



# Environmental Protection Agency

## Office of Solid Waste and Emergency Response (OSWER)



## Architecting A Segment Across Geographic Locations

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June 2008

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Booz | Allen | Hamilton

# Agenda

1. Expanding the Segment Architecture
  - ❑ Regional
  - ❑ Data
2. Expanding the Line-of-Sight Approach
  - ❑ Update Existing Models (Community, Business Process Maps, Service, Solution, Sequencing Plan)
  - ❑ Create New Models (Regional Conceptual, Information Exchange, Community Vocabulary)



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# Land Quality Management Segment Architecture

## Segment Architecture To-Date:

- Analyzed Segment Community
  - Identified Business Processes / Services
  - Identified and Communicate Gaps and solutions for HQs
  - Identified, Prioritized and Sequenced HQs Solutions
- 

## Planned Segment Architecture Expansion:

- Regions
- Data



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# Segment Architecture Expansion

## 1. Land Segment Architecture Needs Regional Outreach

### ➤ The goals:

- To identify “touch-points” between systems, services, processes, and data
  - Touch-points consist of information exchanges, transactions, shared processes, etc. between a Region and HQ
- To document “pain-points” where further analysis and architecture can be leveraged

## 2. Simultaneously, Land Needs to Address Data Architecture

### ➤ The goal:

- To identify and document major data categories and flows



# Regional Outreach: Communicate, Listen, Coordinate

## ➤ Regional Participation

- Identify key Regions to begin the effort
  - Lead Regions for our business area
  - Lead Regions for EA
  - Willingness? Need?
- Identify key contacts within these Region:
  - Who uses the systems
  - Who is leading business change in the Region
- Emphasize collaboration and education when developing an EA with a Region and across Regions
- Share approach and invite other Regions to observe



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# Initializing OSWER's Regional Initiative

## ➤ Identified Opportunities for Regional Integration

- Two regions identified as case-studies for developing Regional Architecture:
  - EPA Region 3
  - EPA Region 5
  - EPA Region 4
- Each region has different maturity levels
- Region 5 is currently undertaking architectural efforts
- Region 3 struggles to understand the impact of EA on the regions
- Region 4 had done some EA work but those involved have moved on
- Key is to maintain a balance between existing efforts and supporting development of new initiatives



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# Support at Different Stages – Region 3

- OSWER has focused on educating Region 3 on developing its architecture
- First goal was to gather preliminary insight identifying ‘touch-points’ and ‘pain-points’ between HQ and Region 3
- Research was conducted using surveys distributed to Region 3 staff, which prioritized current Program needs
- Analysis results displayed similar issues facing Region 5 in its effort



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# Centralizing Theme of Analysis

## ➤ Data is the Key!

1. Data Availability (“Get the Right Data”)
2. Data Quality (“Get the Data Right”)
3. Data Integration (“Get Right to the Data”)





# Support at Different Stages – Region 3

## ➤ Specific Issues

- Data Availability
  - Queries of multiple systems display different representations of the same data
  
- Data Integration
  - Data refreshes cause timing concerns (e.g. Priority Chemicals and the NPEP program)
  - Real-time reporting needs for information entered in ACRES
  - Linking SCORPIOS and SDMS to facilitate availability of expenditure information and documents on Superfund sites



# Support at Different Stages – Region 5

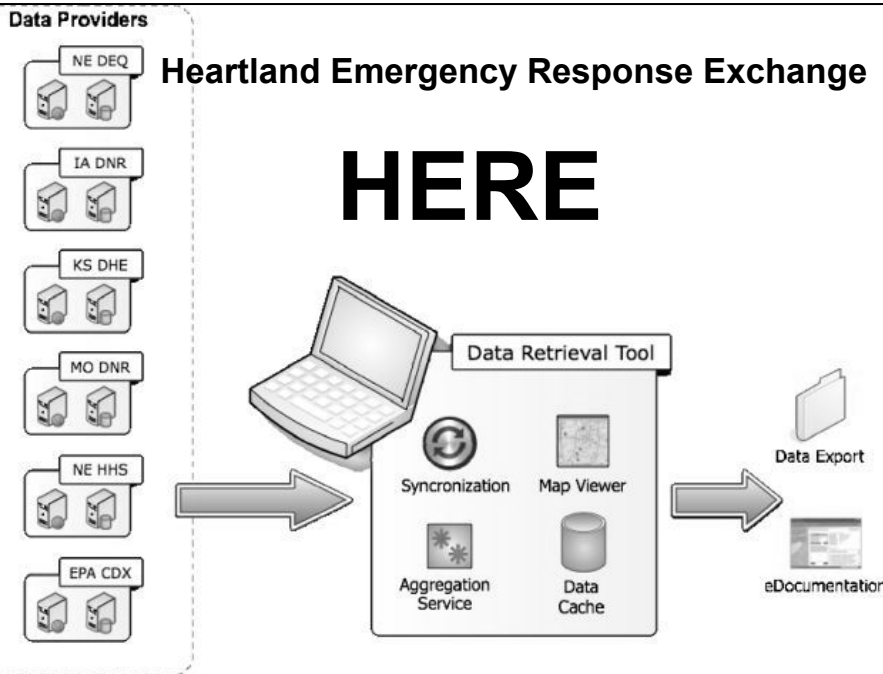
## ➤ Specific Issues

### □ Data Discovery and Use

- Leverage Exchange Network (HERE, HLS)
  
- Emergency Response Web Sites (WebEOC, Geospatial Data Gateway)
  - ▶ **On-Scene Coordinator Web Site (WebEOC):**  
<http://www.epaosc.net/webeoc.htm>
  - ▶ **Geospatial Gateway site:**  
<http://geogateway.epa.gov/Portal>



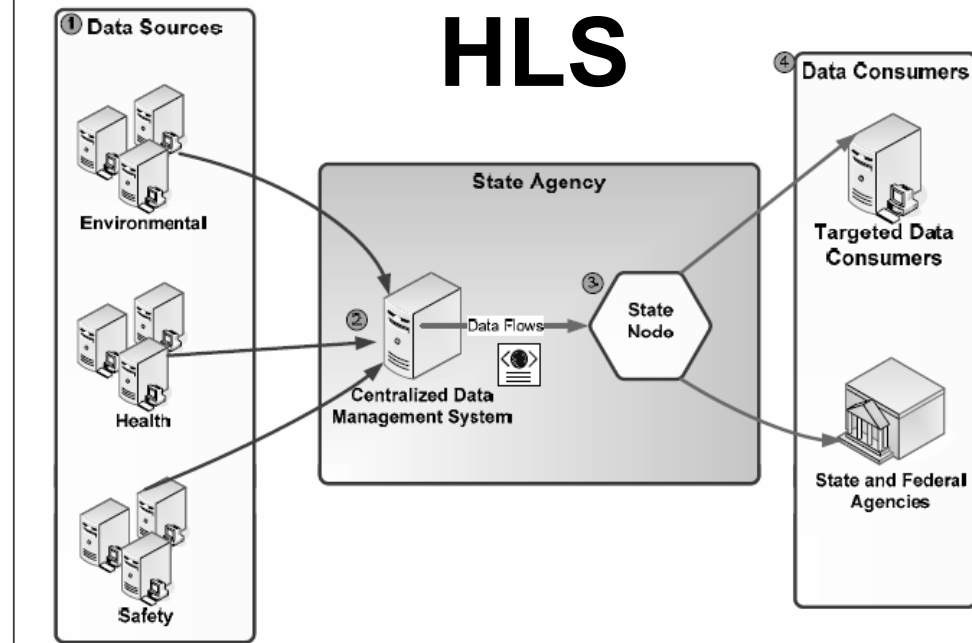
# Leverage Exchange Network



R7, NE, IA, KS, MO):

<http://www.exchangenetwork.net/exchanges/cross/here.htm>

## Health and Environmental Data Integration Project Overview



R1, R2, R5 Homeland Security (MI, ME, NH, NJ):

<http://statesdx.net/homelandsecurity/pages/public/background.htm>



# OSWER Segment Architecture Overview

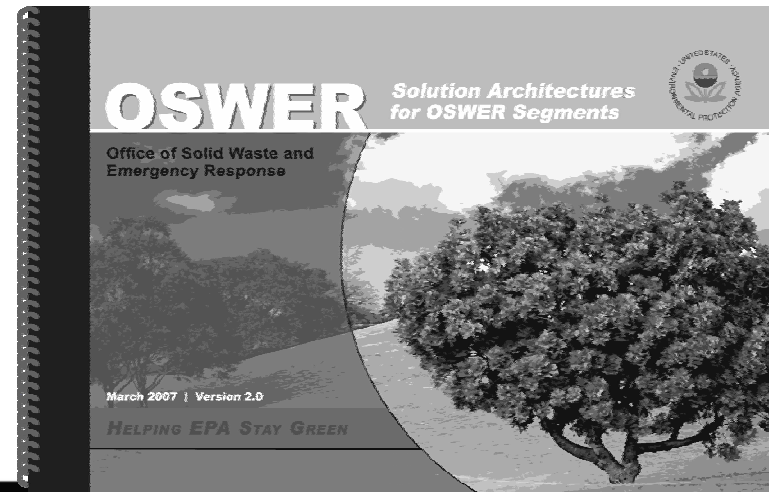


Expanding the Line-of-Sight Approach to Include Regions and Data

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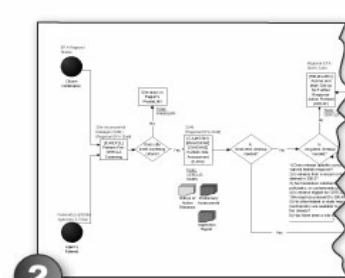
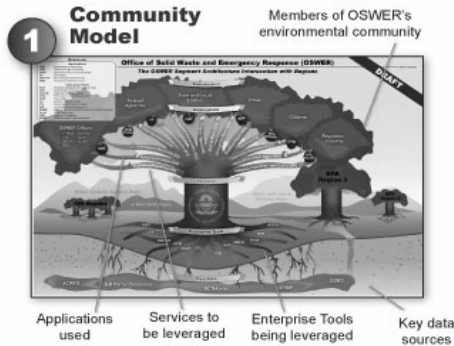
# Focus Areas for the OSWER Effort

- **Identify areas for reducing redundancy and maintenance costs**
  - Leveraging Agency-wide tools
  - Coordinating system consolidation efforts
  - Sharing solutions under development across programs
  
- **Improve communication and coordination across the organization**
  - Provide a common framework and venues for sharing
  
- **Increase access to broad spectrum of information for diverse stakeholder groups**
  
- **Facilitate alignment to the Agency-wide Target Architecture and Federal Enterprise Architecture (FEA)**

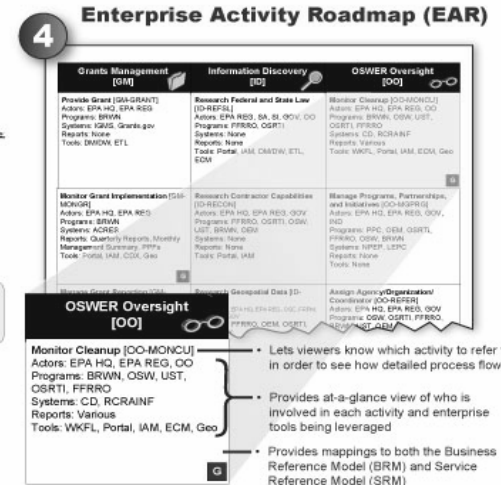
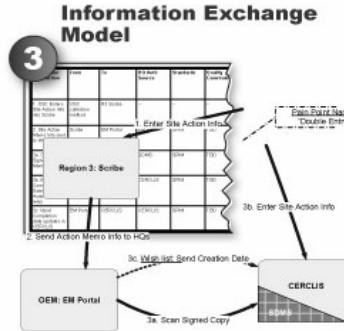


# OSWER Line of Sight – A Top Down Approach

## OSWER Segment Architecture Line-of-Sight: From Architecture through Implementation



- BPMs are mapped directly to the EAR and Community Model
- Tracks who is doing the work, the tools used, and the outputs generated



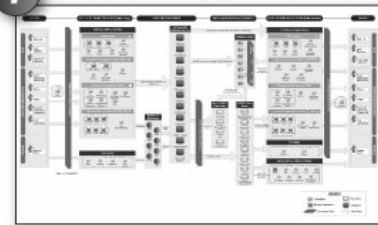
- Lets viewers know which activity to refer to in order to see how detailed process flows
- Provides at-a-glance view of who is involved in each activity and enterprise tools being leveraged
- Provides mappings to both the Business Reference Model (BRM) and Service Reference Model (SRM)

### Sequencing Plans

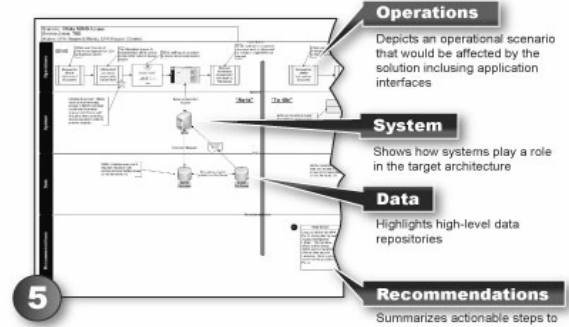


- The Sequencing Plans developed for OSWER provide relational views for all OSWER projects presented in the Multi-Dimensional Recommendation Views (MRV)
- This Sequencing Plan is a prioritized summary of all potential OSWER projects presenting general dependencies and relationships

### 7 OSWER Conceptual Model



- The OSWER Conceptual Model provides a Segment level view of the Target Architecture



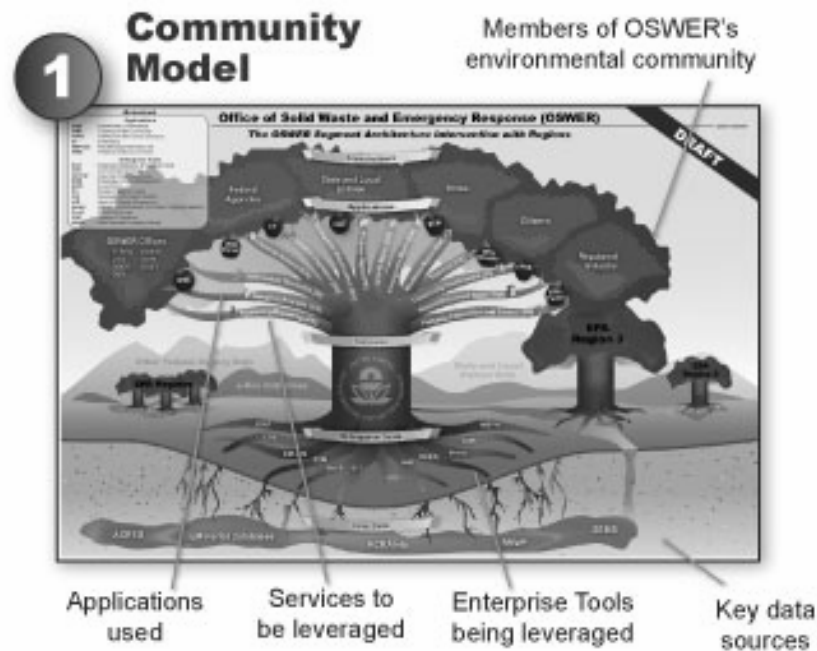
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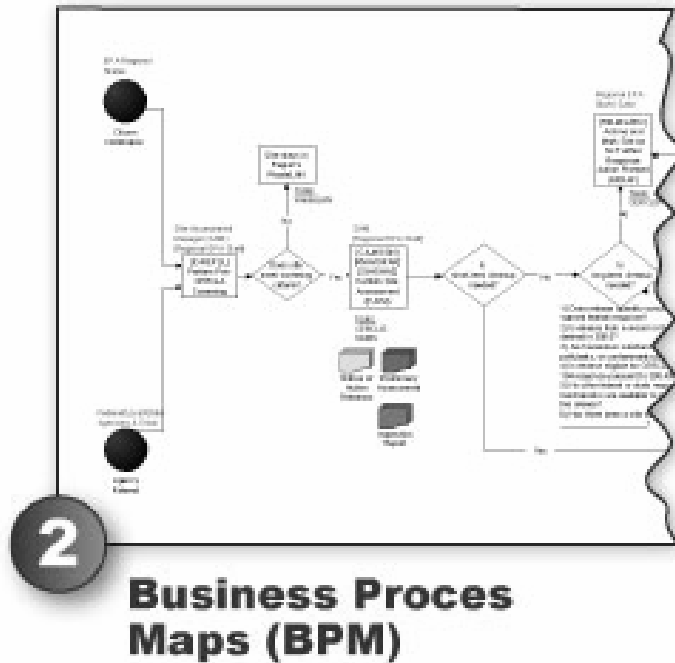
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# Update Community Model

- Depict Regions and Data into the Community Model
- Describe the Regional Components of the Community Model
  - Applications used
  - Services to be leveraged
  - Key data sources



# Understand Regional Business Needs: Revise Business Process Maps



- Conduct interviews with subject matter experts and system managers within each Regional lines of business
- Track work, tasks and tools used and outputs generated

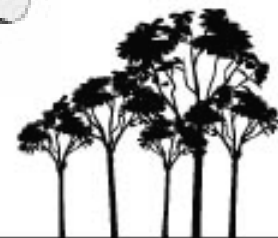
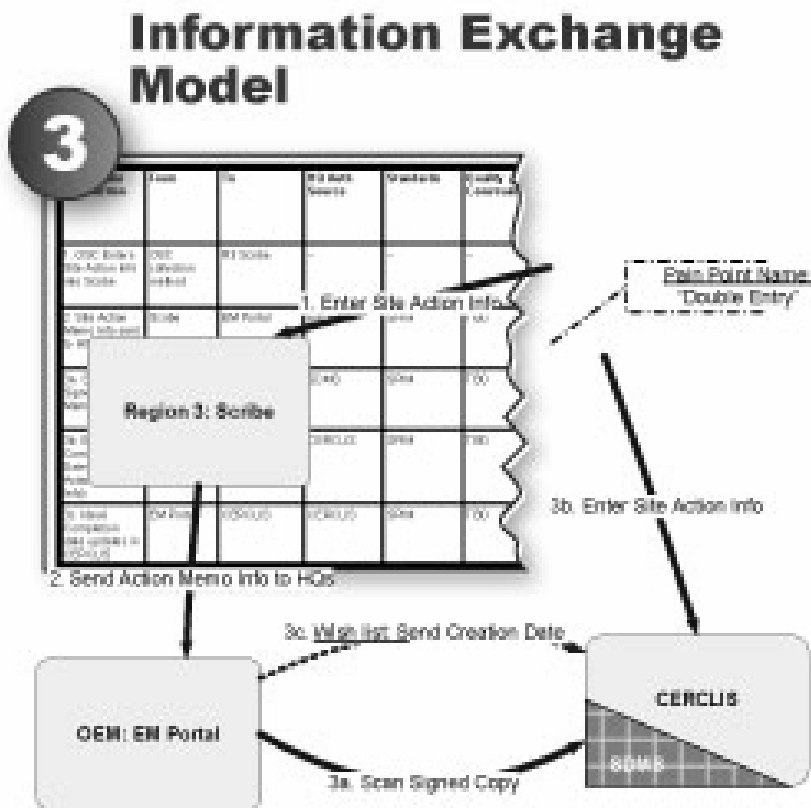




# Understand Exchanges of Information: Develop Information Exchange Models

➤ Visualize “as is” and “to be” Information Exchanges

➤ Enumerate high-level Information Exchanges and detailed attributes



# Review / Revise Services: Enterprise Activity Roadmap (EAR) identifies common services

- Each block is an activity and each column is a service
- Detail with attributes that comprise each service (e.g. BRM & SRM mappings, geospatial intersections, enterprise tools used, associated program offices, etc.)
- Activities map to business process models

## 4 Enterprise Activity Roadmap (EAR)

Grants Management [GM]	Information Discovery [ID]	OSWER Oversight [OO]
<b>Provide Grant [GM-GRANT]</b> Actors: EPA HQ, EPA REG Programs: BRWN Systems: IGWS, Grants.gov Reports: None Tools: DMOON, EFL	<b>Research Federal and State Law [ID-REFSL]</b> Actors: EPA REG, SA, SI, OOV, OO Programs: FFRRO, OSRTI Systems: None Reports: None Tools: Portal, IAM, DMDW, ETL, EDM	<b>Monitor Cleanup [OO-MONCU]</b> Actors: EPA HQ, EPA REG, OO Programs: BRWN, OSW, UST, OSRTI, FFRRO Systems: CD, RCRAINF Reports: Various Tools: WKFL, Portal, IAM, ECM, Geo
<b>Monitor Grant Implementation [GM-MONGR]</b> Actors: EPA HQ, EPA REG Programs: BRWN Systems: ACRES Reports: Quarterly Reports, Monthly Management Summary, PFPs Tools: Portal, IAM, COX, Geo	<b>Research Contractor Capabilities [ID-RECON]</b> Actors: EPA HQ, EPA REG, OOV Programs: FFRRO, OSRTI, OSW, UST, BRWN, OGM Systems: None Reports: None Tools: Portal, IAM	<b>Manage Programs, Partnerships, and Initiatives [OO-MGPRG]</b> Actors: EPA HQ, EPA REG, OOV, IND Programs: PPC, OGM, OSRTI, FFRRO, OSW, BRWN Systems: NPEP, LENC Reports: None Tools: None
<b>Monitor Grant Reporting [GM-MONGR]</b> Actors: EPA HQ, EPA REG, OOV Programs: BRWN, OSW, UST, OSRTI, FFRRO Systems: CD, RCRAINF Reports: Various Tools: WKFL, Portal, IAM, ECM, Geo	<b>Research Geospatial Data [ID-RECON]</b> Actors: EPA HQ, EPA REG, OOV, IND Programs: FFRRO, OGM, OSRTI, OSW, UST, BRWN, OGM Systems: None Reports: None Tools: Portal, IAM	<b>Assign Agency/Organization/Coordinator [OO-REFER]</b> Actors: EPA HQ, EPA REG, OOV Programs: OSW, OSRTI, FFRRO, BRWN, OGM Systems: None Reports: None Tools: None

**OSWER Oversight [OO]**

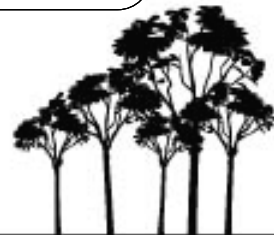
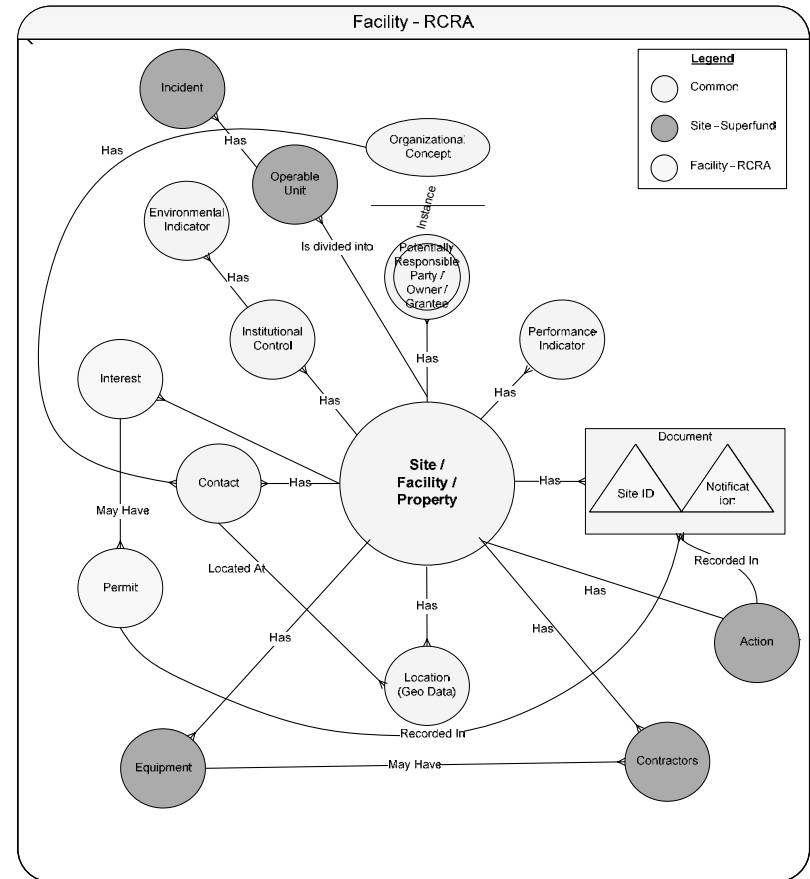
**Monitor Cleanup [OO-MONCU]**  
 Actors: EPA HQ, EPA REG, OO  
 Programs: BRWN, OSW, UST, OSRTI, FFRRO  
 Systems: CD, RCRAINF  
 Reports: Various  
 Tools: WKFL, Portal, IAM, ECM, Geo

- Lets viewers know which activity to refer to in order to see how detailed process flows
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- Provides mappings to both the Business Reference Model (BRM) and Service Reference Model (SRM)



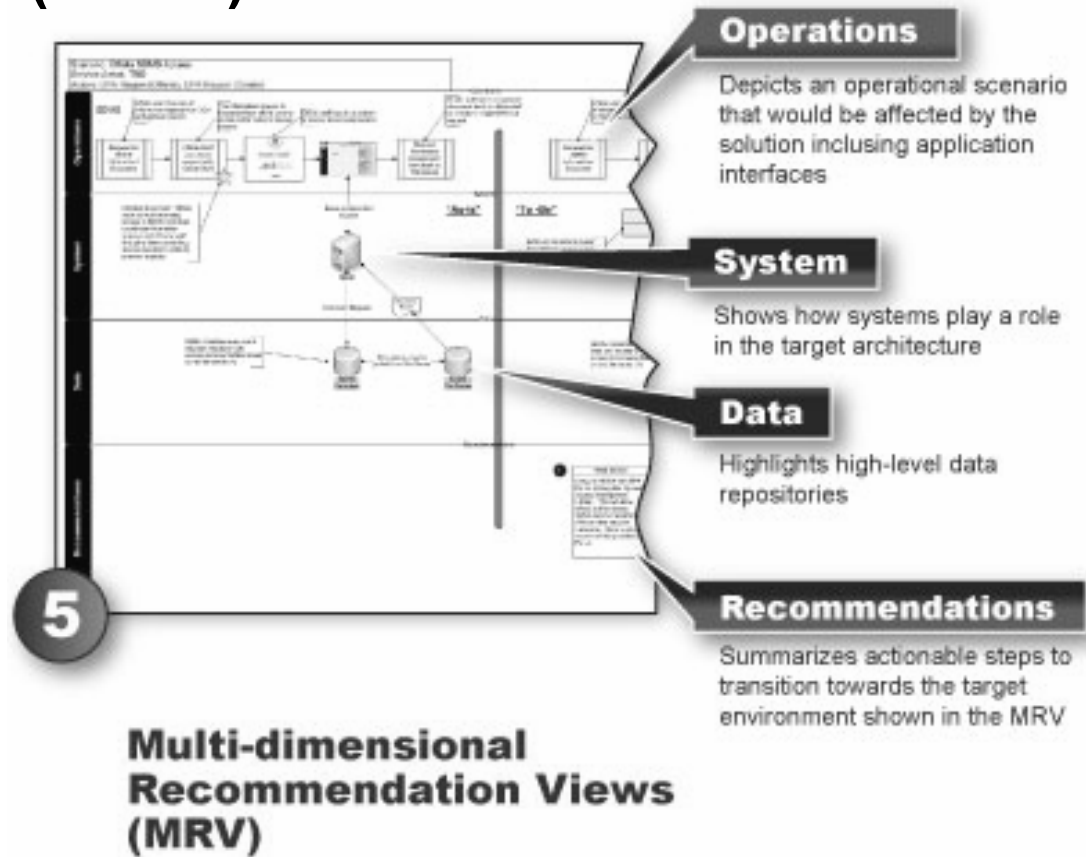
# Create the Community Vocabulary Model

- Community Vocabulary identifies commonalities and differences between data sets.
- Defining a Shared Vocabulary bridges gaps that may have created singular, silo'd, solutions/data sets.
- This model creates a standard to facilitate the system integration and communication across Programs and Regions.

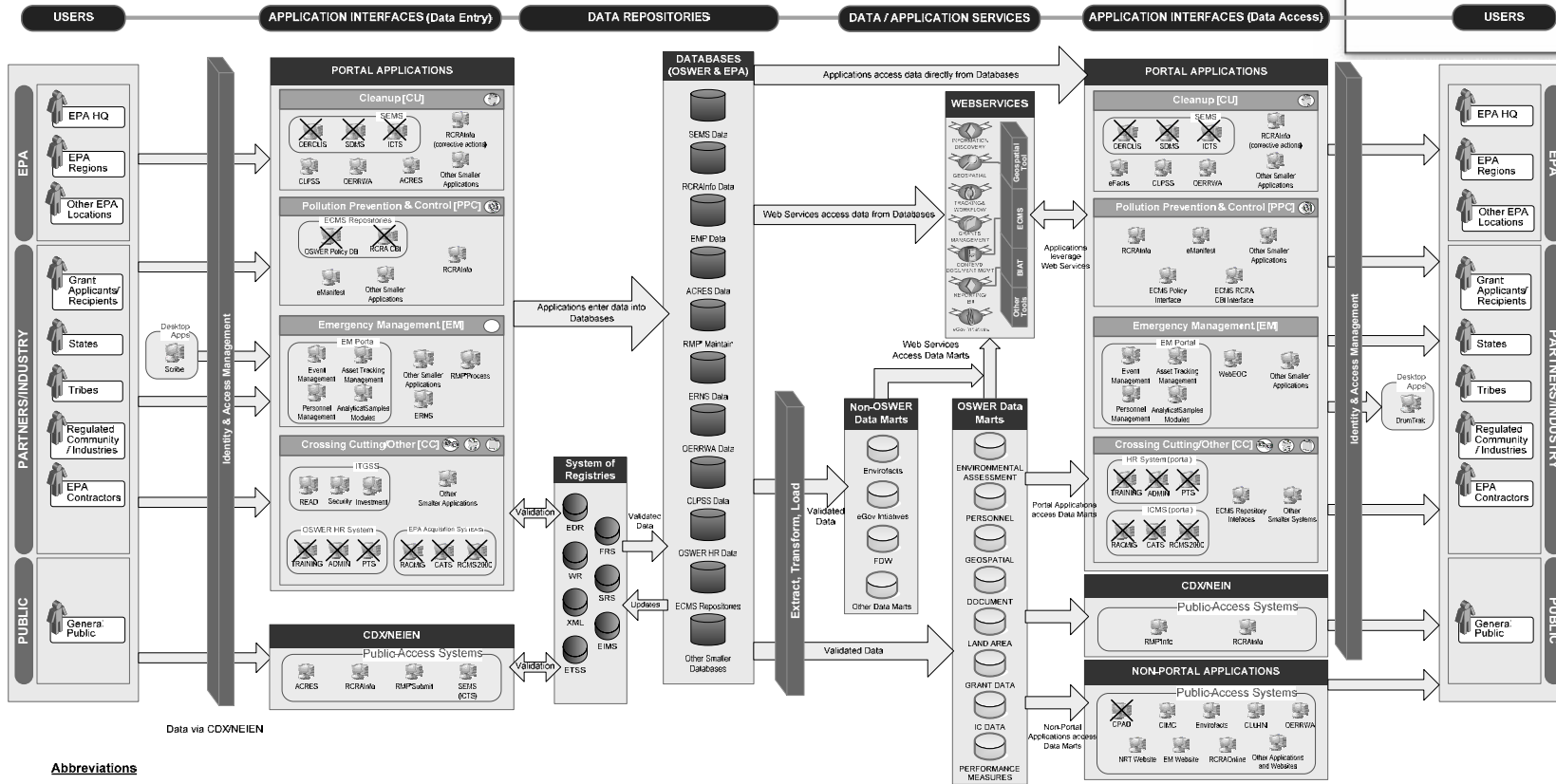
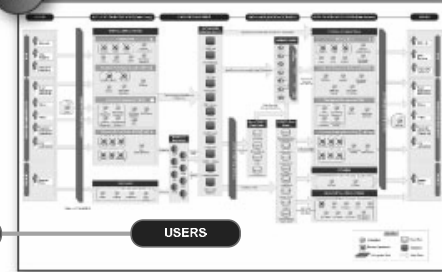


# Identify Regional Solutions: Multi-dimensional Recommendations Views (MRVs)

- MRVs communicate “to be” solutions to specific issues
  - ❑ Consider Pain Points
  - ❑ Consider Successful Regional Solutions to Share
  - ❑ Consider Modifications needed to HQ Solutions



# Develop Regional Conceptual View



Data via CDX/NEIN

**Abbreviations**

- BIAT – Business Intelligence & Analytical Tools
- CDX – Central Data Exchange
- ECMS – Enterprise Content Management System
- EDR – Environmental Data Registry
- EIMS – Environmental Information Management System
- ETSS – Environmental Terminology System and Services
- FDW – Financial Data Warehouse

- FSR – Facility Registry System
- ITGSS – Information Technology Governance Support System
- NEIEN – National Environmental Information Exchange Network
- SRS – Substance Registry System
- WR – Web Registry
- XML – XML Registry

**LEGEND**

- Application (Icon: Computer monitor)
- Retired Application (Icon: Computer monitor with X)
- Enterprise Tool (Icon: Server rack)
- Data Mart (Icon: Cylinder)
- Database (Icon: Cylinder)
- Data Flow (Icon: Arrow)



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# Document and Prioritize Regional Solutions – Modify HQ Solutions as Necessary

## ➤ Business-driven Strategy:

1. Define and describe each Project
2. Consider how Projects interrelate
3. Link Projects to Enterprise Tools
4. Rank Projects based on business priority and technical difficulty

### 1. OSWER HR System Standardization

#### Category:

System Consolidation, System Development

#### Lead Office:

OMIS

#### Business Priority:

High

#### Technical Difficulty:

Medium

#### Description:

This project consists of developing a single, web-enabled application to manage all of OSWER's HR functionality, including: general personnel information, actions, awards, assessments, training, etc. This application should be accessible via the EPA Portal and should leverage Identity and Access Management services to ensure confidential information remains secure.

Another component of this project is the integration of the OSWER HR System with the Agency-wide HR System (PeoplePlus) and Learning Management System (LMS). OSWER's HR System should establish a data synchronization service with the Agency's PeoplePlus system to ensure overlapping data is consistent on both systems, regardless to which system is designated as the authoritative source for a particular record. Also, the OSWER HR System should interact with the LMS system to maintain accurate data on employee training for HR purposes (e.g., certifications, capabilities) as well as provide HR information updates to the HR system (e.g., phone number, manager).

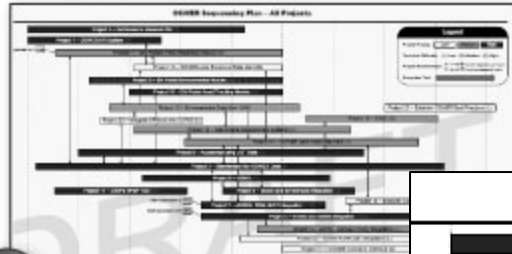
#### Sub-Projects / Tasks:

- 1.1. Leverage the OSW-AIS system and establish standardized data entry for OSWER's program offices. (recommendation CC-1.1)
- 1.2. Develop a new HR application (portal interface, database, etc.) that leverages Identity Access Management (IAM) and the Portal to provide role based access (rbac) to HR administrators. (recommendation CC-1.1)
- 1.3. Integrate Business Intelligence and Analytical Tools (BIAT) services with the newly developed OSWER HR application to enable customized and canned reporting. (recommendation CC-1.3)
- 1.4. Integrate the new OSWER HR System with existing Agency HR/Training systems (PeoplePlus and LMS) via web services. (recommendations CC-1.2, CC-1.4)
- 1.5. Coordinate with Project 19, the OSWER Personnel Data Mart, to provide authoritative information on OSWER's employees.



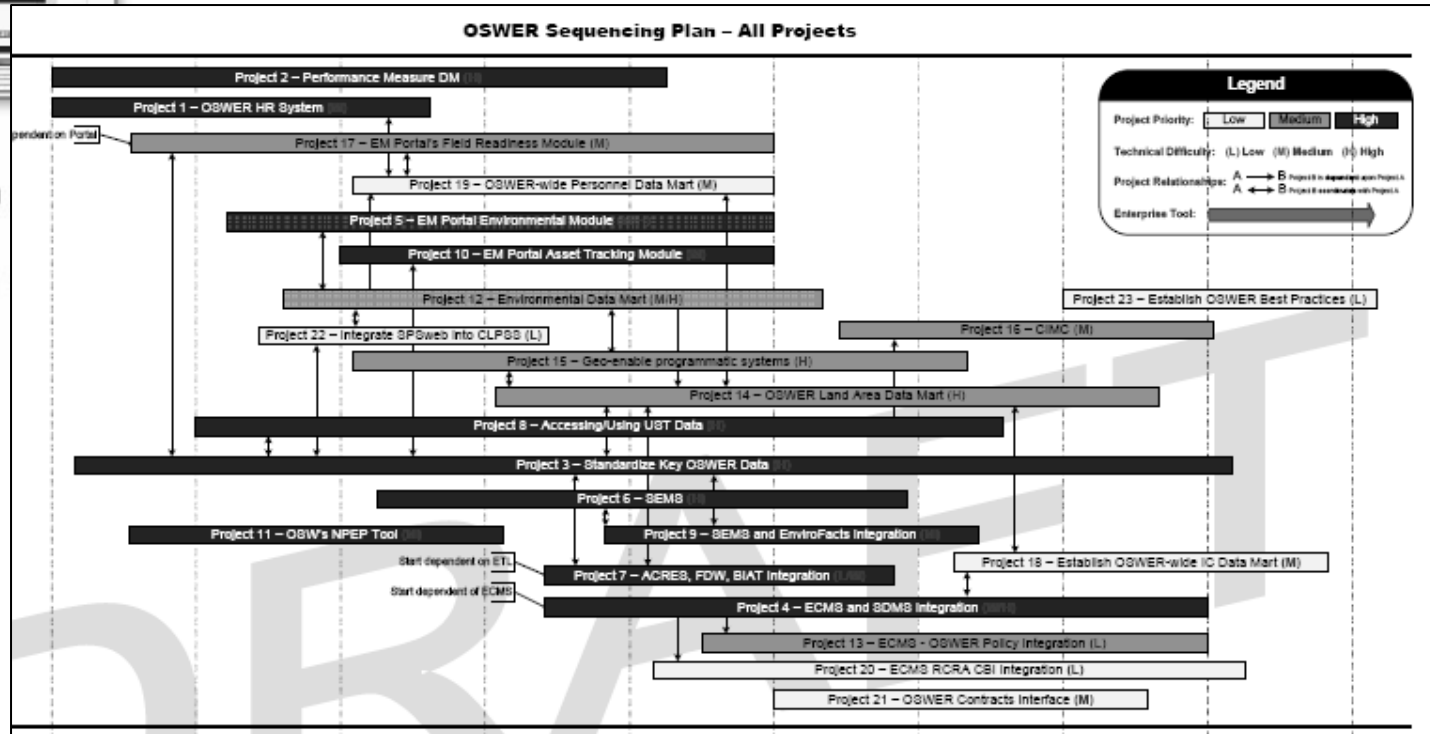
# Update Sequencing Plan to Include Regional Solutions

## Sequencing Plans



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# Hand off: Segment Architect to Solution or Regional Architect

- Manage expectations during handoff of Segment Architectural Analysis to Solution and Regional Architects
  - ❑ Segment Architectural analysis **does** aid in cross-domain coordination.
  - ❑ Segment Architectural analysis **does not** build out the solution or region's individual architecture.
- The Segment Architect must maintain a collaborative relationship with the Solution/Regional Architect

