Federal and EPA Enterprise Architectures

Service-Oriented Architecture Implementation Within the Federal Government

Odelia Funke, Director
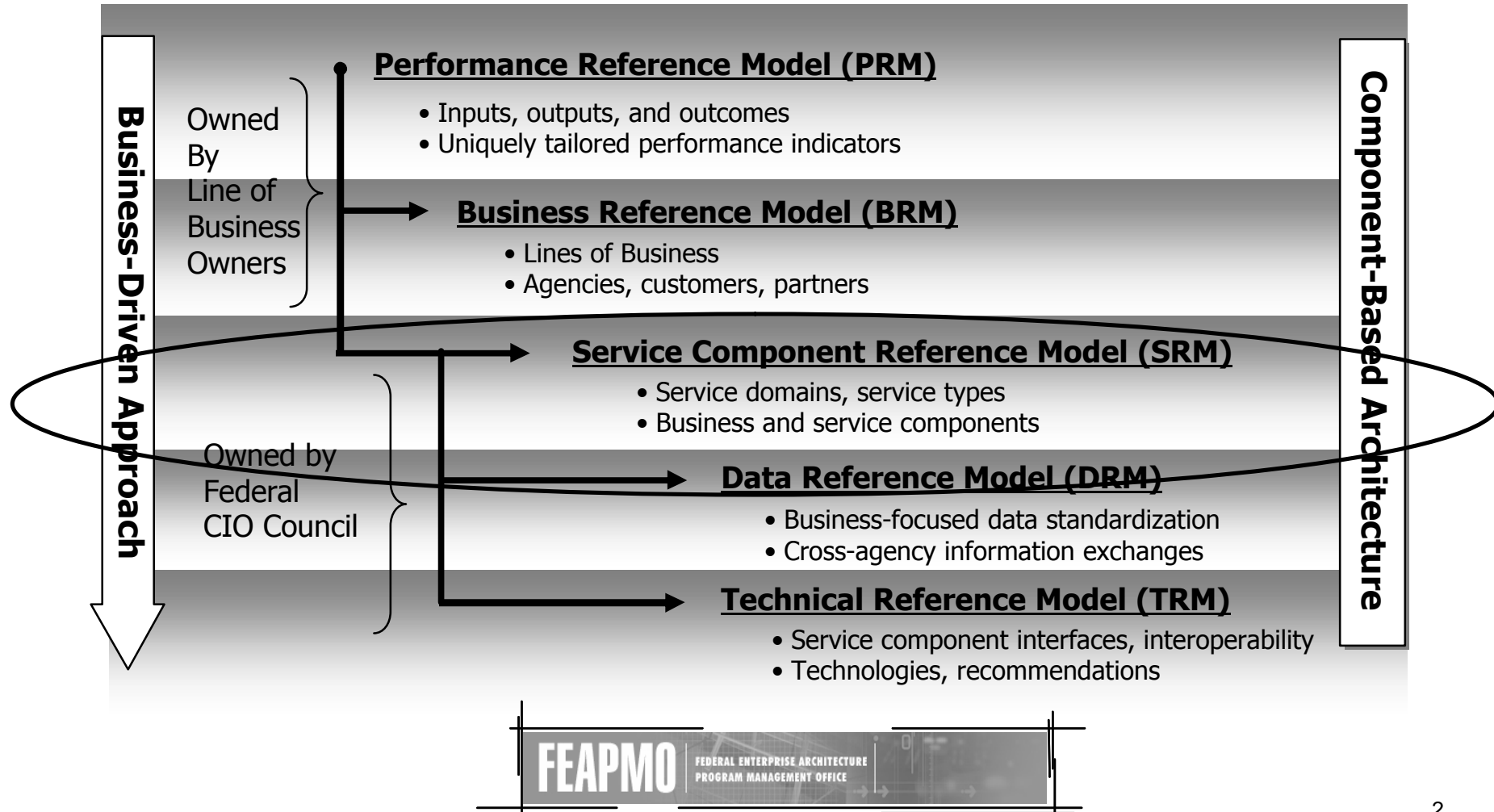
Mission Investment Solutions Division,
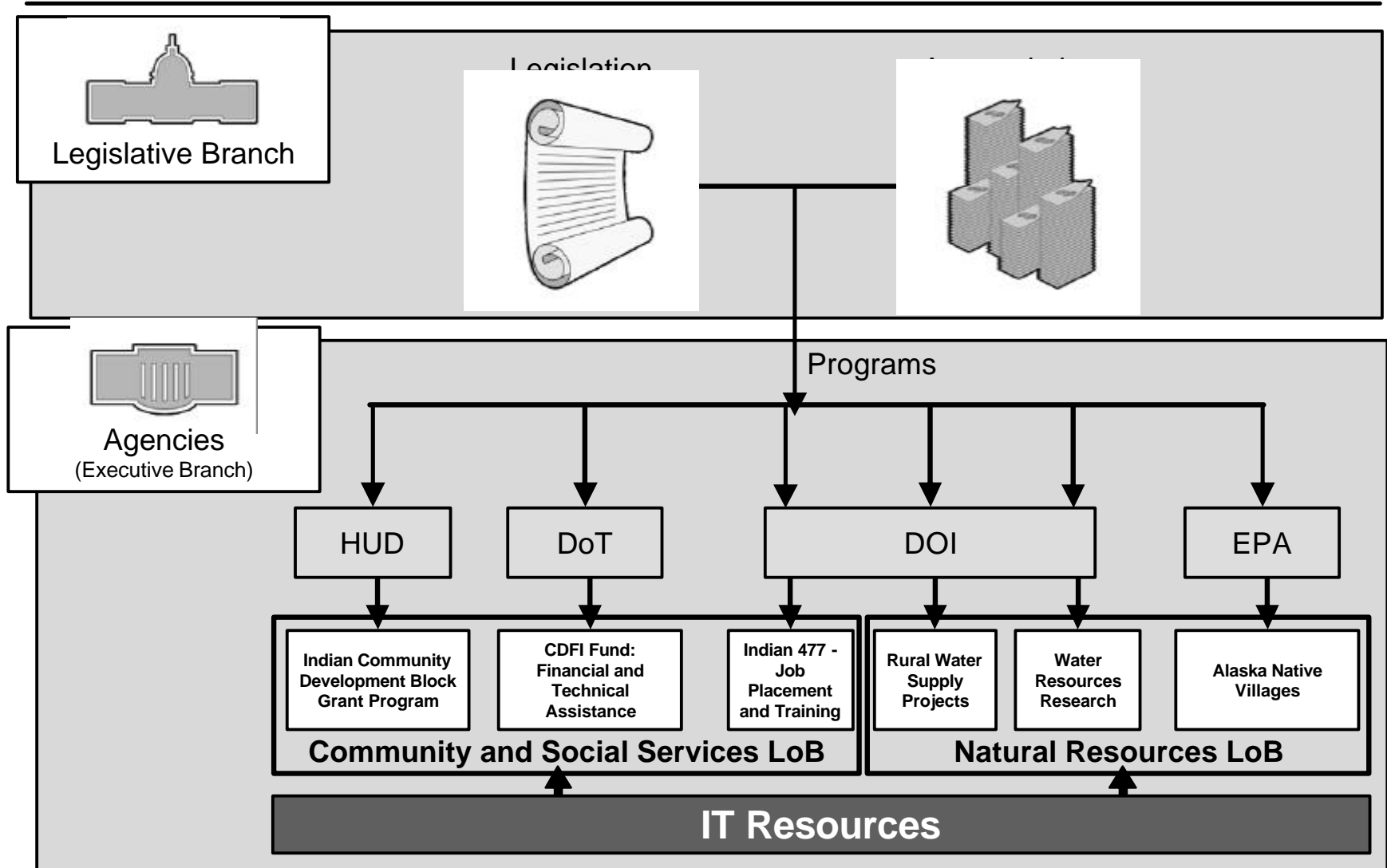
Office of Technology Operations and Planning

The Federal Enterprise Architecture:

A Model of the Federal Government, *a means for understanding who does what*

Business-Driven Approach

Component-Based Architecture

Owned By Line of Business Owners

Performance Reference Model (PRM)
- Inputs, outputs, and outcomes
- Uniquely tailored performance indicators

Business Reference Model (BRM)
- Lines of Business
- Agencies, customers, partners

Service Component Reference Model (SRM)
- Service domains, service types
- Business and service components

Owned by Federal CIO Council

Data Reference Model (DRM)
- Business-focused data standardization
- Cross-agency information exchanges

Technical Reference Model (TRM)
- Service component interfaces, interoperability
- Technologies, recommendations

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Lines of Business Initiatives:

Expectations for Shared Service Delivery

Legislation

Programs

Legislative Branch

Agencies
(Executive Branch)

HUD	DoT	DOI	EPA

Indian Community Development Block Grant Program	CDFI Fund: Financial and Technical Assistance	Indian 477 - Job Placement and Training	Rural Water Supply Projects	Water Resources Research	Alaska Native Villages

Community and Social Services LoB

Natural Resources LoB

IT Resources

Citizen-Centered, Results Driven Government

FEA Vision: Common Business Lines Supported by Shared Service Components

Agencies: SBA, Treasury, Defense, EPA, Interior, Justice, DHS, Energy, HHS

Business Lines: Financial Management, Human Resources, Health, Community and Social Services, Education, Economic Development, Natural Resources, Homeland Security

Service Components:
Mapping / Geospatial / Elevation / GPS
Security Management
Records Management

Management of Government Resources   Services to Citizens

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Background

- SCBA is a reuse-focused architecture that incorporates
  - Service Oriented Architecture (SOA)
  - The Federal Enterprise Architecture (FEA)
  - Industry best practices
- SCBA vs. SOA – different terms used on purpose
  - SOA can mean many different things: SCBA provides a **non-ambiguous** description
  - SCBA incorporates advice on **organizational**, **governance**, **process**, and **culture**
  - SCBA is specifically targeted at **government** (FEA)
  - SCBA incorporates both **process** and **IT** reuse
- First chapter is an overall "executive strategy"
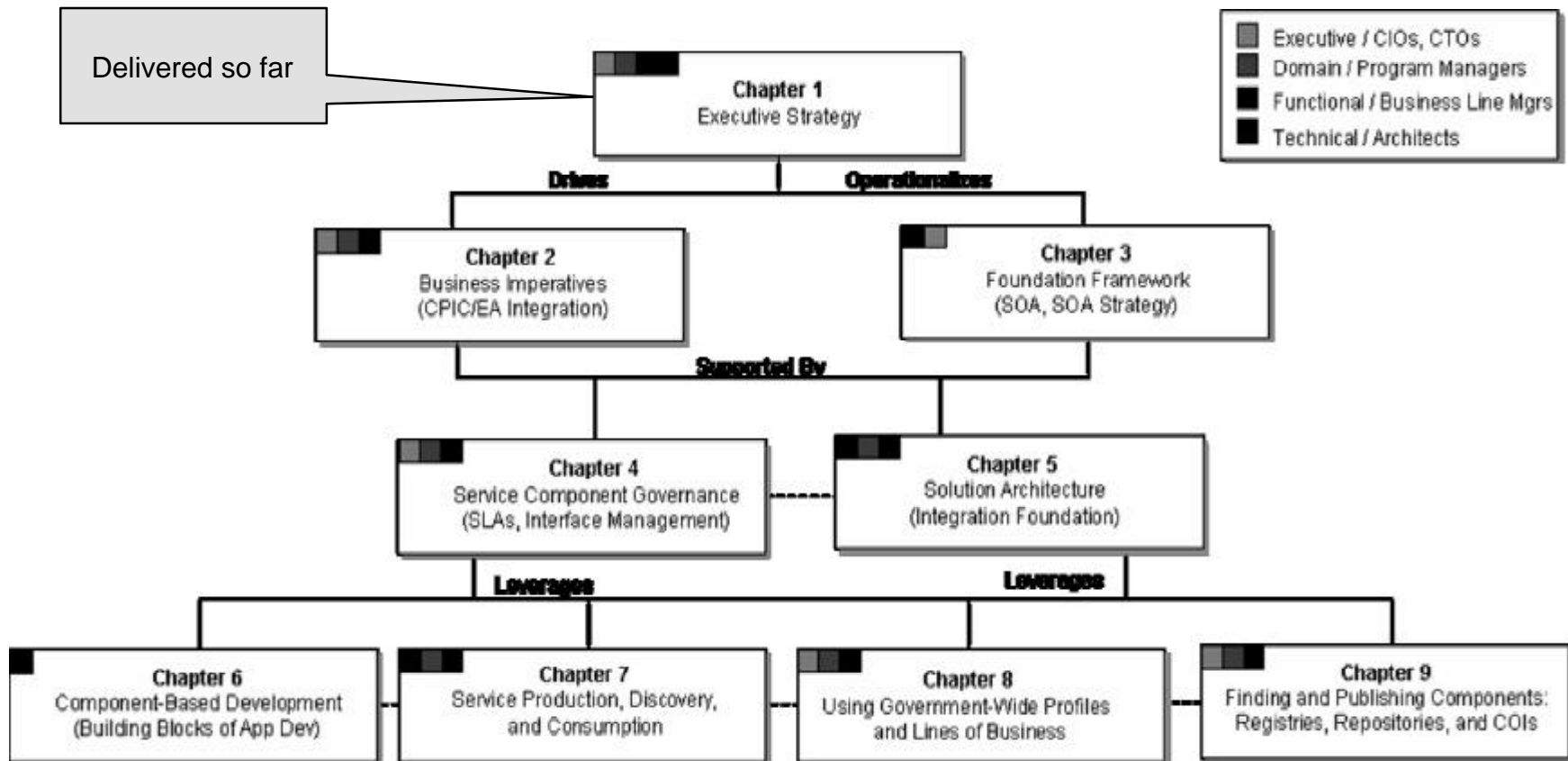 - Additional chapters will add focused detail

Value Proposition

SCBA will greatly enhance agencies' ability to accomplish their missions by **increasing agility** through service orientation and **reducing costs** through reuse.

Strategic Guide for Implementing Distributed and Reusable Services and Components in Government

SCBA Development – A 9 Volume Strategy

Delivered so far

Executive / CIOs, CTOs
Domain / Program Managers
Functional / Business Line Mgrs
Technical / Architects

Chapter 1
Executive Strategy

Drives   Operationalizes

Chapter 2
Business Imperatives
(CPIC/EA Integration)

Chapter 3
Foundation Framework
(SOA, SOA Strategy)

Supported By

Chapter 4
Service Component Governance
(SLAs, Interface Management)

Chapter 5
Solution Architecture
(Integration Foundation)

Leverages   Leverages

Chapter 6
Component-Based Development
(Building Blocks of App Dev)

Chapter 7
Service Production, Discovery,
and Consumption

Chapter 8
Using Government-Wide Profiles
and Lines of Business

Chapter 9
Finding and Publishing Components:
Registries, Repositories, and COIs

Reusing Service Components Requires New Business Rules –
Must incorporate changes to all dimensions of the organization

Non-Technical Dimensions of Reuse

Policies

Processes

Governance
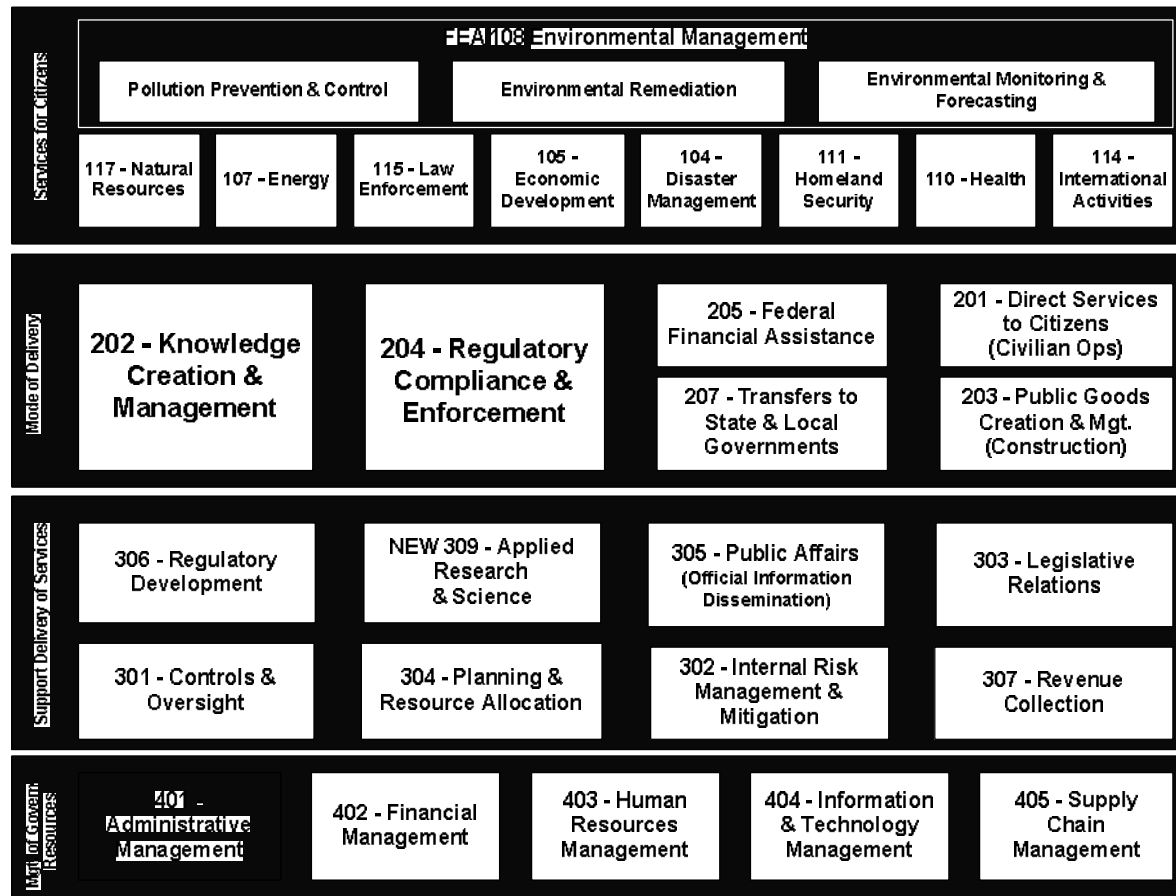
Strategies

Culture
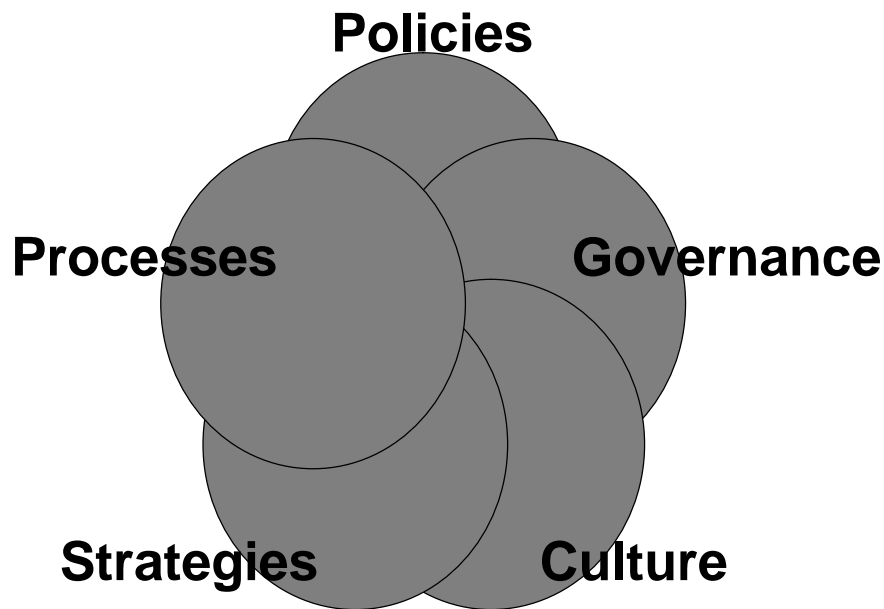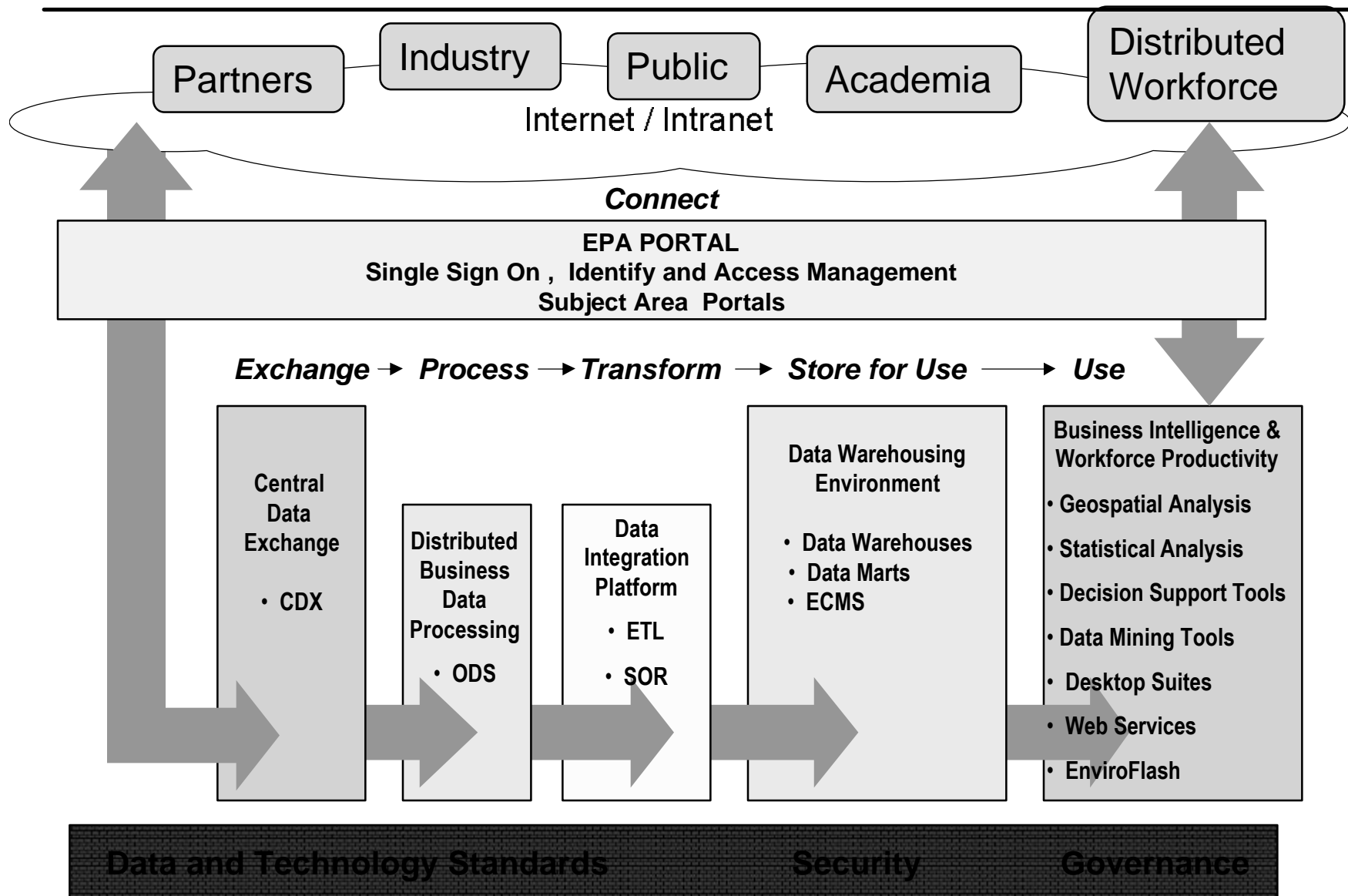
Non-Technology Change Areas

- **Policies**: need to alter policies to support reusing assets from any source, and set specific, measurable goals for levels of reuse

- **Strategies**: needs to move from strategies that are narrowly focused on programs to ones focused on producing and integrating reusable services across the entire government

- **Processes**: need to change software development and capital planning processes to make looking for reuse opportunities a core task

- **Culture**: needs to change through a combination of executive recognition and incentive programs that strongly reward reuse

- **Governance**: need to change to take into account that a service may be used by multiple organizations, and put appropriate service level agreements in place

EPA's Line of Businesses

Moving towards a Shared-Service Model

Services for Citizens	FEA108 Environmental Management							
	Pollution Prevention & Control			Environmental Remediation			Environmental Monitoring & Forecasting	
	117 - Natural Resources	107 - Energy	115 - Law Enforcement	105 - Economic Development	104 - Disaster Management	111 - Homeland Security	110 - Health	114 - International Activities

Mode of Delivery			
202 - Knowledge Creation & Management	**204 - Regulatory Compliance & Enforcement**	205 - Federal Financial Assistance	201 - Direct Services to Citizens (Civilian Ops)
		207 - Transfers to State & Local Governments	203 - Public Goods Creation & Mgt. (Construction)

Support Delivery of Services			
306 - Regulatory Development	NEW 309 - Applied Research & Science	305 - Public Affairs (Official Information Dissemination)	303 - Legislative Relations
301 - Controls & Oversight	304 - Planning & Resource Allocation	302 - Internal Risk Management & Mitigation	307 - Revenue Collection

Mgmt. of Govern. Resources				
401 - Administrative Management	402 - Financial Management	403 - Human Resources Management	404 - Information & Technology Management	405 - Supply Chain Management

EPA United States Environmental Protection Agency

EPA Target Architecture: Formed Upon A Shared Enterprise Services Model

Partners — Industry — Public — Academia — Distributed Workforce

Internet / Intranet

Connect

EPA PORTAL
Single Sign On , Identify and Access Management
Subject Area Portals

Exchange → *Process* → *Transform* → *Store for Use* → *Use*

Central Data Exchange

• CDX

Distributed Business Data Processing

• ODS

Data Integration Platform

• ETL

• SOR

Data Warehousing Environment

• Data Warehouses
• Data Marts
• ECMS

Business Intelligence & Workforce Productivity

• **Geospatial Analysis**
• **Statistical Analysis**
• **Decision Support Tools**
• **Data Mining Tools**
• **Desktop Suites**
• **Web Services**
• **EnviroFlash**

Data and Technology Standards   Security   Governance

Moving Forward

- SOA already means many things to many people

- The federal government is adopting SOA - our strategies for SOA implementation must align

- Reach out to other Agencies:

  - To understand how our work relates to theirs,

  - Seek those who can help – there are smart people out there who can help

- Keep asking; what are the business services being delivered?, who is the customer?, and what are the service components needed to deliver the business service?

- And, equally important, what services should EPA be a consumer of?