

ARMY ARCHITECTURE INTEGRATION CENTER PROVIDING THE BLUEPRINT FOR INFORMATION DOMINANCE



Overcoming Army Data Challenges

January 8, 2010

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DESCRIPTION

DEPARTMENT



U.S. ARMY

DIRECTORATE

ARCHITECTURE, OPERATIONS, NETWORKS & SPACE DIRECTORATE

CLASSIFICATION

UNCLASSIFIED

ISSUED

FOR OFFICIAL USE

DATE

SCALE

1 : 1

REVISION

112308A

PAGE

ORGANIZATION

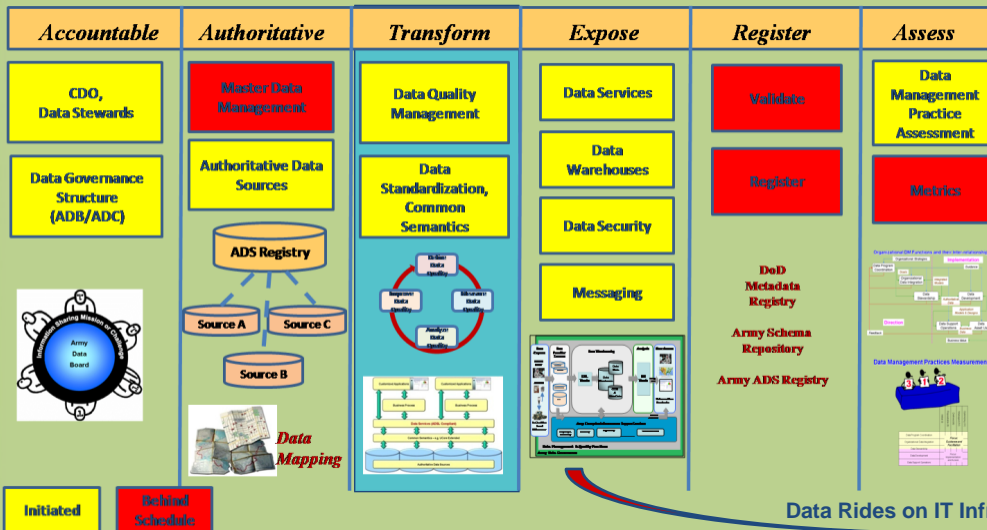


Purpose/Agenda

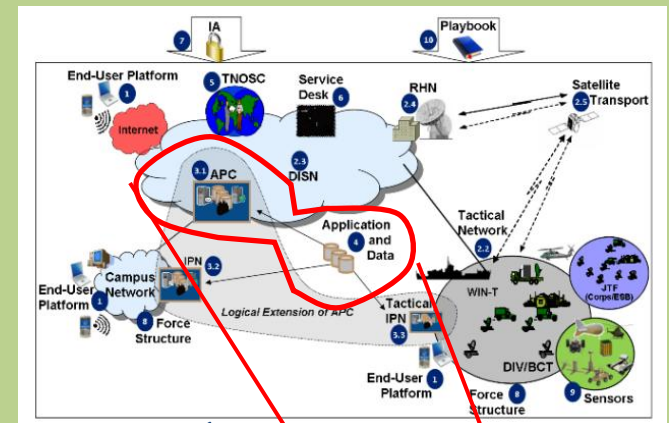
- Purpose: Provide an overview of overcoming Army Data Challenges
- Agenda:
 - Strategy
 - Transform Phase
 - High Level View of the Problem
 - System of System Reporting Approach
 - Army Enterprise Objective Environment
 - Way Ahead
 - Resource Links

Strategy

Strategic: Data Transformation Approach

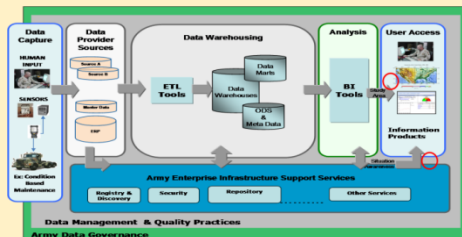


Army Enterprise Architecture - Technical



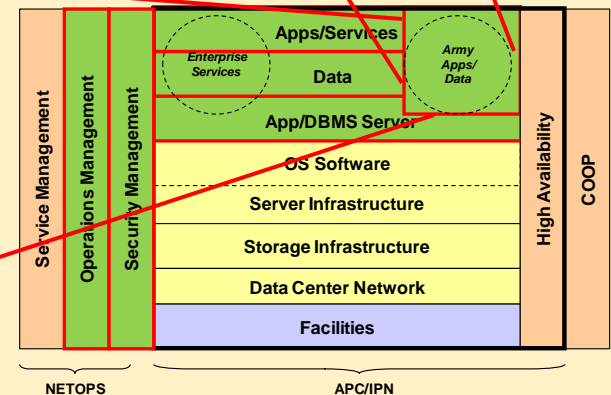
Implementation:

Army Data Framework (ADF)



- Army Data Framework (ADF) defines the top 3 layers of the APC:
- Applications & Data Service requirements for loading/updating data into data warehouses
- Defines the methods of data input for Data Warehouse
- Defines what types of Data Warehouse services will be required in an APC.
- Define what access protocols will be allowed

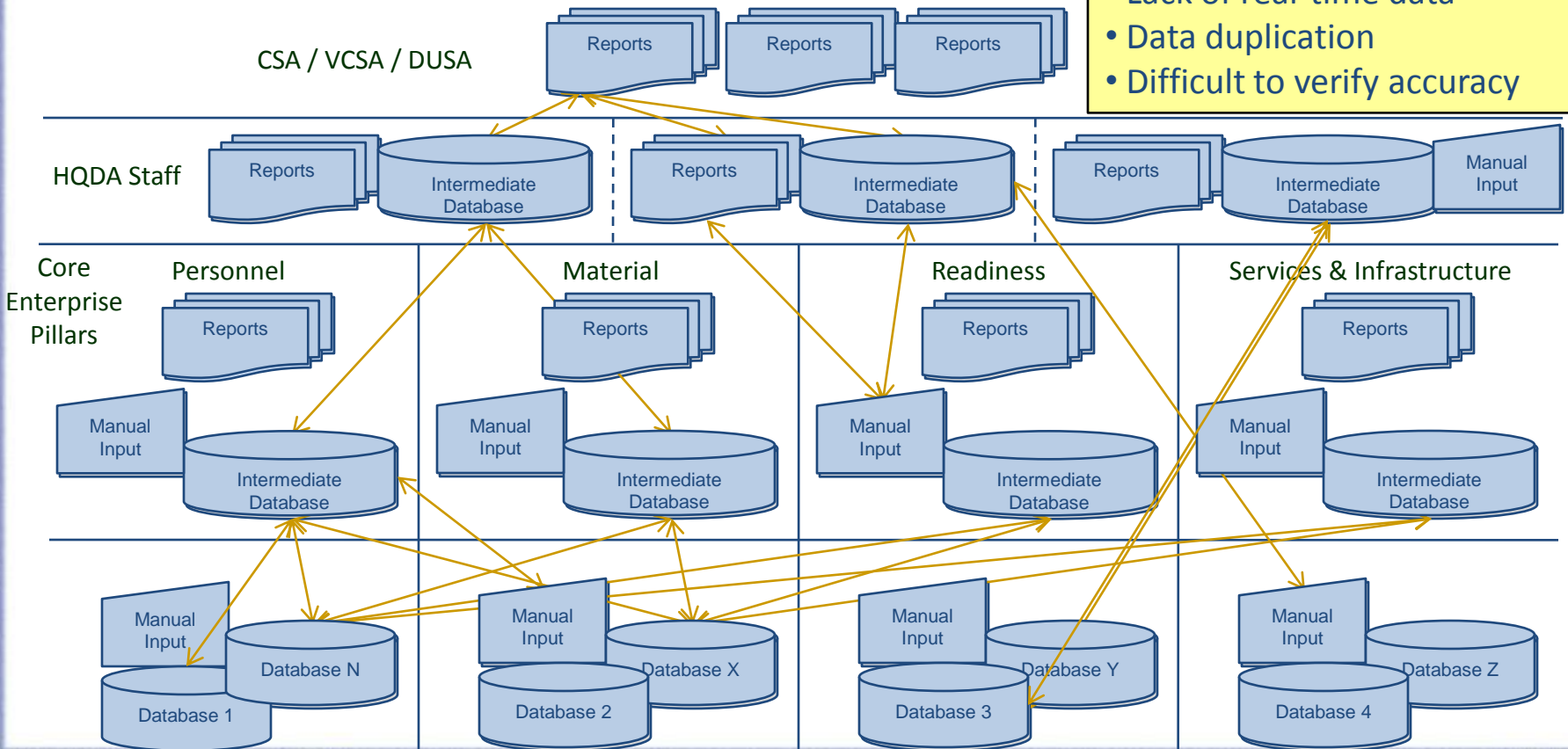
Area Processing Center (APC) Framework



High-Level View of Problem

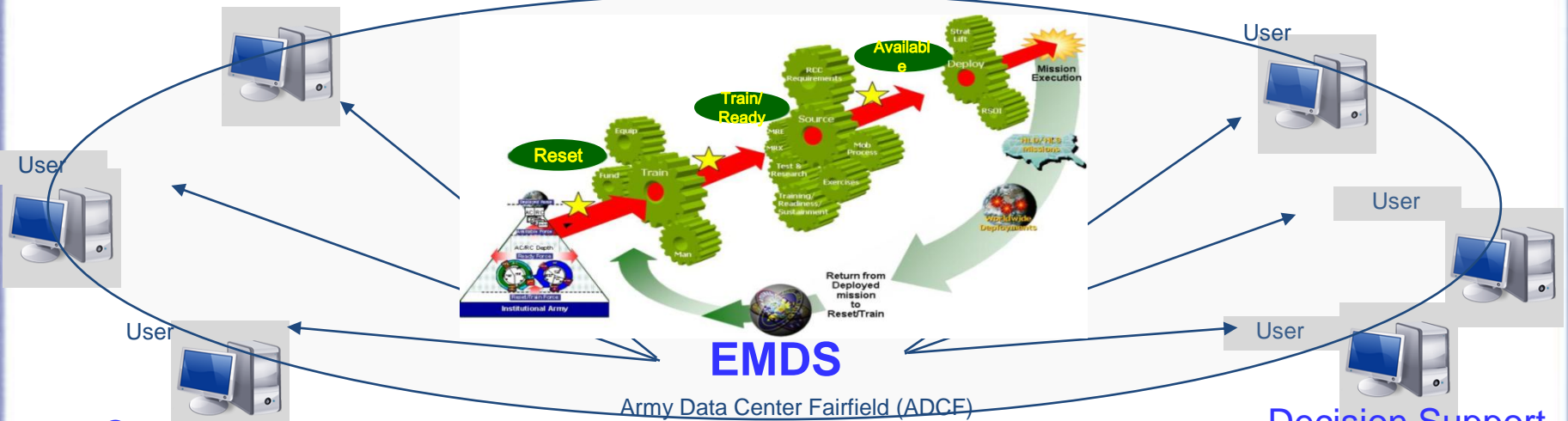
- Current reporting mechanisms use **manual and automated methods** that may or may not incorporate online data sources – data quality and accuracy are difficult to reconcile
- Different standards exist for data definition, measurements, data collection, analysis, and reporting

- Lack of real-time data
- Data duplication
- Difficult to verify accuracy



System-to-System Reporting Approach

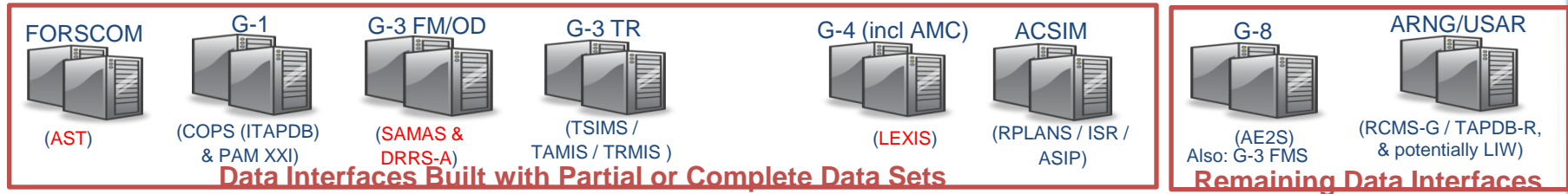
Force Validation Committee



Common Operating Picture

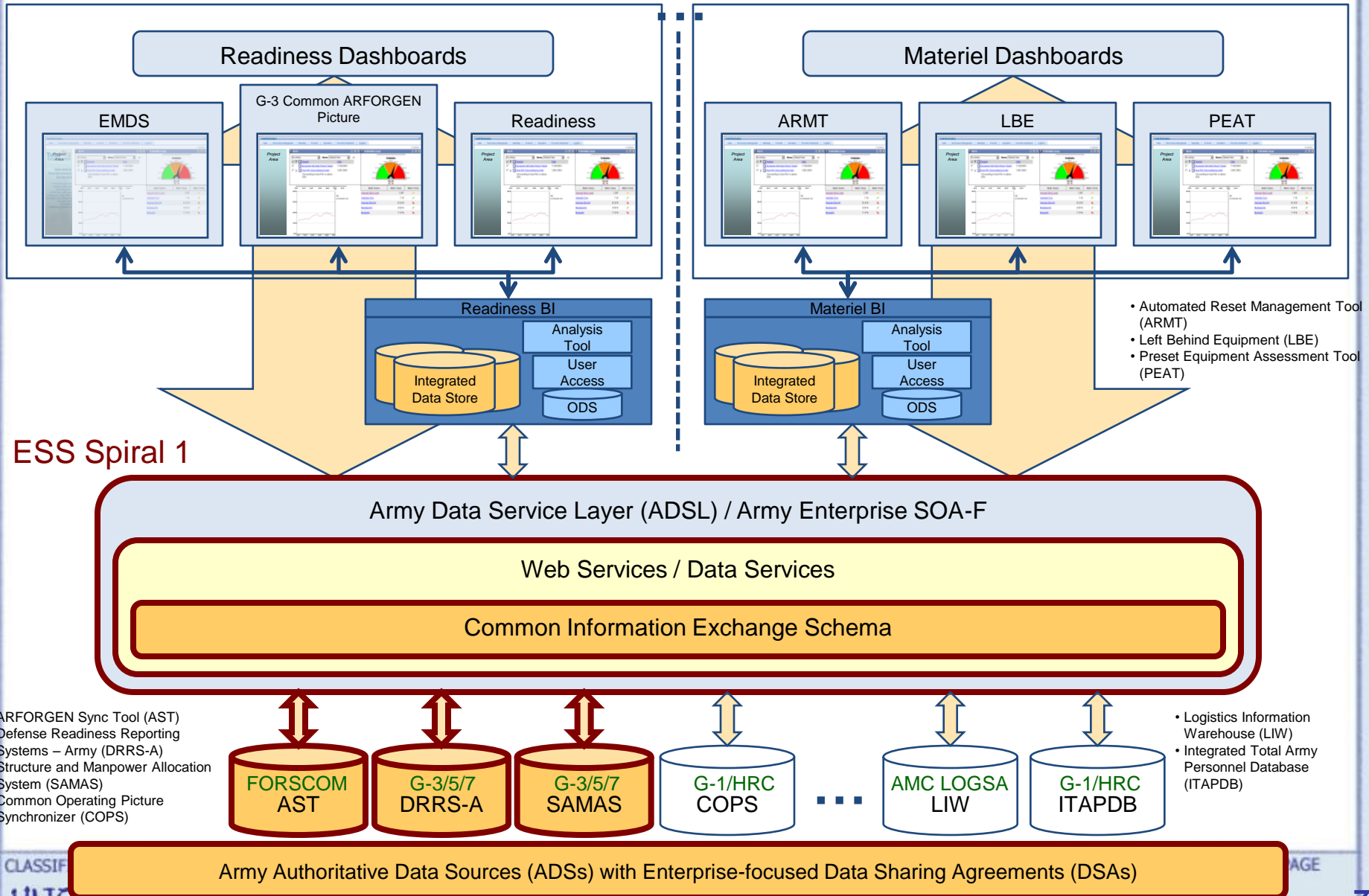
Decision Support Capability

Source System is UNCLASS or SECRET



Business Rules	Data Quality	Duplicative Data
When to use which Data Source	Level of Trust of Data Source	How much duplication between this and other data sources

Army Enterprise Objective Environment



Data Interoperability Success Story – EMDS Spiral 1

1. The Enterprise Management Decision Support (EMDS) Project's Spiral 1 integrated data from three disparate systems:
 - Army Force Generation Synchronization Tool (AST)
 - Defense Readiness Reporting System – Army (DRRS-A)
 - Structure and Manpower Allocation System (SAMAS)
2. Leveraged the UCORE framework to produce a UCORE extension to develop a Common Information Exchange Schema.
3. Data is now “delivered” through data and web services (not point-to-point interfaces) that comprise the Army Data Service Layer and are part of the Army Enterprise SOA Foundation (AE SOA-F)
4. Final result – the data is now exposed to the enterprise allowing development of other views – the data is now a shared asset across the Army enterprise.

Facts

Metrics from one of the first datasets produced for the National Institute of Mental Health Study for Suicide Mitigation :

- UIC Errors: 741 out of 21,867, or 3.39%
- Rank Errors: 50 out of 21,867 or 0.23%

CAS_CASE_NR	PID_PDE	UIC_CD (Bad)	SM_UIC_CD Repaired
107739	034029837	WDBRAO	NULL
107847	034116289	WAEQSO	NULL
110642	034843689	WAE3TO	NULL
110339	034894424	WJCUCO	NULL
112725	033806810	WJBLBO	NULL
113618	034678903	3RBAA	NULL
107067	033996833	WACPBO	NULL
106114	034568501	WAKLBO	NULL
123060	033955191	QAPGAA	NULL
114026	061863654	WG2ETO	NULL
123325	033799644	WAASBO	NULL
120803	033779985	WJBLBO	NULL
120805	034824830	WJBLBO	NULL
120856	079419965	WJBLBO	NULL
124382	034071274	WOU4AA	NULL
123623	001410843	WAFXTO	NULL
123651	087829449	WDBUAO	NULL
122095	033867647	WDX3AO	NULL
124120	080625243	WDSRDO	NULL
122089	034907969	WAM4RO	NULL
121099	087851773	UNK	NULL
121983	033749044	WAJHAO	NULL
121519	079561181	WALVAO	NULL
126134	033841993	WAMBTO	NULL
126177	034837408	WAM8TO	NULL
122486	066469759	WJCHBO	NULL
123825	033742030	WAJJCO	NULL
127949	034037281	W4FOAA	NULL
121486	087809079	WA4RTO	NULL
127123	033965391	AE3CO	NULL
124621	001809251	WDPRBO	NULL
121537	033850073	WJBLBO	NULL

Way Ahead

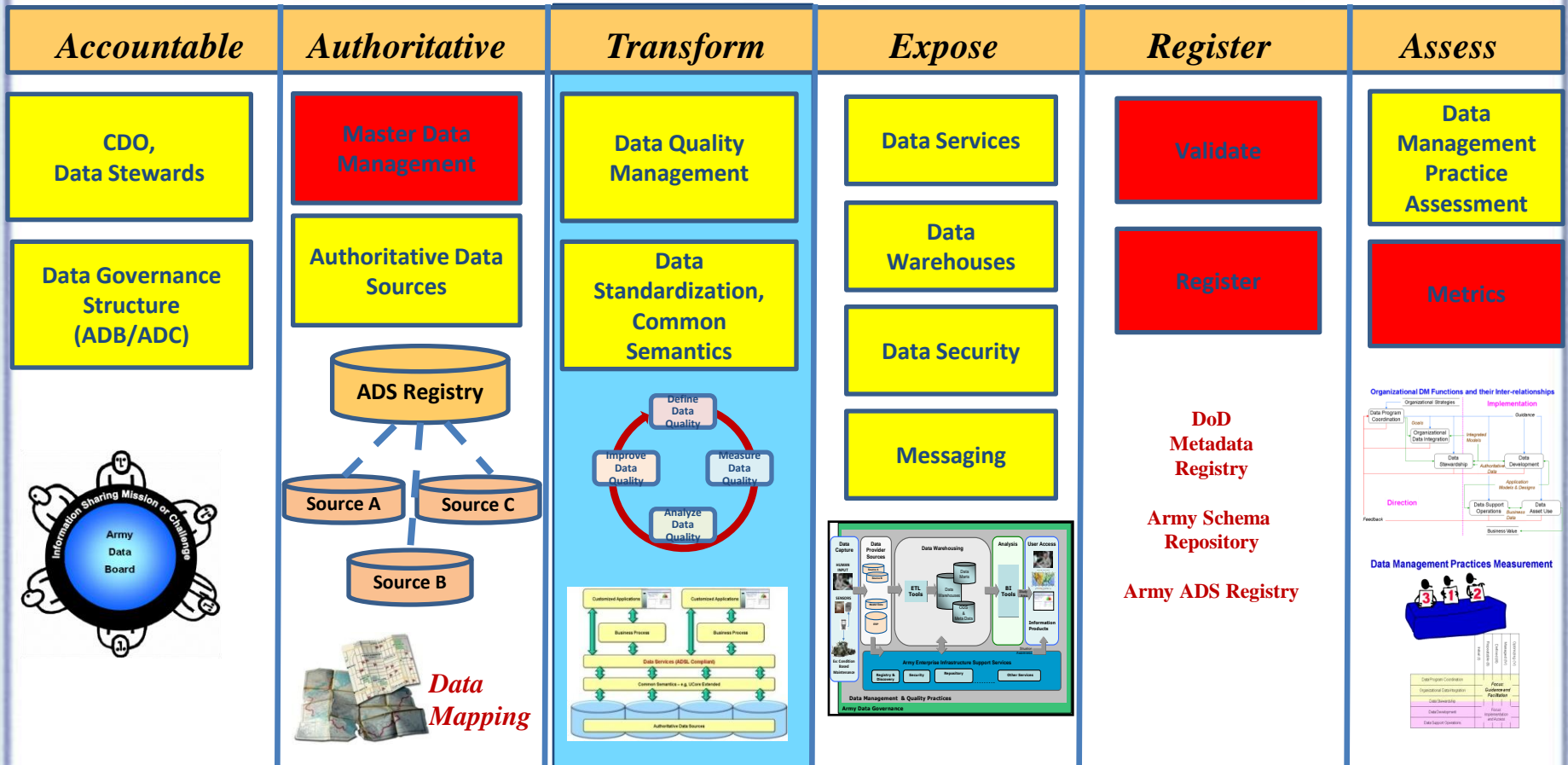
- Mature the Data Governance Framework to manage the Enterprise-wide transformation.
 - Develop Functional Business Focused Transformation Plans aligned with Enterprise principles and specifications.
- Mature the common Technical Framework (Army Data Framework)
- Convert Authoritative Data Sources and Core Business Processes to “Shared” Enterprise Services.
- Implement in Spirals.
 - Common Repeatable process
 - Measure Success.
 - Collect Lessons Learned
 - Adjust as necessary.

Resource Links

- Army Data Office Wiki Portal, https://wiki.kc.us.army.mil/Portal:Army_Data_Office
- Army Data Board, https://wiki.kc.us.army.mil/Army_Data_Board
- Army Authoritative Data Source Registry, https://wiki.kc.us.army.mil/wiki/Authoritative_Data_Source_Registry
- Army Data Framework, https://wiki.kc.us.army.mil/wiki/Army_Data_Framework
- Army Data Services Layer Service Interface Specifications and Core service Implementations, <https://www.intelink.gov/inteldocs/browse.php?fFolderId=26649>
- Data Strategy Reference Architectures (Business, Information and Technology Reference Architectures), https://wiki.kc.us.army.mil/wiki/Reference_Architectures
- Army Data Reference Model, https://wiki.kc.us.army.mil/wiki/Army_Net-Centric_Data_Strategy_Data_Reference_Model
- Army Enterprise Service Oriented Architecture – Foundation (SOA-F) Technical Reference Model, https://wiki.kc.us.army.mil/wiki/Army_EA_Technical_Reference_Model
- Army Enterprise Data Sharing Initiative, <https://www.intelink.gov/sites/armyedisi>
- Universal Core, <https://ucore.gov/>
- Data Quality

Questions?

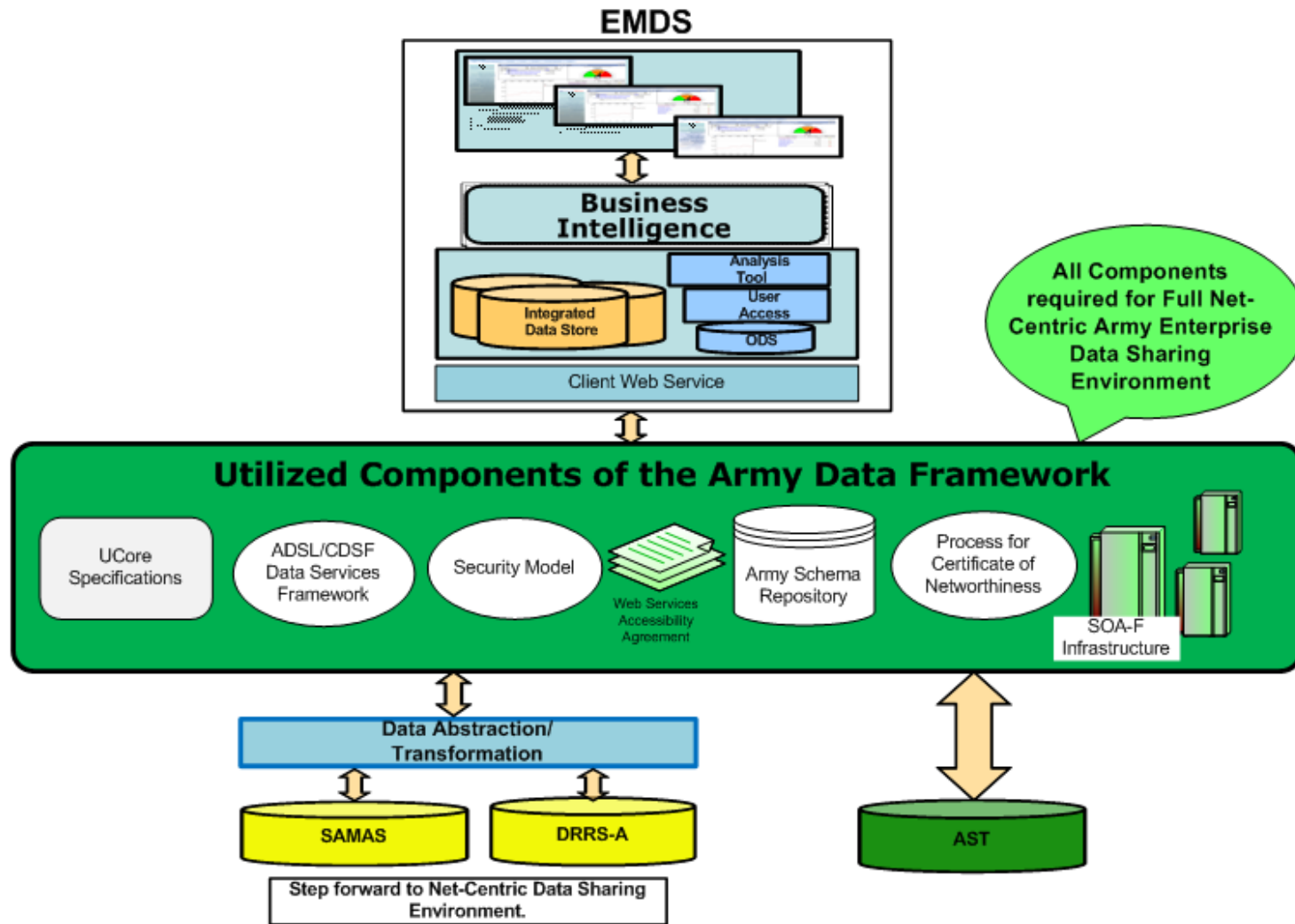
TITLE Data Transformation Approach



Implemented by Domains and Communities of Interest – Use Cases



ESS Spiral 1 Data Sharing



Adoption of Army Data Transformation Approach

Army Data Transformation Plan

- What is the Army Enterprise (AE) Data Transformation Plan (DTP)?
 - The AE DTP defines the AE strategy, approach and activities required to achieve the seven data strategy goals (visible, accessible, understandable, etc.) identified in the Department of Defense (DoD) Net-Centric Data Strategy memo.
 - The AE DTP will be the baseline plan used by the Chief Data Officer and Data Stewards to manage the Army's efforts towards achieving net-centric data.
 - The AE DTP will include the Army's strategy for the development, use, and migration to net-centric capabilities specific to achieving net-centric data.
 - Includes focus for Data Stewards
 - Data Stewards need to develop their own Data Transformation Plans based on this Army Enterprise DTP

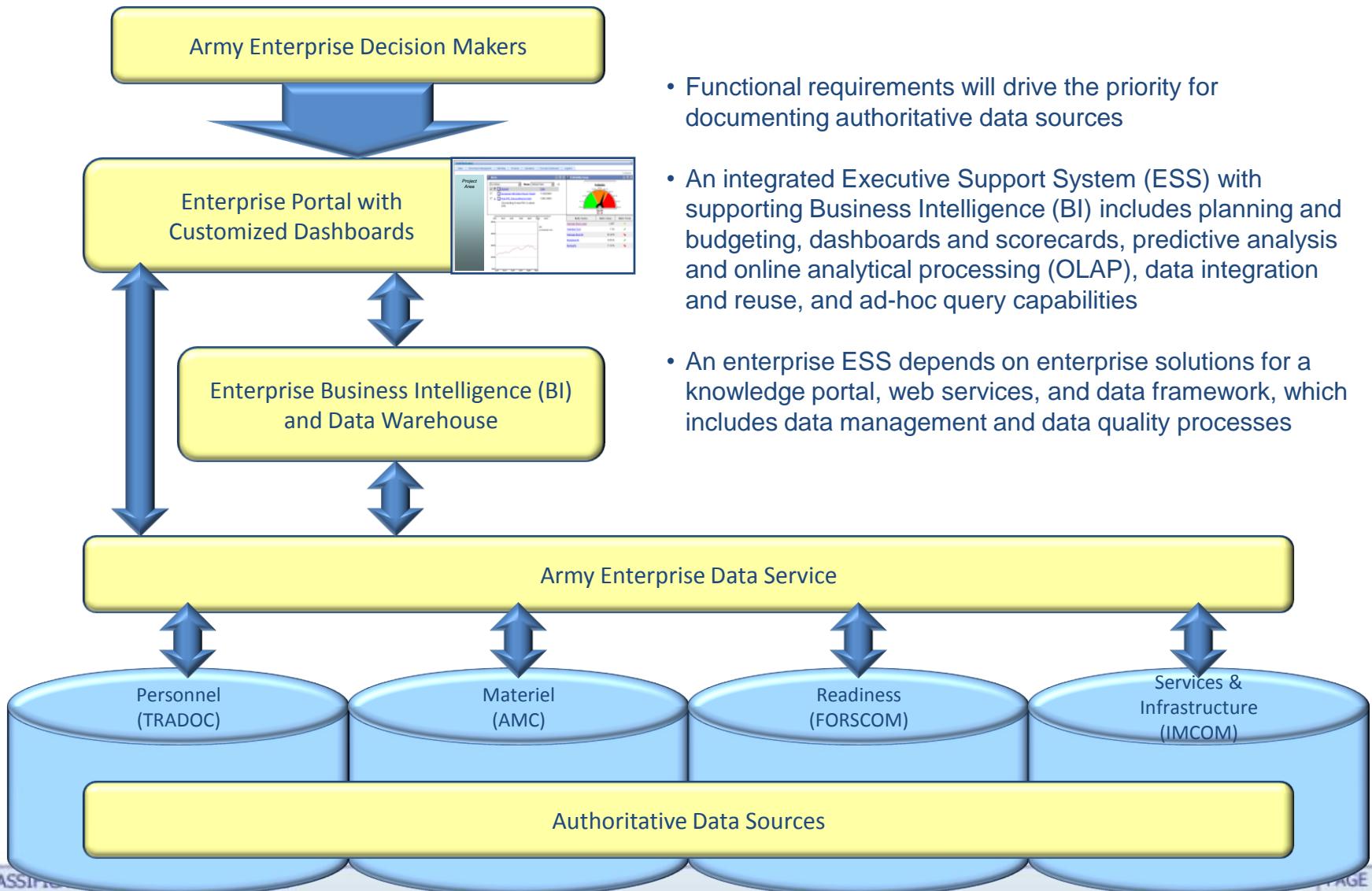
Vision:

- **Create and support a network-enabled environment that allows Warfighters and decision makers access to data in a timely and secure manner, regardless of the operational environment.**

Way Ahead

- Formation of the Data Council Data Transformation Plan Working Group - 1st QTR FY10
- Data Council Review and Adjudication
 - Initial – 1st QTR FY10
 - Final – 2nd QTR FY10
- Data Transformation Roadmap Development
 - Initial – 1st QTR FY10
 - Final – 2nd QTR FY10
- Data Steward DTPs Developed
 - Initial – 2nd QTR FY10
 - Final – 3rd QTR FY10

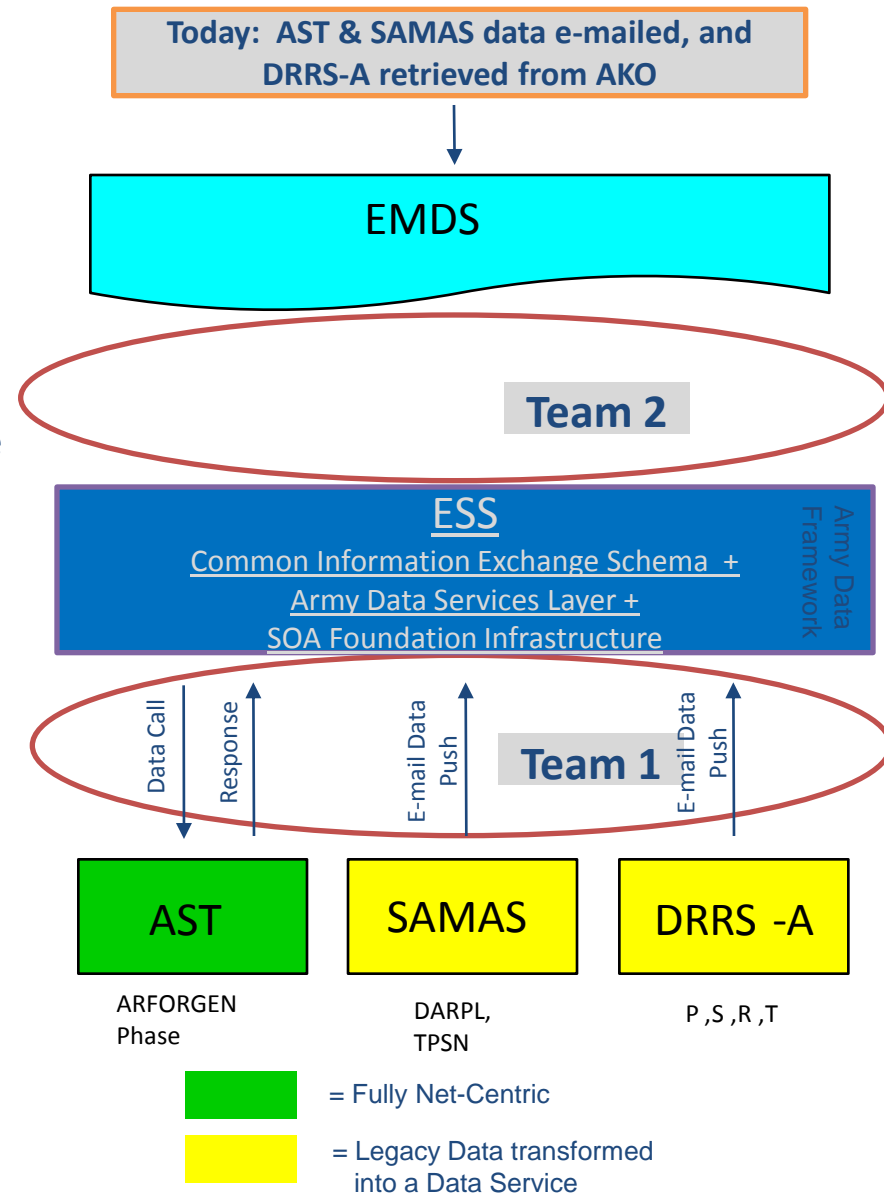
Objective Enterprise Environment



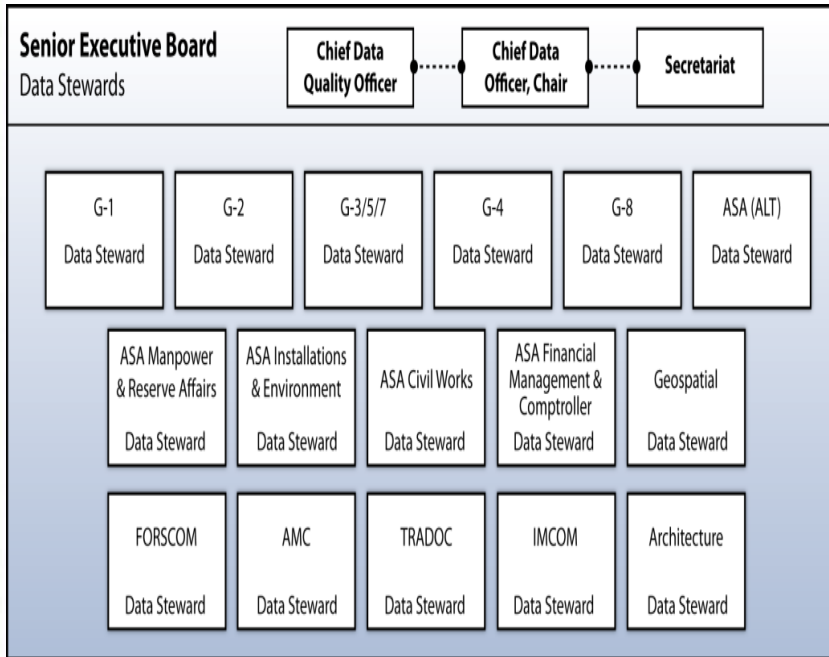
- Functional requirements will drive the priority for documenting authoritative data sources
- An integrated Executive Support System (ESS) with supporting Business Intelligence (BI) includes planning and budgeting, dashboards and scorecards, predictive analysis and online analytical processing (OLAP), data integration and reuse, and ad-hoc query capabilities
- An enterprise ESS depends on enterprise solutions for a knowledge portal, web services, and data framework, which includes data management and data quality processes

Enterprise Data Sharing Initiative

- **Objective: Implement Army Data Framework using the SOA Foundation**
 - Joint effort between G-3/5/7, CIO/G6 and Enterprise Task Force
 - **Spiral 1 (COMPLETE)** is referred to as **Executive Support System (ESS)**
 - Includes building a common semantic layer and web services as a shared platform to serve the enterprise
 - Initial sources: AST, SAMAS & DRRS-A
- **Approach - Two concurrent efforts:**
 - **CIO/G-6 Team 1**
 - Developed and installing data service layer at ADCF on SIPRNet
 - AST web-service is operational, but is passing fewer data records than required
 - SAMAS & DRRS-A are “pushing data” which is transformed into data services
 - **EMDS Team 2**
 - Developing client layer
 - Spiral 2 solution will interface to Common Army Data Framework



Data Transformation Implementation Framework



Governance:

Army Data Board is the directive body that identifies and addresses data interoperability issues and develops Army policy and positions that ensure data availability and standardization across the enterprise.

Technical and Infrastructure Concepts and Mechanisms:

The Army Data Framework (ADF) provides enterprise architecture guidance and acts as a guide toward the common enterprise framework in which data is architected, designed, developed, governed, standardized, and exchanged.

