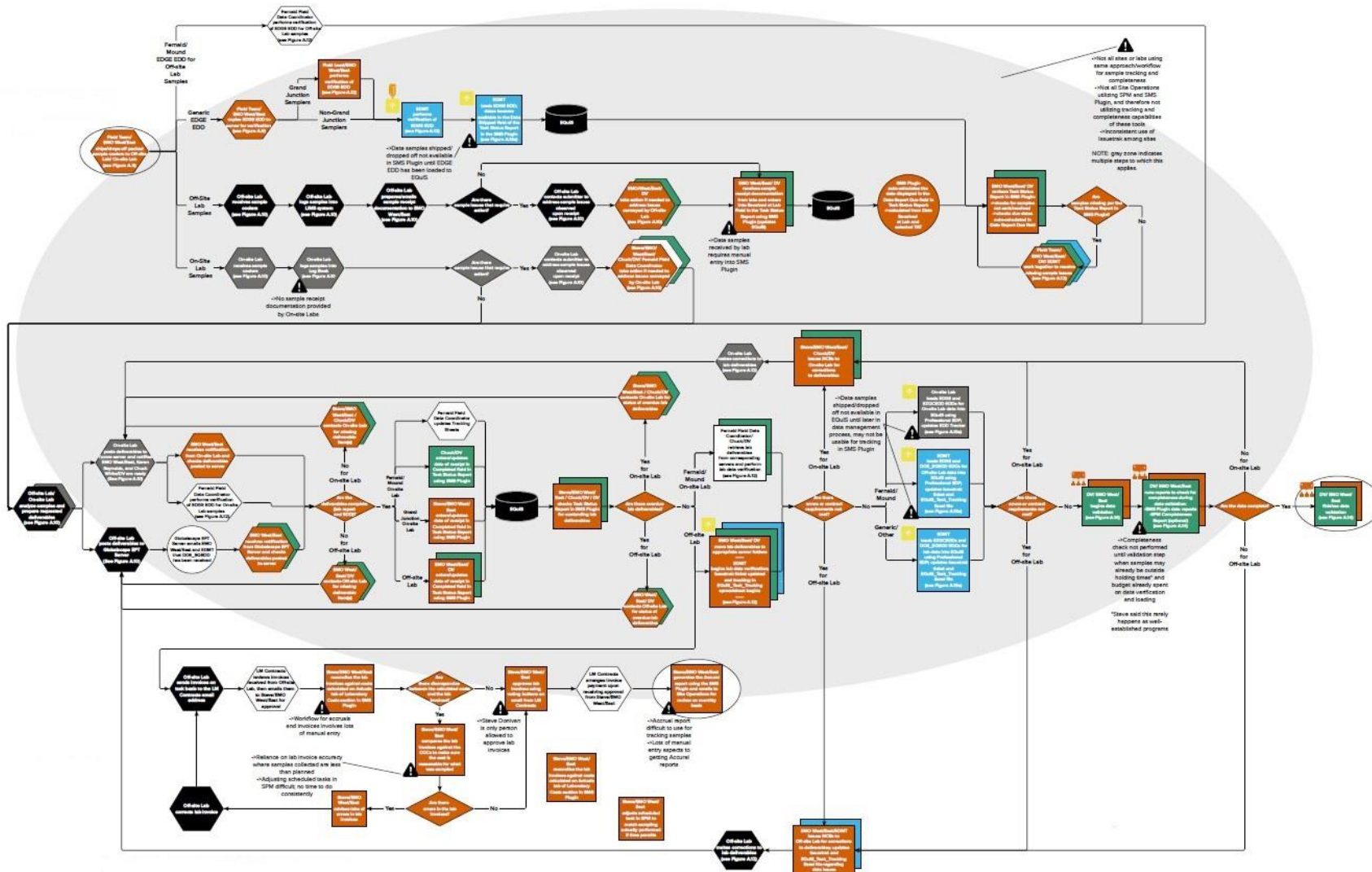
- Documented 22 current-state workflows in detail with noted areas of improvement

- Consulted with ddms SMEs on possible solutions

Assessment Outcome

- Created corresponding future-state workflows showing improved processes

- Documented potential improvements per workflow in a 145-page strategy document:
  - Identified 200+ areas of improvement
  - Recommended 101 actions
  - Recommended additional staff members

Assessment Value

- Why are the workflows and strategy document valuable?
  - Add structure to an organically grown system
  - Provide a thorough understanding of the overall purpose, audience, and functionality of the existing LM EQuIS data system and workflows
  - Provide specific areas for improvement per workflow, including recommended actions and general levels of effort for each area
  - Identify where new staff resources would benefit LM
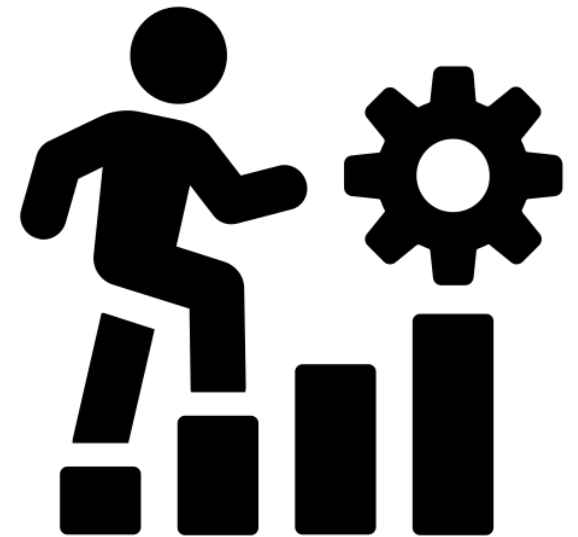
Take Action!

- Now LM has a strategy document. What happens next?
  - Document a plan for the implementation of the strategy
    - ❑ Finalized August 2023
  - Multi-year implementation of the identified improvements
    - ❑ Began October 2023

Conclusions

- Does your organization have an organically grown environmental data management system?

- Are you frustrated by data redundancy, inefficiencies, a lack of standardization and documentation, or unnecessary complexity in your data system?

- An assessment of your current system and workflows may be a beneficial first step towards improving your data system and reducing risks associated with managing and reporting environmental data.

Questions?