LMI

GOVERNMENT CONSULTING

THE OPPORTUNITY TO MAKE A DIFFERENCE HAS NEVER BEEN GREATER

NDIA SE Conference October 26, 2005

Data Management in a Performance Based Logistics Environment

Dr. Jim Forbes,
LMI
jforbes@lmi.org

Denise Duncan, LMI
GEIA Data Management Panel
dduncan@lmi.org

Agenda

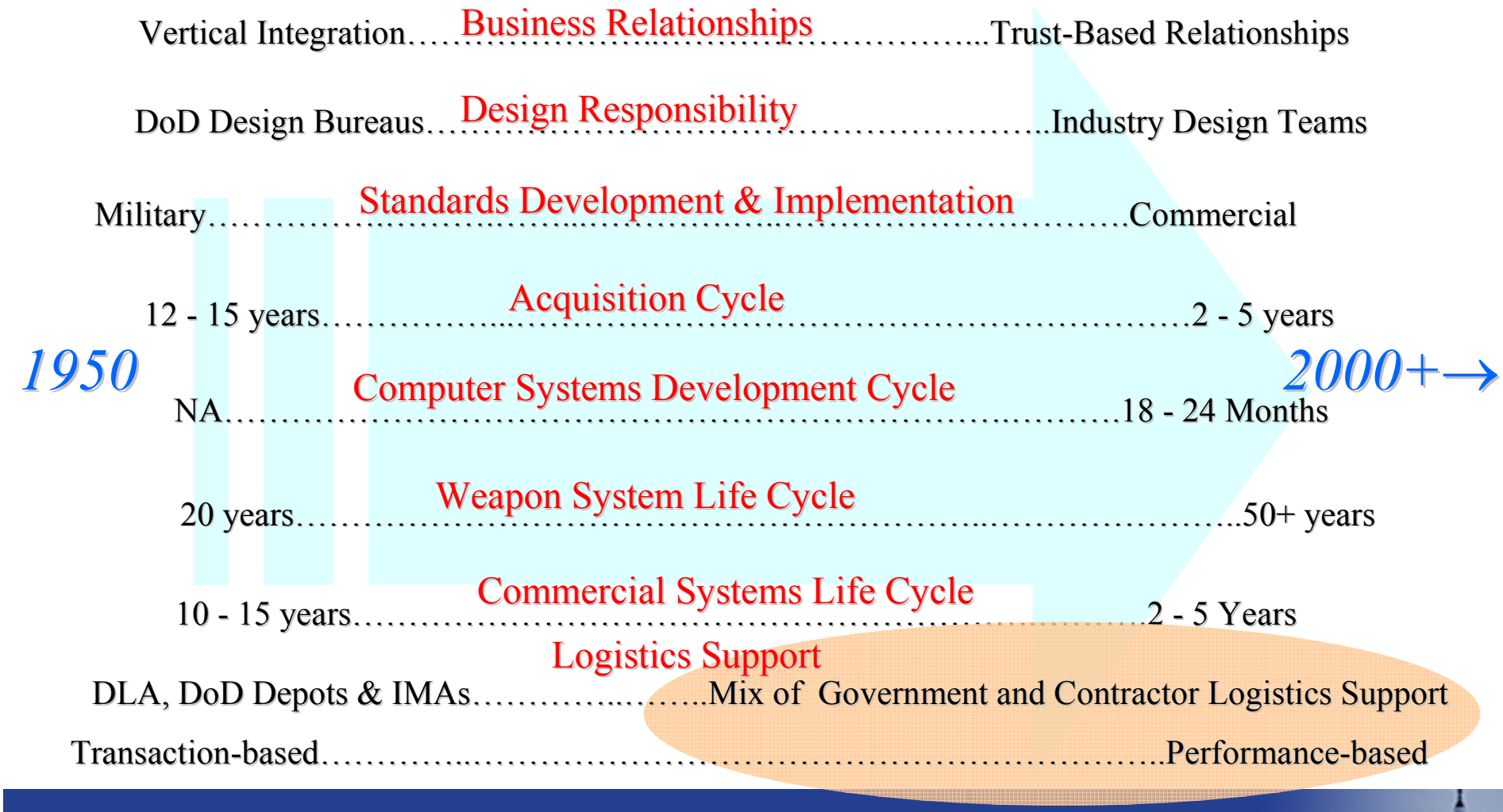
- What data are we talking about?
- Background
  - Changes in environment
  - Data management yesterday, today, and tomorrow
- GEIA/ANSI STD 859 and HDBK 859
  - Results to date
  - Related support to DM community of practice
- Example HDBK content
- Summary

Types of Data

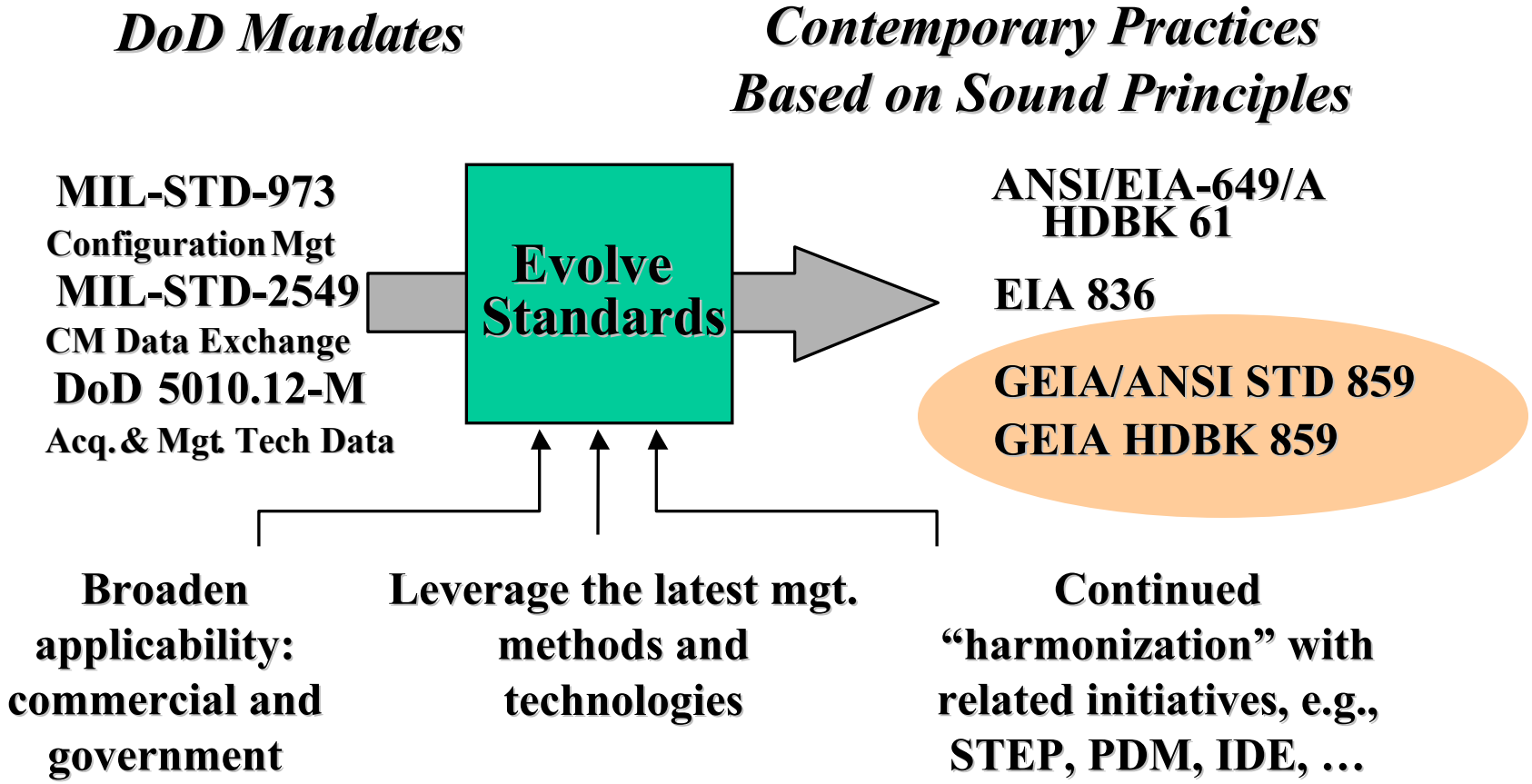
Focus of 859 projects

Type *Usage*	Examples
Product *Collaboration*	Cost, schedule and performance data. Scientific data such as written notes and observation data. Engineering drawings and models, parts catalogues, software applications and documentation, operational and maintenance instructions, and training materials.
Business *Collaboration*	Plans and schedules, financial information (budgets, bases of estimate, EVMS data…) inventory status, and human resource info.
Operational *Transactional Records Exchange*	Orders, issues, receipts, bills of lading, and invoices.

Changing Environment



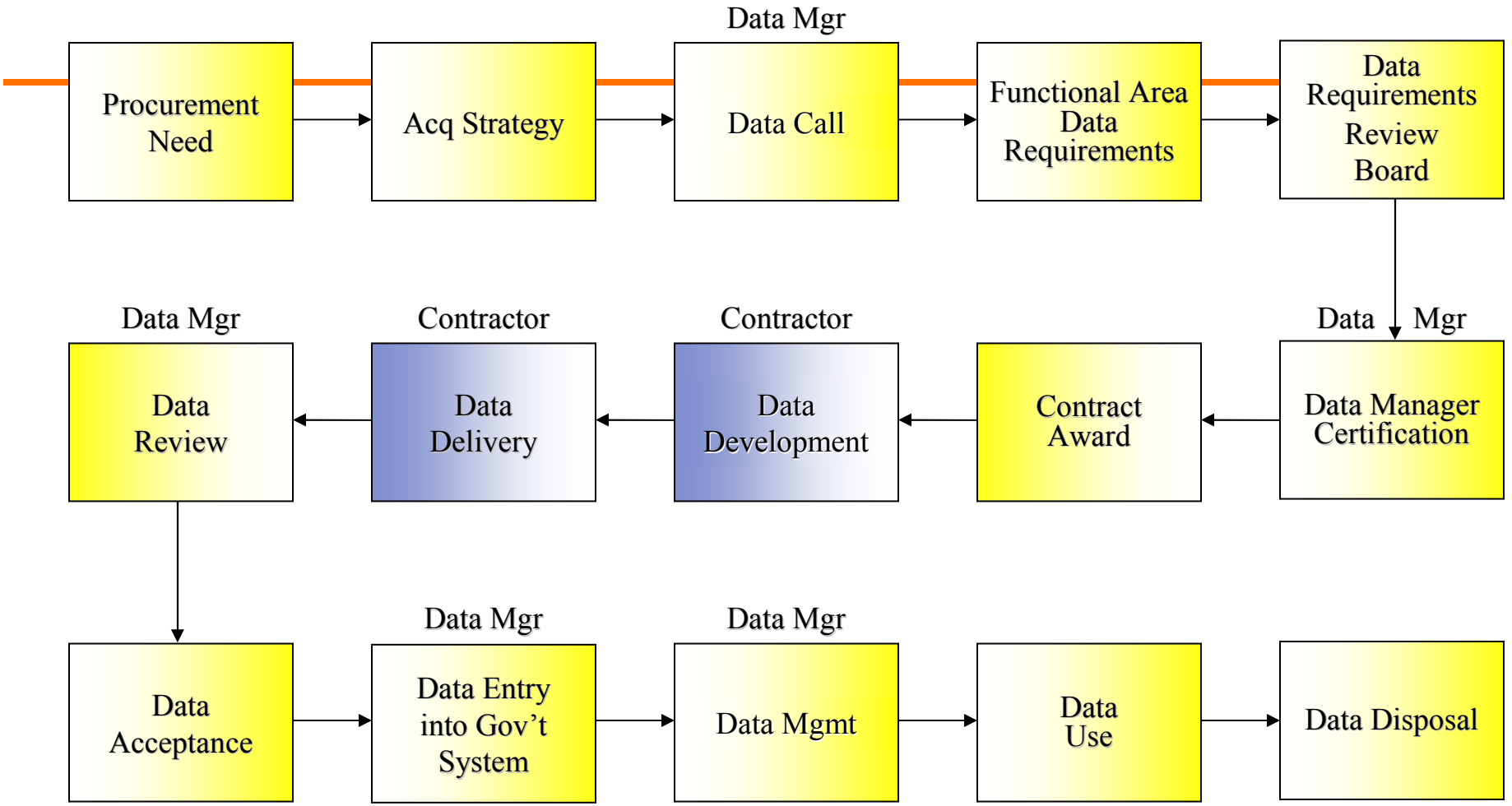
Transition to Industry Standards



Essential Changes: Data

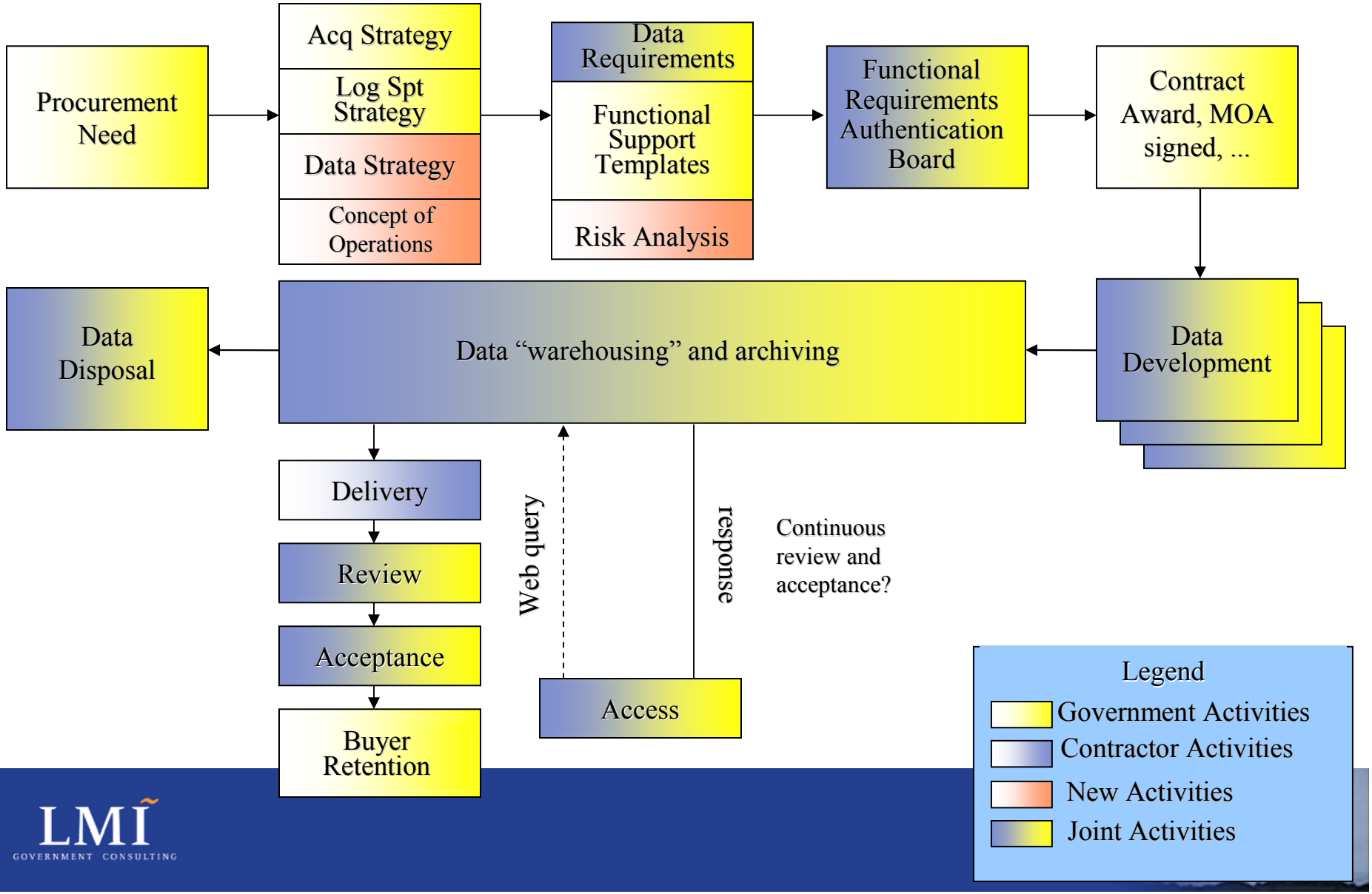
	Was	Is
Delivery Medium	• Paper	• Electronic
What constitutes delivery	• I mail it, you open it	• I post it on web site, we access it
Standardization of deliverables	• DIDs • Use mandatory • Tailoring permitted, but made intentionally difficult	• DIDs radically tailored or ignored entirely
Data environment	• Slow • Bulky, paper storage • Fairly standard • Limited number of copies • Sometimes hard to find or obtain copy	• Rapid to instantaneous • Compact electronic storage • Non-standard • Essentially infinite number of copies • Still difficult to find
Availability in future	• Infinitely available and interoperable as long as copies not misplaced	Electronic formats subject to rapid technological obsolescence

Data Management Process (Yesterday)



- Sequential Process
- Had a dedicated and experienced Data Manager
- Assumed all contract required data is delivered
- Philosophy was "Buy Everything!"
- Only applied to some (contracted) data

Evolving Data Management Process (Today and Tomorrow)

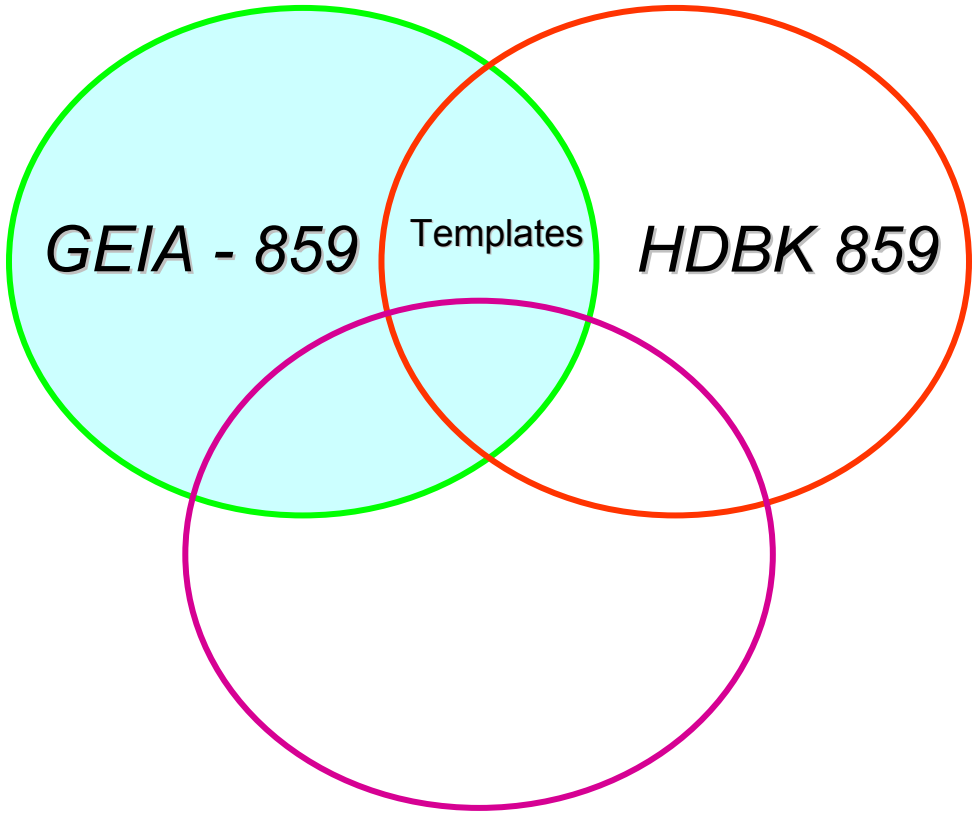


LMI
GOVERNMENT CONSULTING

Components of the New Data Management

Principles

- Basic tenets and values
- General



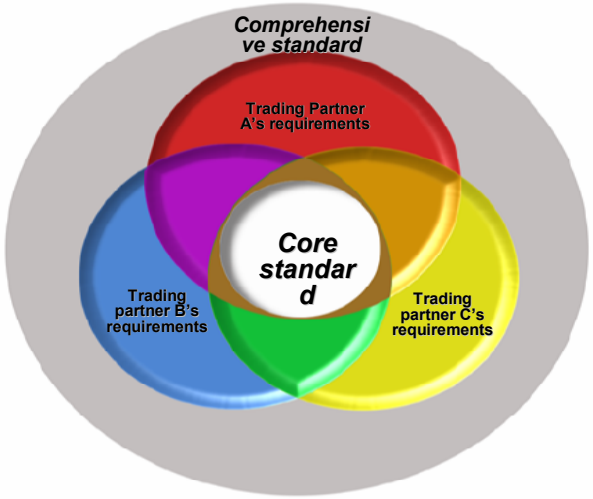
Practices

- Implementation specifics
- Some will always be organization-specific

Professionalizing the Workforce Through Training

Purpose and Scope of Std 859

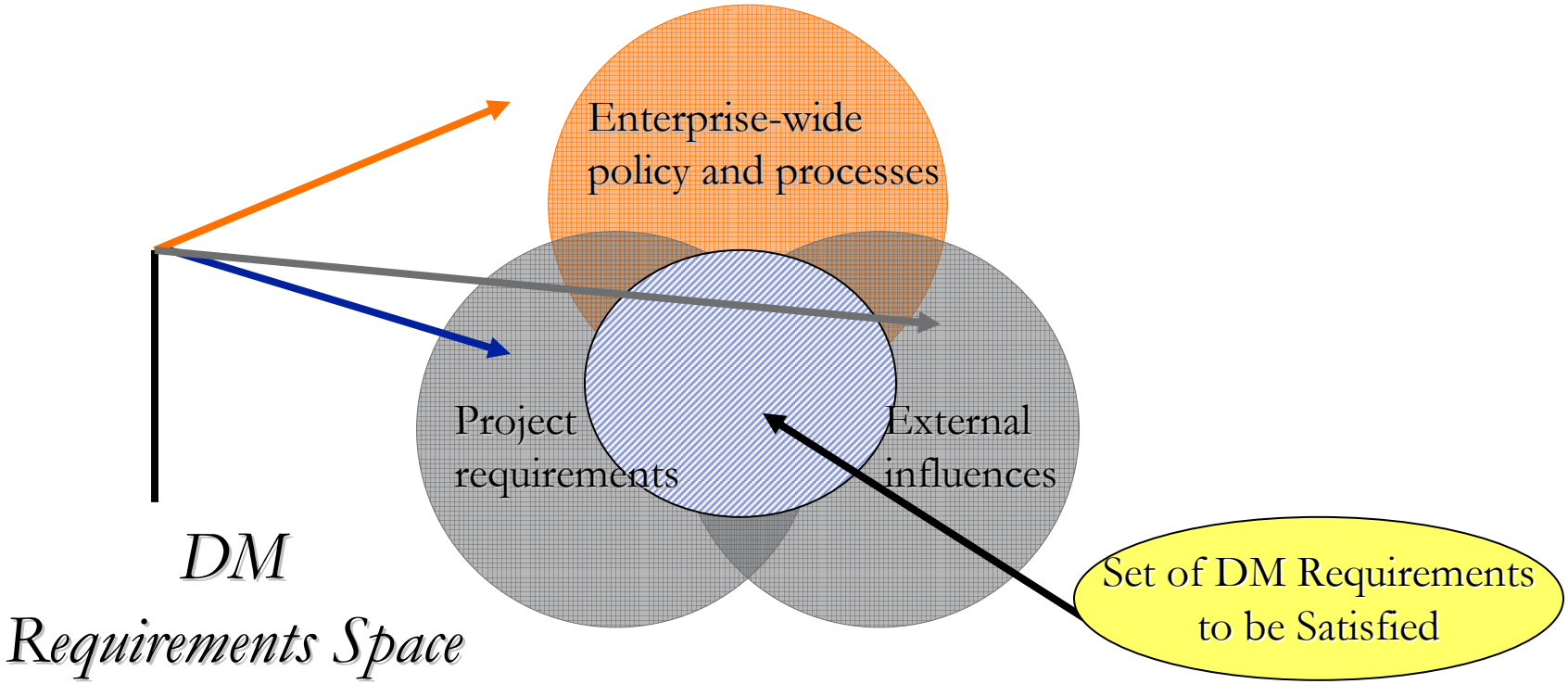
- Purpose
  - Provide a contemporary, principles-level, guide to requirements for acquisition and management of data across the product life-cycle
  - Enable sharing of data among trading partners … in a performance-based environment
- Scope
  - Common principles
  - Related enablers
  - (Some) key practices



DM Principles of Standard 859

	Area	Principle
1	Focus and Scope	Define the organizationally relevant scope of data management
2	Customer Support	Plan for, acquire, and provide data responsive to customer requirements.
3	Business Context	Develop DM processes to fit the context and business environment in which they will be performed.
4	Identification	Identify data products and views so that their requirements and attributes can be controlled.
5	Change Management	Control data, repositories, data products, data views, and metadata using approved change control processes.
6	Data Rights	Establish and maintain an identification process for intellectual property, proprietary, and competition-sensitive data.
7	Data Retention	Retain data commensurate with value to the organization.
8	Process Improvement	Continuously improve data management.
9	DM/KM Connection	Effectively integrate data management with knowledge management.

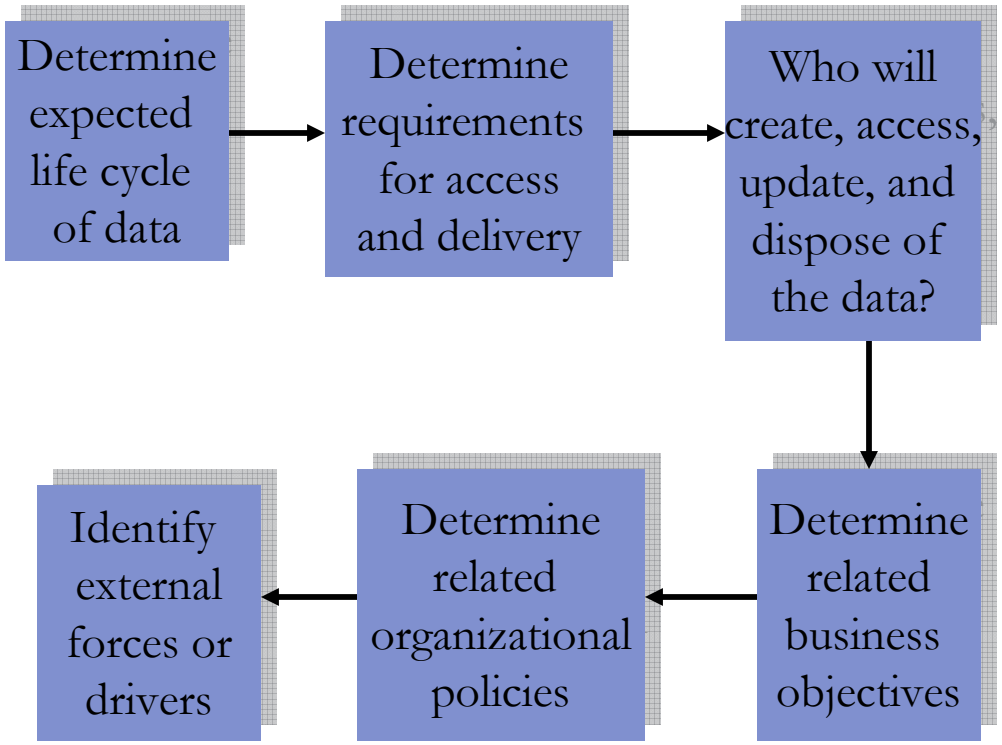
Principle 3



Develop Data Management processes to fit the context and business environment in which they will be performed.

Enabler 3.1: Determine the complete set of requirements that the DM solution must address

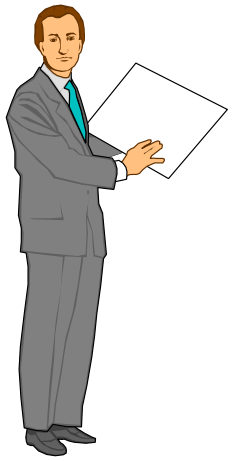
- General requirements
- Data capabilities
- Data processes
- Intended use of the data
- Related business objectives
- Technology issues
- External constraints

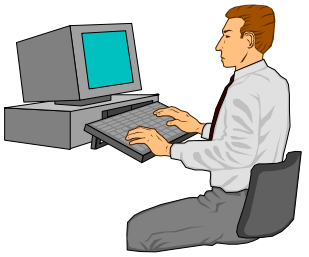


Purpose and Scope of HDBK 859

Provides the first level of 'how'

- examples and samples
- approaches
- tools
- methods
- mini-case studies
- …to illustrate how to implement DM in accordance with the principles (compliant with the standard)





Example Elements of Data Strategy

Question	Information
What is the appropriate placement model for the enterprise DM functions?	Centralized—all DM responsibilities are within one organization Decentralized—DM responsibilities are distributed throughout the organization Hybrid—one organization has most of the DM responsibilities, but leverages other enterprise assets (for example other organizations provide CM or records management resources)
What data are needed and by whom?	Evaluate program life cycle Identify the documentation that defines program requirements Review documentation and develop list of required data products Determine who (organizations, functions, or systems) will use the data, what decisions or functions are supported by the data, and how and when they will use various types of data

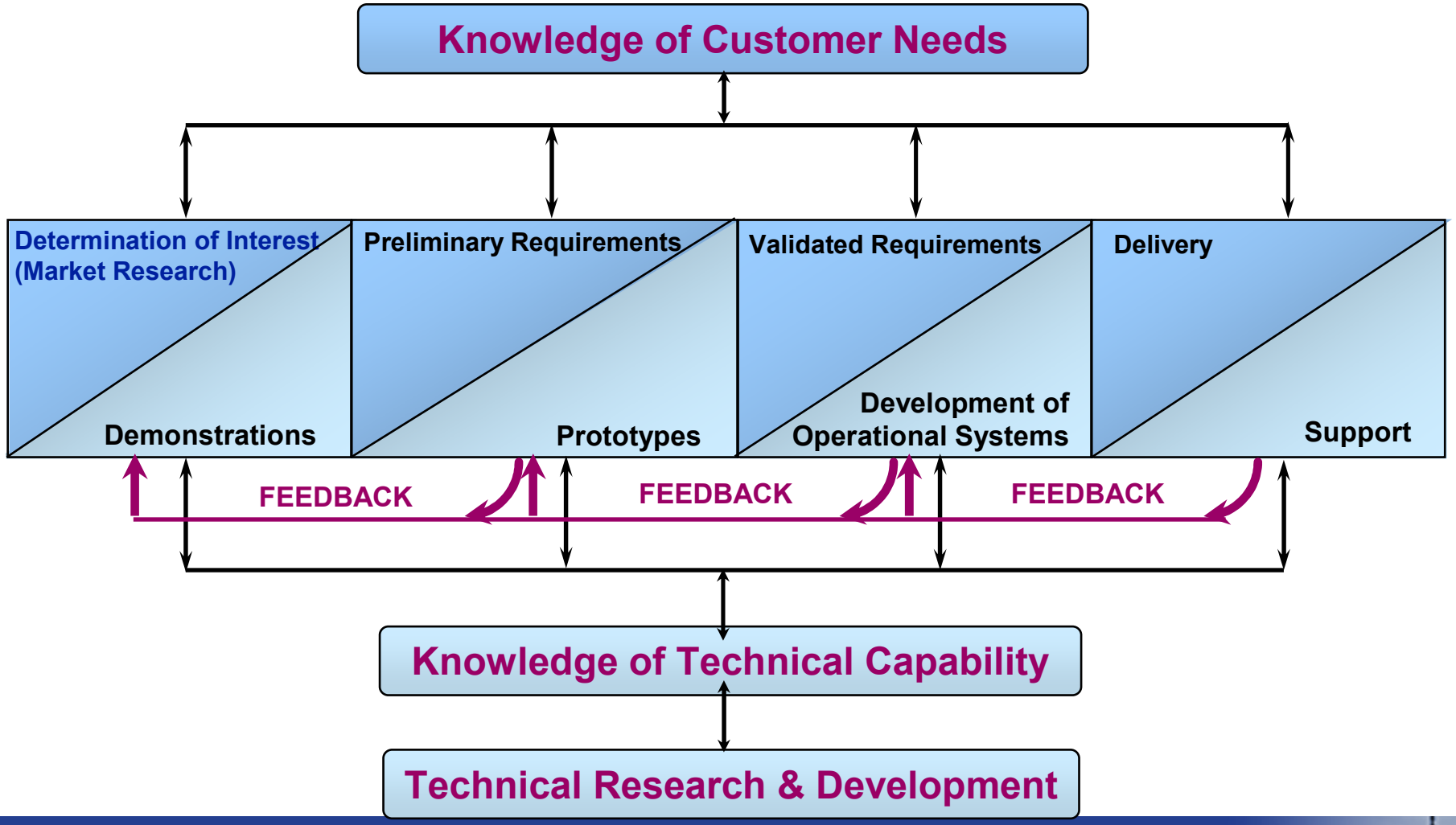
Example Elements of Data Strategy, cont.

Question	Information
Which views of data will be required?	Identify the content and format for each data product Identify duplicate data products or opportunities to combine data products Consolidate requirements for similar data products Develop complete list of data products to be created for the program
When will the data be required?	Identify the users for each data product required Establish whether multiple deliveries are required Determine delivery dates and identify updates or reversions Prepare a list of data products with users and delivery dates
What are the delivery mechanisms?	Evaluate data product requirements Identify data product sources or providers Identify external and internal data providers Verify that requirements for data identification are defined and communicated Develop a list of data products with all sources identified
What organization design and staffing changes are needed?	Determine if a change in the way DM is staffed requires specific training and certification for data management personnel.[a]

Questions to Help Ensure Completeness of Requirements

Question	Example
Who determines the quality of the data?	Customer, manufacturing, engineering
How are the data to be acquired?	In-house, contracted for, computer accessed
How are the data to be stored?	File cabinets, servers, microfilm
How will the data be protected?	Vaults, computing access control, restricted buildings, duplicate copies at different site
Who needs access to the data?	Foreign nationals, finance, release group
What view of the data do they need	Parts catalog for customer, detail drawings for manufacturing, ad hoc reports for management
How are the data to be used?	Certification, functional test, build
How are the data to be delivered?	Electronically, paper, on-demand reports, overnight updates of the systems
How are the data to be disposed of?	Shredding, burning, deletion of files, garbage can

Aligning DM with Contemporary View of Innovation—
"Chain Link" Model of Continuous Improvement



Adapted from S.J. Kline and N. Rosenberg, "An Overview of Innovation" in R. Landau and N. Rosenberg eds., *The Positive Sum Strategy*. Washington: National Academic Press, 1986.

Summary

- New environment
  - Technology
  - Business – trust-based, performance-based
- Needed a fresh way to think about DM
  - New recipes, improved methods
- Principles for the “new” DM in GEIA/ANSI STD 859, methods in GEIA/ANSI HDBK 859
- Example HDBK 859 content