iServer 2010

Enterprise Architecture and Business Process Solutions
For Microsoft and Visio users

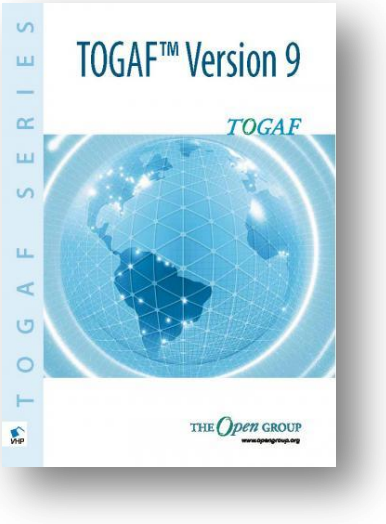
TOGAF 9 In Pictures

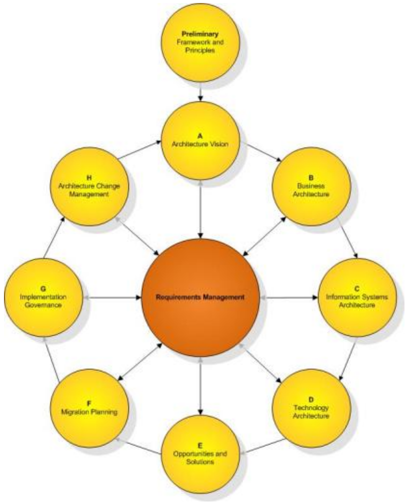
orbussoftware
Enterprise Architecture Software

t. +44 (0) 870 991 1851
f. +44 (0) 870 011 6412
e. enquiries@orbussoftware.com

Introduction

TOGAF is an Architecture Framework which has been developed by the Open Group *“to provide the methods and tools for assisting in the acceptance, production, use and maintenance of an Enterprise Architecture”.*

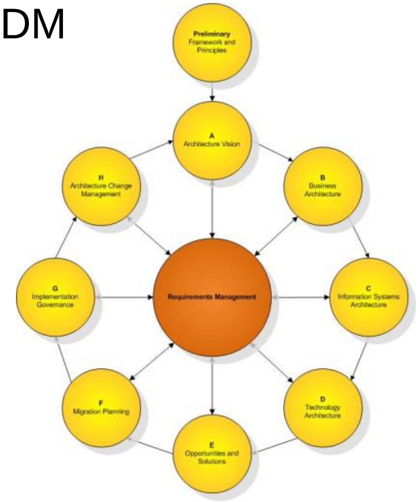

TOGAF SERIES
TOGAF™ Version 9
TOGAF
VHP
THE Open GROUP
www.opengroup.org


Preliminary
Framework and Principles
A
Architecture Vision
B
Business Architecture
C
Information Systems Architecture
D
Technology Architecture
E
Opportunities and Solutions
F
Migration Planning
G
Implementation Governance
H
Architecture Change Management
Requirements Management

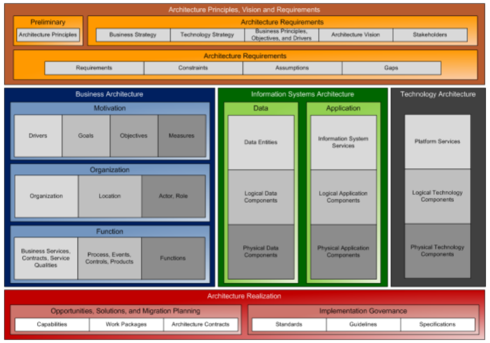
This guide has been designed to give a quick and simple pictorial introduction to TOGAF9, broken down into 6 main ‘modules’, following the modular structure of TOGAF9, which has been a change from TOGAF8.

TOGAF9 Modular Structure

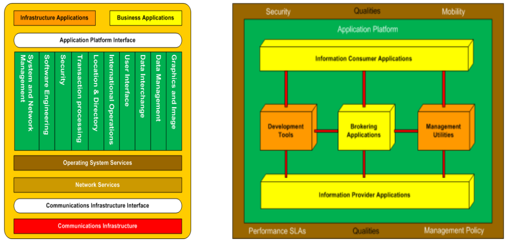
ADM


Preliminary
Framework and Principles
A
Architecture Vision
B
Business Architecture
C
Information Systems Architecture
D
Technology Architecture
E
Opportunities and Solutions
F
Migration Planning
G
Implementation Governance
H
Architecture Change Management
Requirements Management

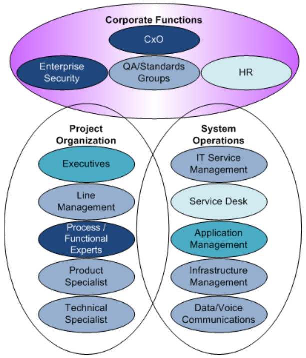
Architecture Content Framework


Architecture Principles, Vision and Requirements
Preliminary
Architecture Principles
Architecture Requirements
Business Strategy
Technology Strategy
Business Principles, Objectives, and Drivers
Architecture Vision
Stakeholders
Architecture Requirements
Requirements
Constraints
Assumptions
Gaps
Business Architecture
Motivation
Drivers
Goals
Objectives
Measures
Organization
Organization
Location
Actor, Role
Function
Business Services, Contracts, Service Qualities
Process, Events, Controls, Products
Functions
Information Systems Architecture
Data
Data Entities
Logical Data Components
Physical Data Components
Application
Information System Services
Logical Application Components
Physical Application Components
Technology Architecture
Platform Services
Logical Technology Components
Physical Technology Components
Architecture Realization
Opportunities, Solutions, and Migration Planning
Capabilities
Work Packages
Architecture Contracts
Implementation Governance
Standards
Guidelines
Specifications

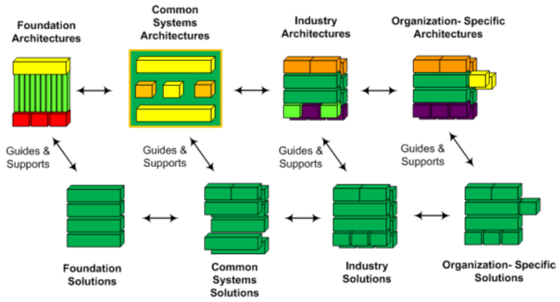
Reference Models


Infrastructure Applications
Business Applications
Application Platform Interface
System and Network Management
Software Engineering
Security
Transaction processing
Location & Directory
International Operations
User Interface
Data Interchange
Data Management
Graphics and Image
Operating System Services
Network Services
Communications Infrastructure Interface
Communications Infrastructure
Security
Qualities
Mobility
Application Platform
Information Consumer Applications
Development Tools
Brokering Applications
Management Utilities
Information Provider Applications
Performance SLAs
Qualities
Management Policy

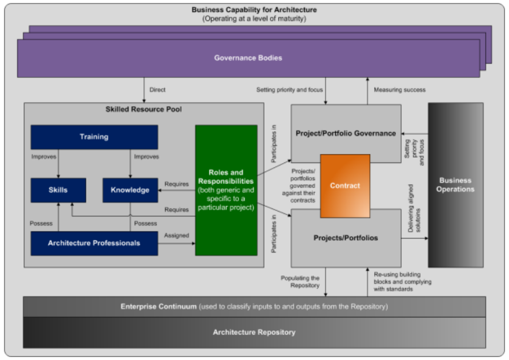
ADM Guidelines & Techniques


Corporate Functions
CxO
Enterprise Security
QA/Standards Groups
HR
Project Organization
Executives
Line Management
Process / Functional Experts
Product Specialist
Technical Specialist
System Operations
IT Service Management
Service Desk
Application Management
Infrastructure Management
Data/Voice Communications

Enterprise Continuum


Foundation Architectures
Common Systems Architectures
Industry Architectures
Organization- Specific Architectures
Guides & Supports
Guides & Supports
Guides & Supports
Guides & Supports
Foundation Solutions
Common Systems Solutions
Industry Solutions
Organization- Specific Solutions

Architecture Capability Framework


Business Capability for Architecture
(Operating at a level of maturity)
Governance Bodies
Direct
Setting priority and focus
Measuring success
Skilled Resource Pool
Training
Improves
Improves
Skills
Knowledge
Requires
Requires
Possess
Possess
Assigned
Architecture Professionals
Roles and Responsibilities (both generic and specific to a particular project)
Participates in
Participates in
Project/Portfolio Governance
Projects/ portfolios governed against their contracts
Contract
Projects/Portfolios
Setting priority and focus
Delivering aligned solutoins
Business Operations
Populating the Repository
Re-using building blocks and complying with standards
Enterprise Continuum (used to classify inputs to and outputs from the Repository)
Architecture Repository

The ADM: Phase-by-Phase

iServer 2010

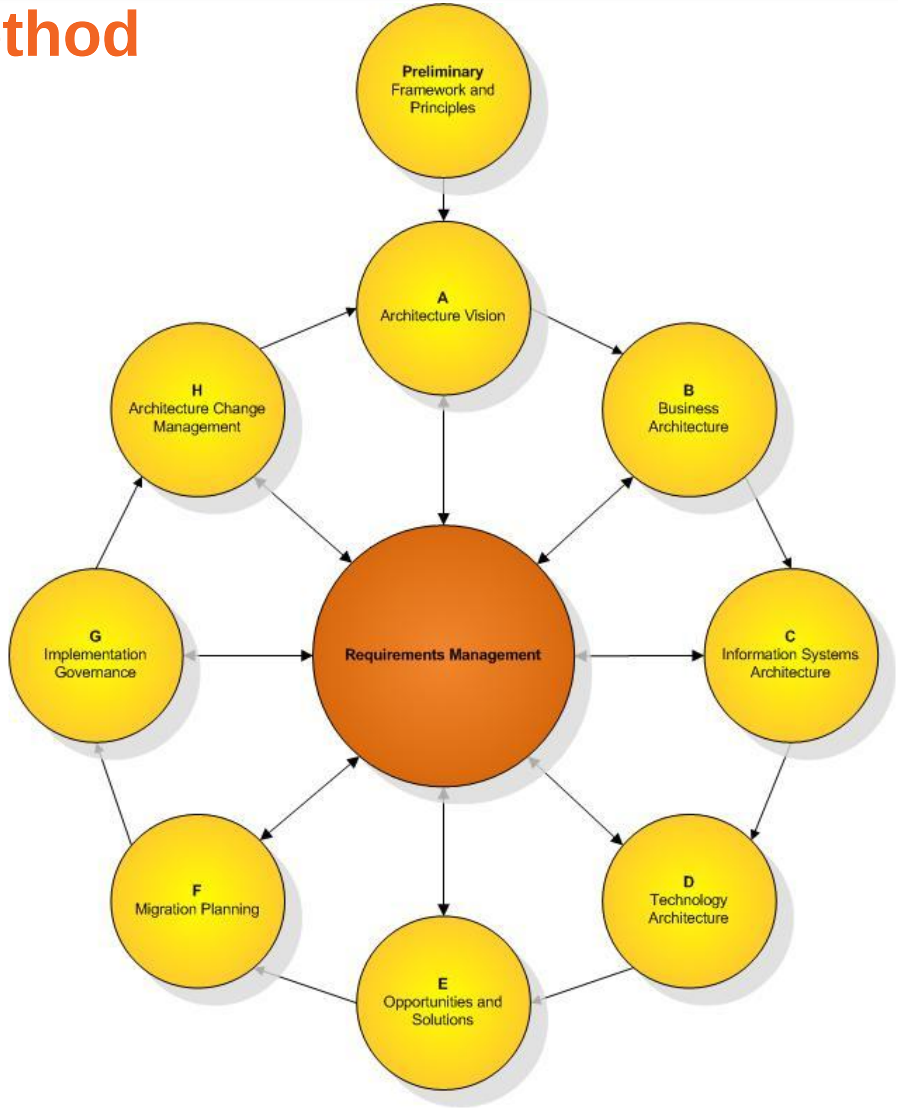
Architecture Development Method

A STEP-BY-STEP *approach*

A METHOD *for developing EA*

THE CORE *of TOGAF*

HELPS ESTABLISH *an EA Framework*


Preliminary
Framework and Principles
A
Architecture Vision
H
Architecture Change Management
B
Business Architecture
G
Implementation Governance
Requirements Management
C
Information Systems Architecture
F
Migration Planning
D
Technology Architecture
E
Opportunities and Solutions

ADM Iteration

ADM is an Iterative Process

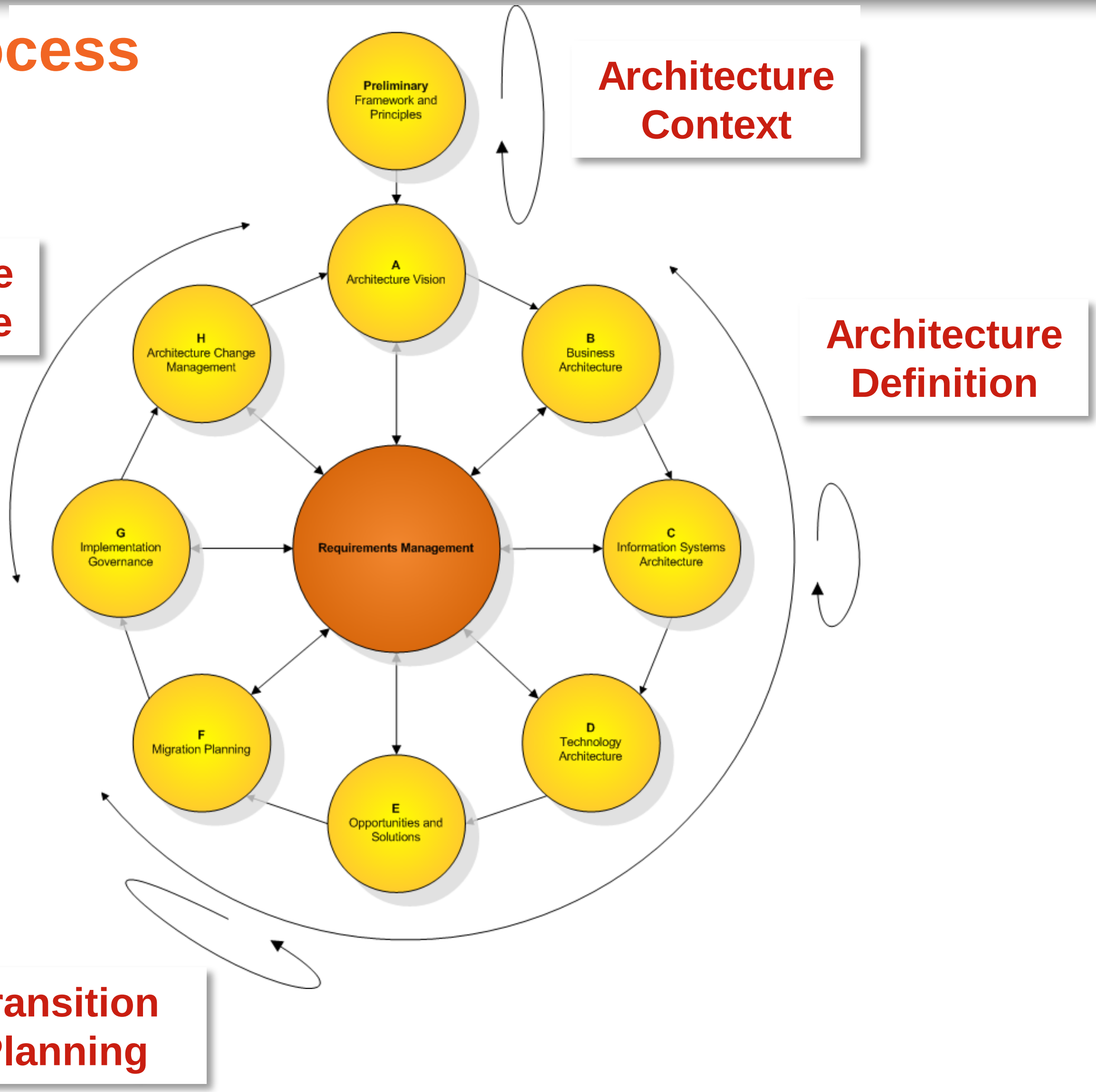
OVER *the whole process;*

BETWEEN *phases;*

WITHIN *phases*

New Iteration

- **New Decisions**


Preliminary
Framework and Principles
A
Architecture Vision
B
Business Architecture
C
Information Systems Architecture
D
Technology Architecture
E
Opportunities and Solutions
F
Migration Planning
G
Implementation Governance
H
Architecture Change Management
Requirements Management

Architecture Context

Architecture Governance

Architecture Definition

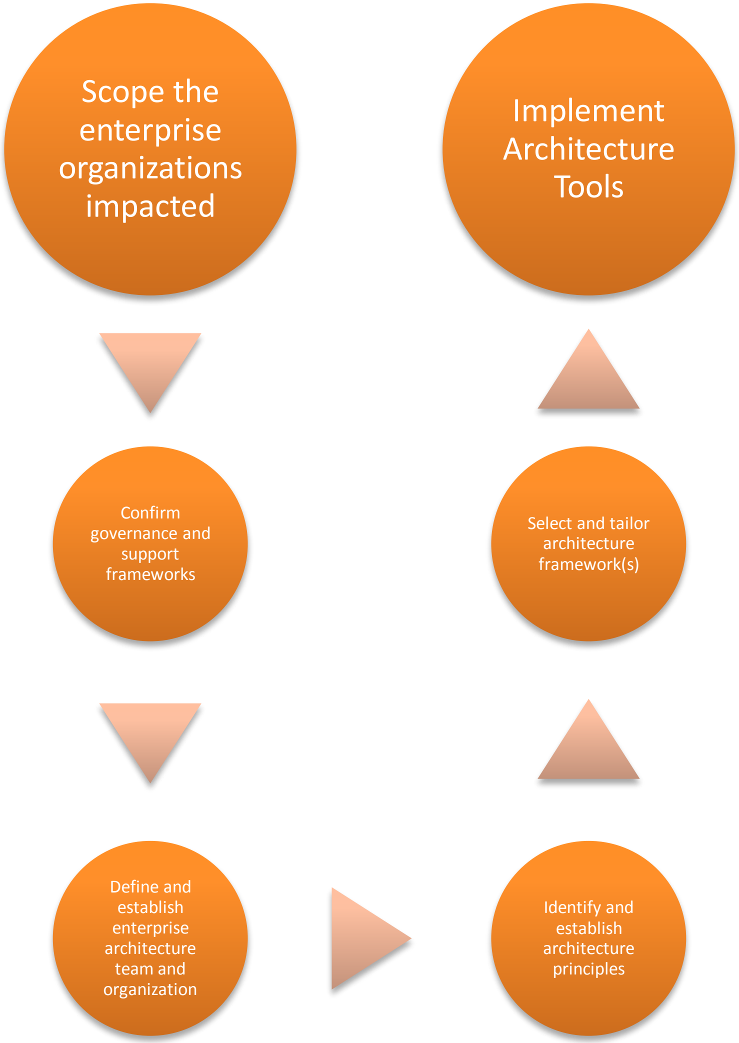
Transition Planning

ADM Phase: Preliminary

Inputs

- Architecture Principles
- Organizational model for EA
- Tailored Architecture Framework

Steps



Scope the enterprise organizations impacted

Confirm governance and support frameworks

Define and establish enterprise architecture team and organization

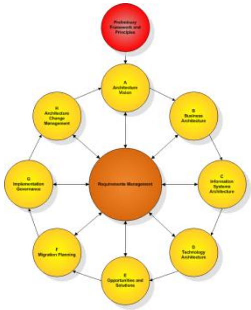
Identify and establish architecture principles

Select and tailor architecture framework(s)

Implement Architecture Tools

Outputs

- Architecture Principles
- Business Principles, Business Goals, and Business Drivers
- Organizational model for EA
- Request for Architecture Work
- Tailored Architecture Framework

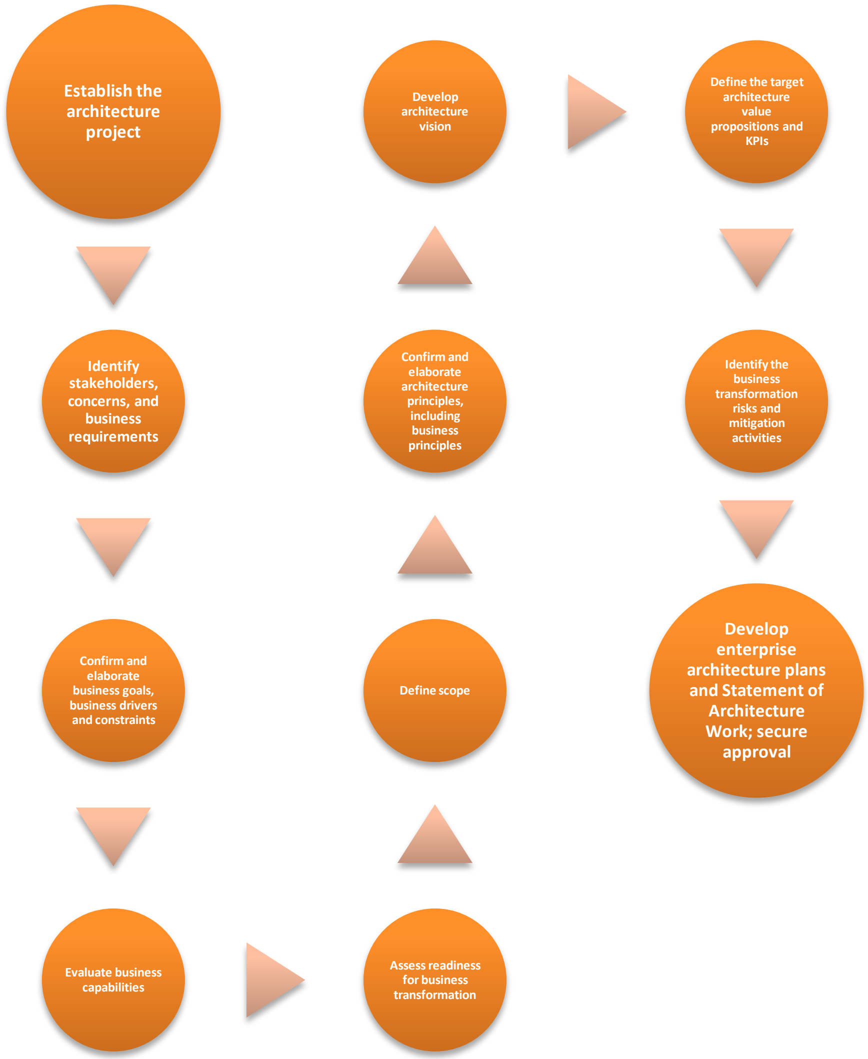

Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

ADM Phase A: Architecture Vision

Inputs

- Architecture Building Blocks
- Architecture Principles
- Architecture Vision
- Business Principles, Business Goals and Business Drivers
- Organizational model for EA
- Request for Architecture Work
- Statement of Architecture Work
- Tailored Architecture Framework

Steps



Establish the architecture project

Identify stakeholders, concerns, and business requirements

Confirm and elaborate business goals, business drivers and constraints

Evaluate business capabilities

Assess readiness for business transformation

Define scope

Confirm and elaborate architecture principles, including business principles

Develop architecture vision

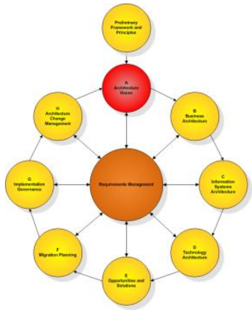
Define the target architecture value propositions and KPIs

Identify the business transformation risks and mitigation activities

Develop enterprise architecture plans and Statement of Architecture Work; secure approval

Outputs

- Architecture Principles
- Business Principles, Business Goals, and Business Drivers
- Statement of Architecture Work
- Architecture Vision
- Communications Plan
- Capability Assessment
- Tailored Architecture Framework


Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

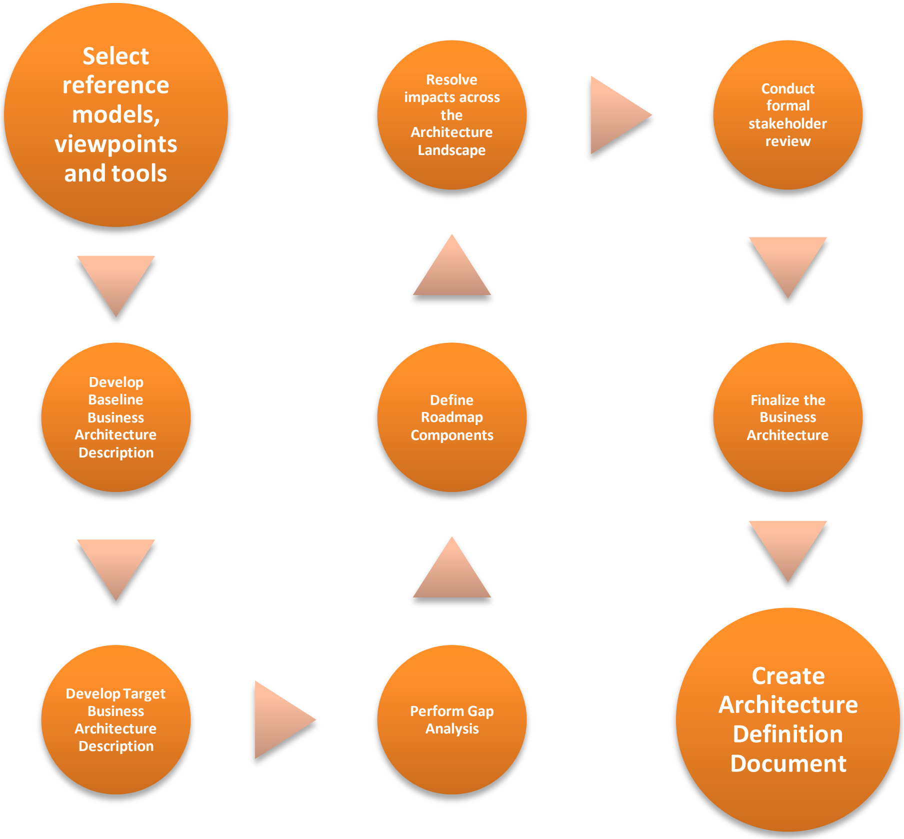
ADM Phase B: Business Architecture

iServer 2010

Inputs

- Architecture Building Blocks
- Architecture principles
- Architecture Vision
- Business Principles, Business Goals and Business Drivers
- Request for Architecture Work
- Capability Assessment
- Communications Plan
- Organization model for EA
- Statement of Architecture Work
- Tailored Architecture Framework

Steps



Select reference models, viewpoints and tools

Develop Baseline Business Architecture Description

Develop Target Business Architecture Description

Perform Gap Analysis

Define Roadmap Components

Resolve impacts across the Architecture Landscape

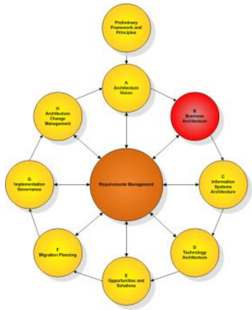
Conduct formal stakeholder review

Finalize the Business Architecture

Create Architecture Definition Document

Outputs

- Architecture Principles
- Architecture Requirements Specification
- Architecture Roadmap
- Business Principles, Business Goals and Business Drivers
- Statement of Architecture Work


Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

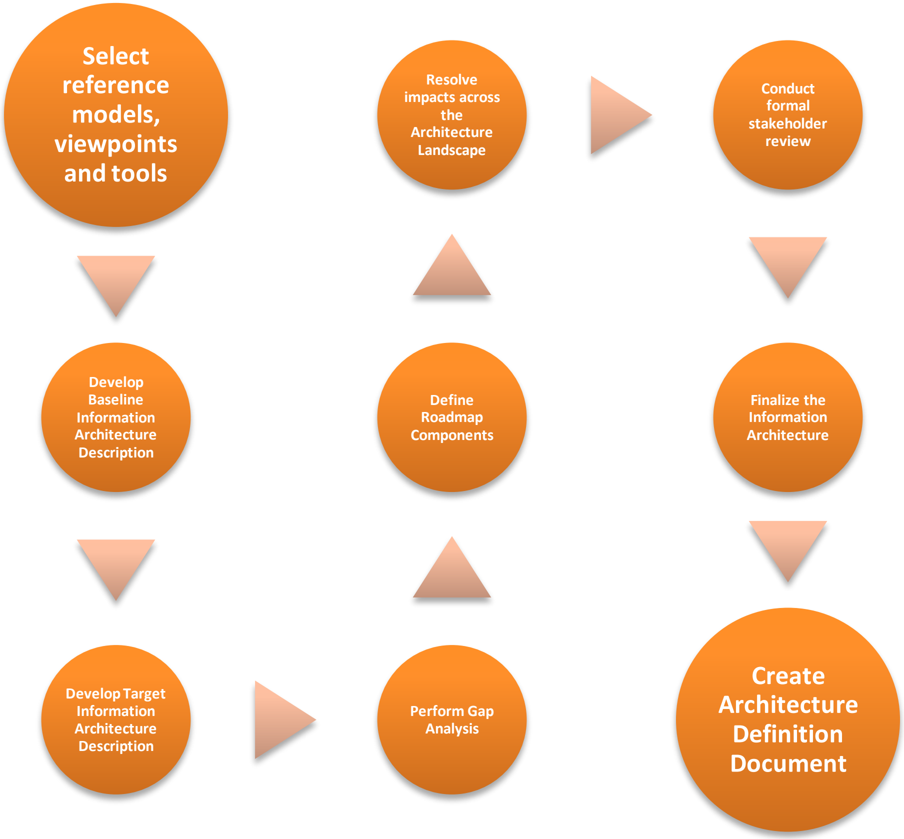
ADM Phase C: Inf. Systems Architecture

Inputs

- Architecture Building Blocks
- Architecture Definition Document
- Architecture Principles
- Architecture Requirements Specification
- Architecture Roadmap
- Architecture Vision
- Request for Architecture Work
- Capability Assessment
- Communications Plan
- Organization Model for EA
- Statement of Architecture Work
- Tailored Architecture Framework

Steps

Phase C includes Data Architecture and Application Architecture



Select reference models, viewpoints and tools

Develop Baseline Information Architecture Description

Develop Target Information Architecture Description

Perform Gap Analysis

Define Roadmap Components

Resolve impacts across the Architecture Landscape

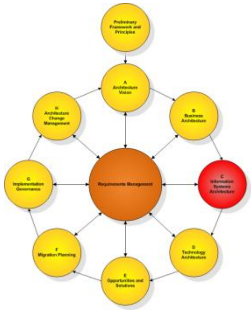
Conduct formal stakeholder review

Finalize the Information Architecture

Create Architecture Definition Document

Outputs

- Architecture Definition Document
- Architecture Principles
- Architecture Requirements Specification
- Architecture Roadmap
- Statement of Architecture Work

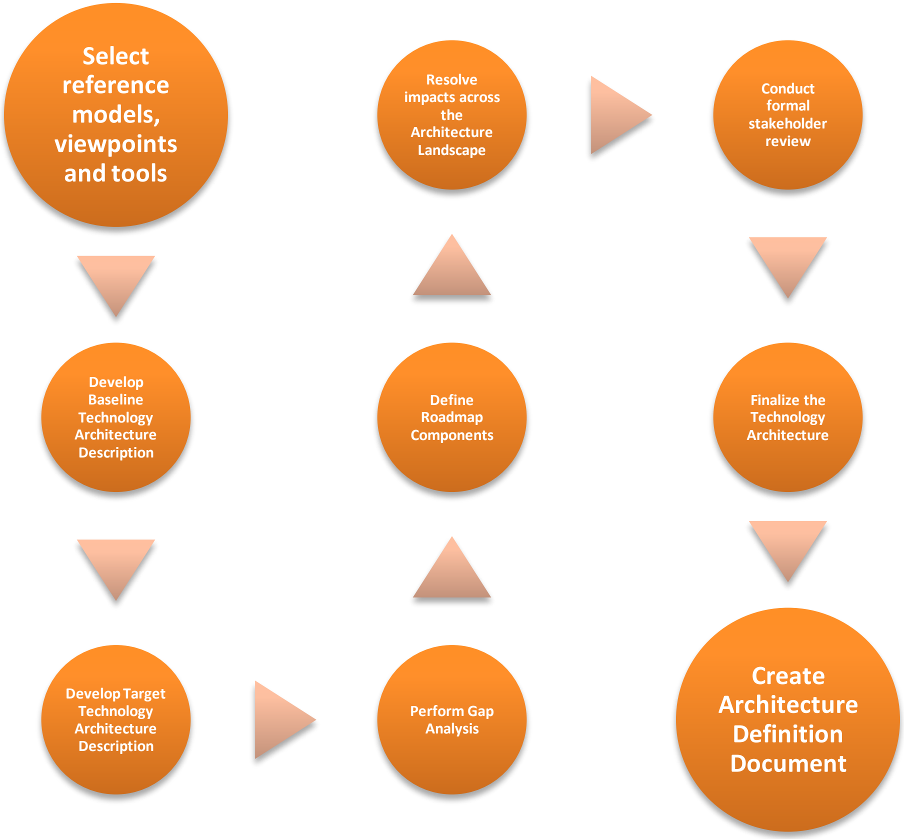

Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

ADM Phase D: Technology Architecture

Inputs

- Architecture Building Blocks
- Architecture Definition Document
- Architecture Principles
- Architecture Requirements Specification
- Architecture Roadmap
- Architecture Vision
- Capability Assessment
- Communications Plan
- Organizational model for EA
- Statement of Architecture Work
- Tailored Architecture Framework

Steps



Select reference models, viewpoints and tools

Develop Baseline Technology Architecture Description

Develop Target Technology Architecture Description

Perform Gap Analysis

Define Roadmap Components

Resolve impacts across the Architecture Landscape

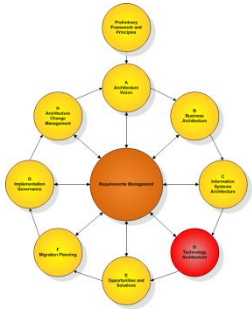
Conduct formal stakeholder review

Finalize the Technology Architecture

Create Architecture Definition Document

Outputs

- Architecture Definition Document
- Architecture Principles
- Architecture Requirements Specification
- Architecture Roadmap
- Statement of Architecture Work


Preliminary Framework and Principles
A Architecture Vision
H Architecture Change Management
B Business Architecture
G Implementation Governance
Requirements Management
C Information Systems Architecture
F Migration Planning
D Technology Architecture
E Opportunities and Solutions

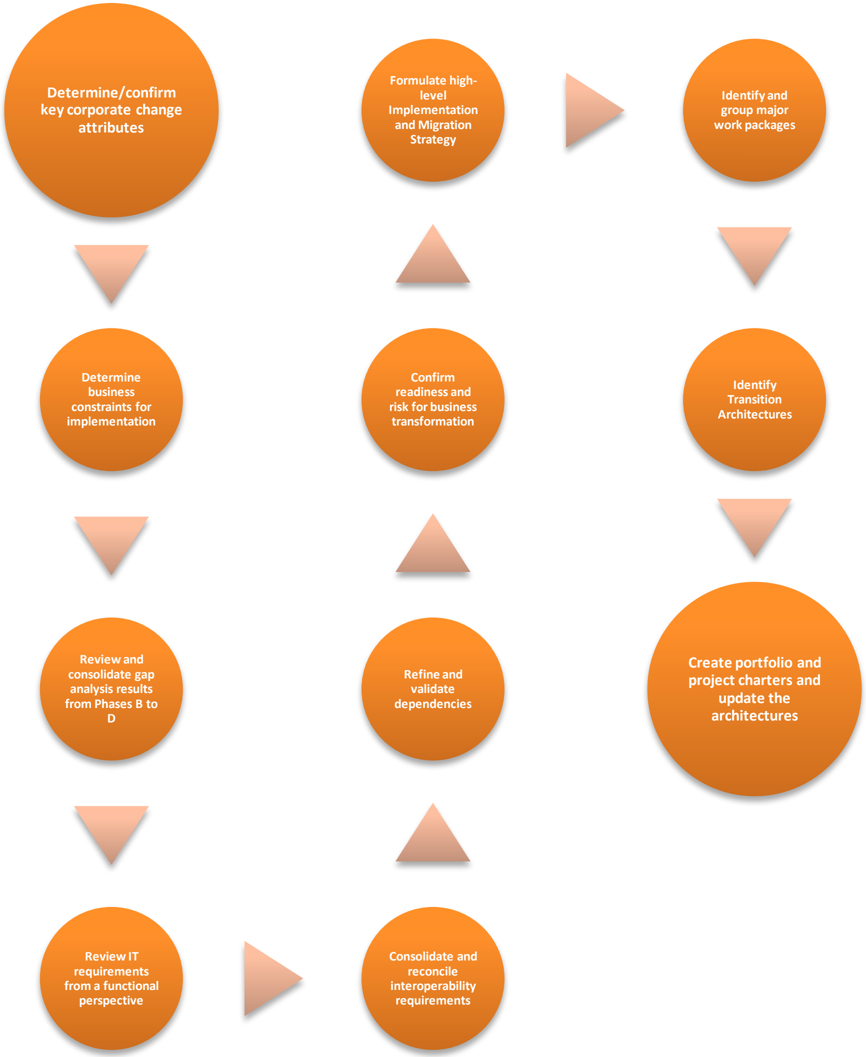
ADM Phase E: Opportunities and Solutions

iServer 2010

Inputs

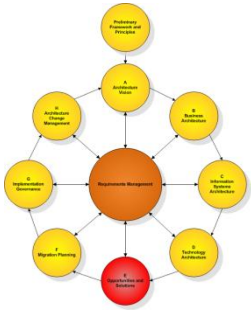
- Architecture Definition Document
- Architecture Principles
- Architecture Roadmap
- Architecture Vision
- Capability Assessment
- Communications Plan
- Organizational model for EA
- Statement of Architecture Work
- Tailored Architecture Framework

Steps


Determine/confirm key corporate change attributes
Determine business constraints for implementation
Review and consolidate gap analysis results from Phases B to D
Review IT requirements from a functional perspective
Consolidate and reconcile interoperability requirements
Refine and validate dependencies
Confirm readiness and risk for business transformation
Formulate high-level Implementation and Migration Strategy
Identify and group major work packages
Identify Transition Architectures
Create portfolio and project charters and update the architectures

Outputs

- Architecture Requirements Specification
- Architecture Roadmap
- Capability Assessment
- Implementation and Migration Plan
- Transition Architecture

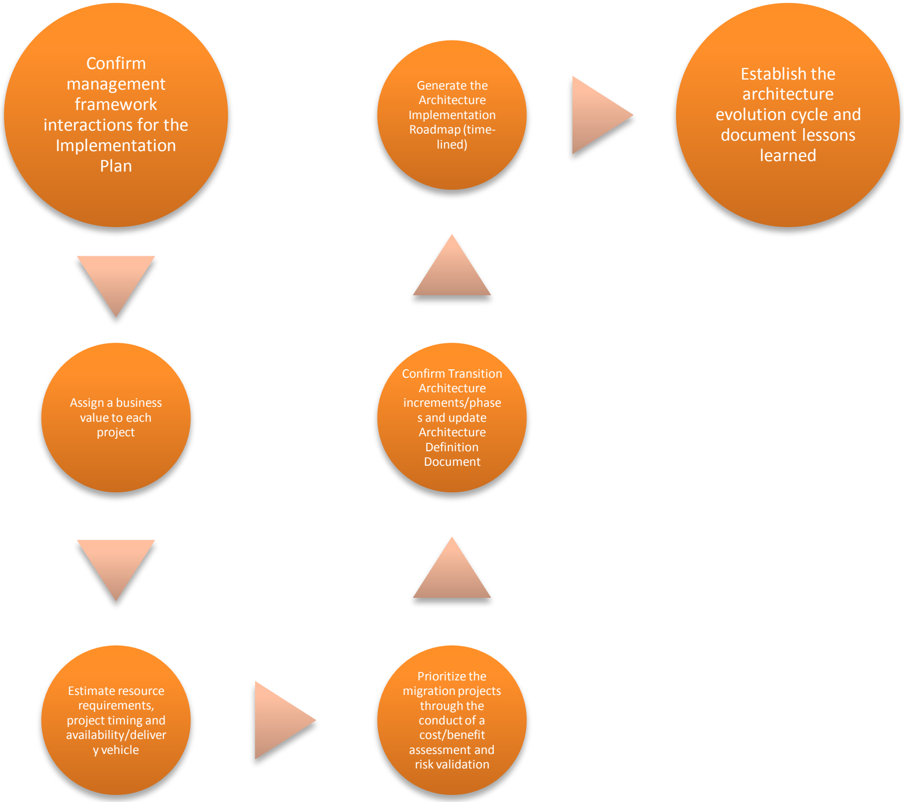


ADM Phase F: Migration Planning

Inputs

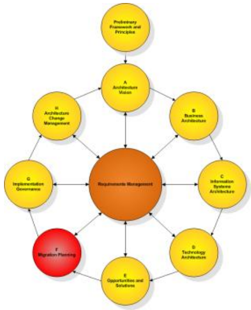
- Architecture Principles
- Architecture Roadmap
- Architecture Vision
- Capability Assessment
- Communications Plan
- Organizational model for EA
- Statement of Architecture Work
- Tailored Architecture Framework

Steps


Confirm management framework interactions for the Implementation Plan
Assign a business value to each project
Estimate resource requirements, project timing and availability/delivery vehicle
Prioritize the migration projects through the conduct of a cost/benefit assessment and risk validation
Confirm Transition Architecture increments/phases and update Architecture Definition Document
Generate the Architecture Implementation Roadmap (time-lined)
Establish the architecture evolution cycle and document lessons learned

Outputs

- Architecture Building Blocks
- Architecture Contract
- Architecture Requirements Specification
- Architecture Roadmap
- Implementation and Migration Plan
- Request for Architecture Work
- Transition Architecture

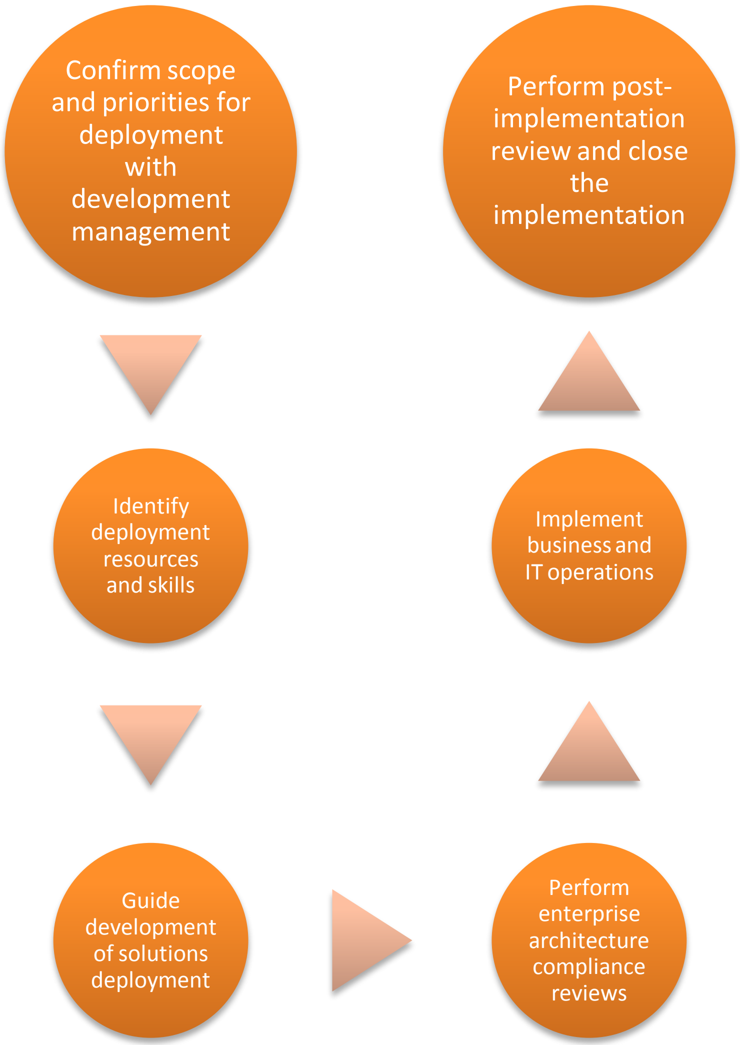

Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

ADM Phase G: Implementation Governance

Inputs

- Architecture Contract
- Architecture Definition Document
- Architecture Principles
- Architecture Roadmap
- Architecture Vision
- Implementation Governance model
- Organizational model for EA
- Request for Architecture Work
- Statement of Architecture Work
- Tailored Architecture Framework
- Transition Architecture

Steps


Confirm scope and priorities for deployment with development management

Identify deployment resources and skills

Guide development of solutions deployment

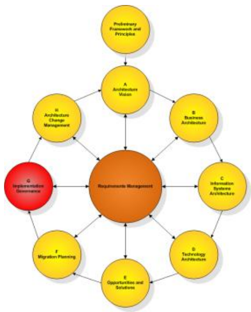
Perform enterprise architecture compliance reviews

Implement business and IT operations

Perform post-implementation review and close the implementation

Outputs

- Compliance Assessment
- Solution Building Blocks

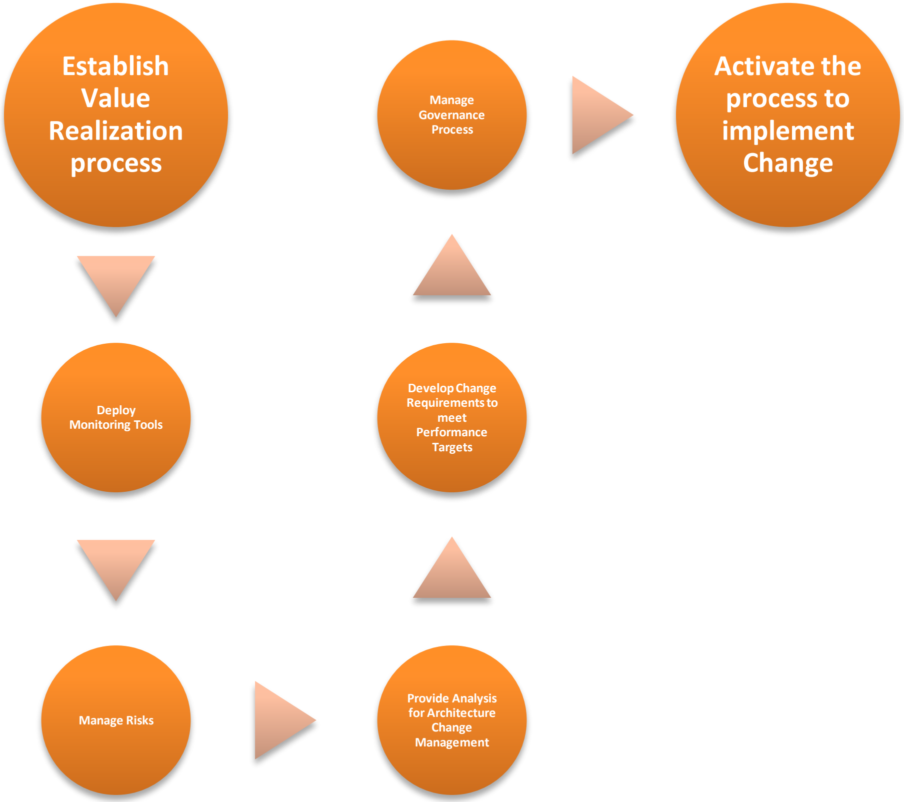

Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

ADM Phase H: Change Management

Inputs

- Architecture Definition Document
- Architecture Principles
- Architecture Roadmap
- Architecture Vision
- Compliance Assessment
- Implementation Governance model
- Organizational model for EA
- Statement of Architecture Work
- Tailored Architecture Framework
- Transition Architecture

Steps


Establish Value Realization process

Deploy Monitoring Tools

Manage Risks

Provide Analysis for Architecture Change Management

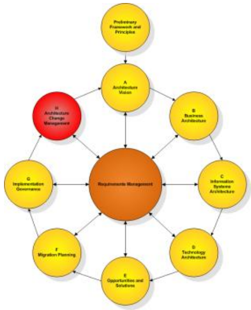
Develop Change Requirements to meet Performance Targets

Manage Governance Process

Activate the process to implement Change

Outputs

- Architecture Building Blocks
- Requirements Impact Assessment


Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

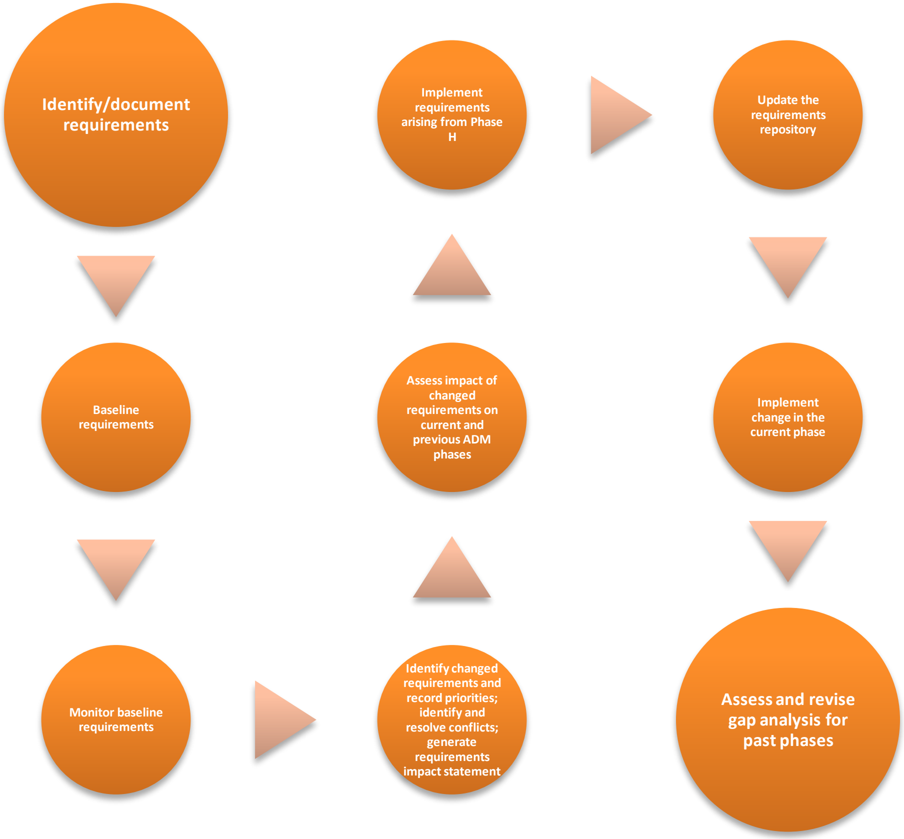
ADM Phase: Requirements Management

iServer 2010

Inputs

- The Inputs to the Requirement Management process are the requirements-related outputs from each ADM phase
- The first high-level requirements are produced as part of the Architecture Vision

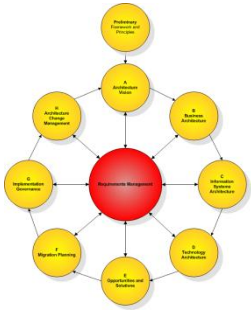
Steps



Identify/document requirements
Baseline requirements
Monitor baseline requirements
Identify changed requirements and record priorities; identify and resolve conflicts; generate requirements impact statement
Assess impact of changed requirements on current and previous ADM phases
Implement requirements arising from Phase H
Update the requirements repository
Implement change in the current phase
Assess and revise gap analysis for past phases

Outputs

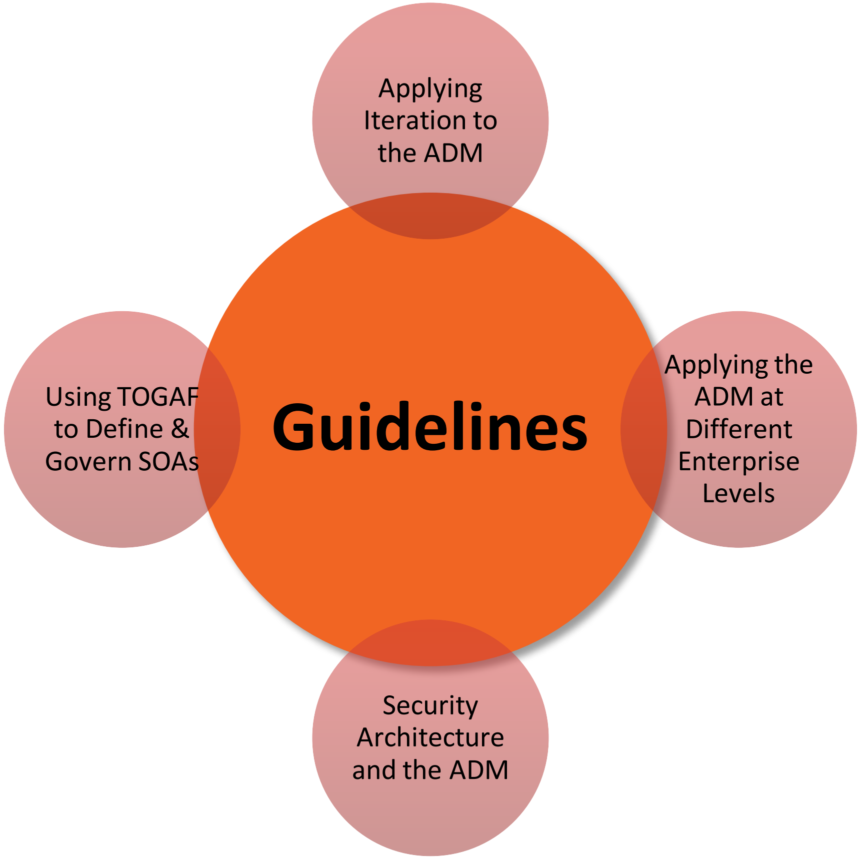
- Changed Requirements
- Requirements Impact Assessment

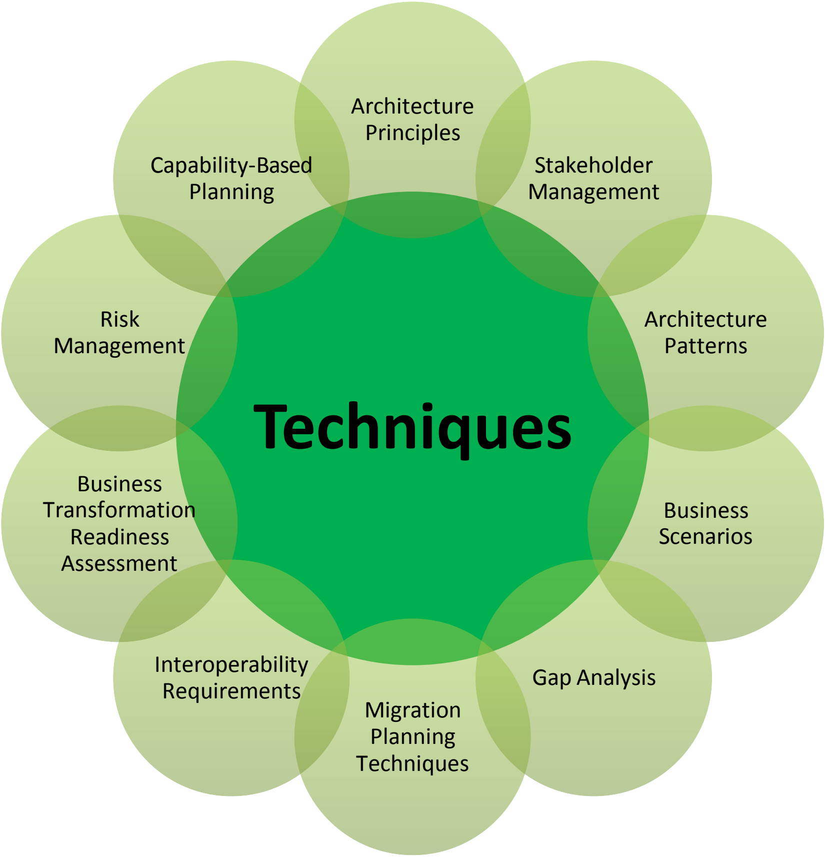


Preliminary Framework and Principles
A Architecture Vision
B Business Architecture
C Information Systems Architecture
D Technology Architecture
E Opportunities and Solutions
F Migration Planning
G Implementation Governance
H Architecture Change Management
Requirements Management

Guidelines and Techniques

GUIDELINES *for Adapting the ADM Process*


Guidelines
Applying Iteration to the ADM
Applying the ADM at Different Enterprise Levels
Security Architecture and the ADM
Using TOGAF to Define & Govern SOAs

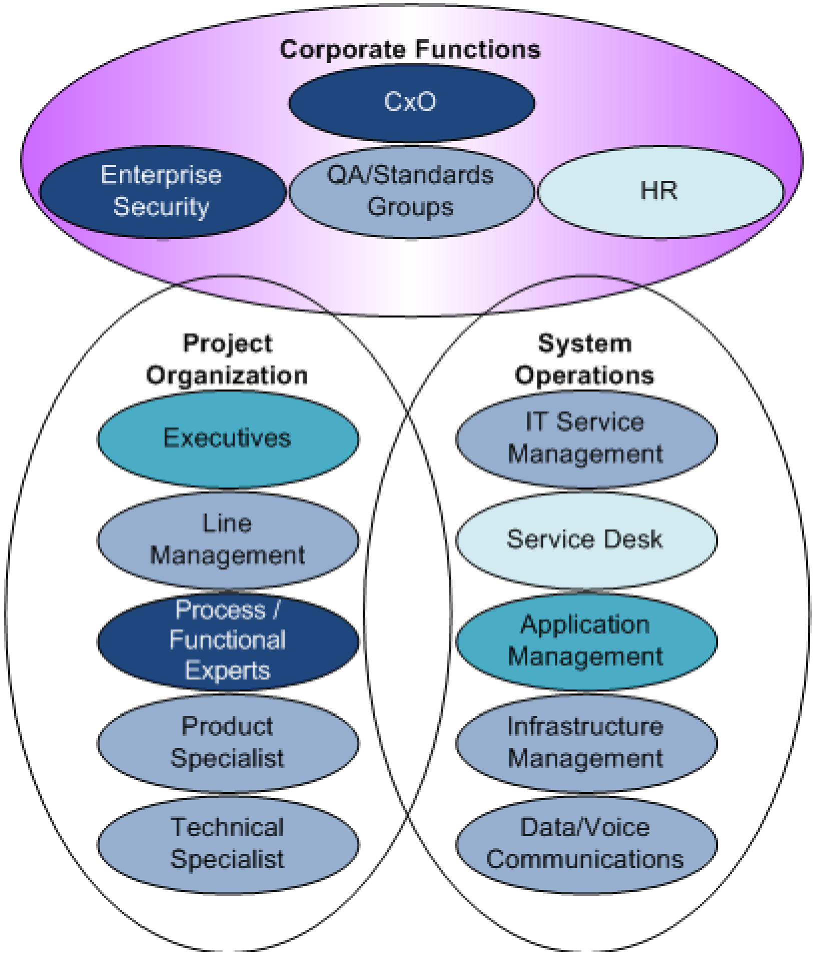

Techniques
Architecture Principles
Stakeholder Management
Architecture Patterns
Business Scenarios
Gap Analysis
Migration Planning Techniques
Interoperability Requirements
Business Transformation Readiness Assessment
Risk Management
Capability-Based Planning

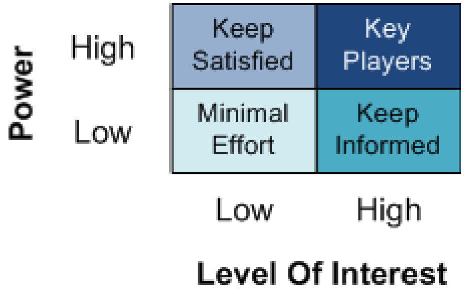
TECHNIQUES *for Architecture Development*

Technique: Stakeholder Analysis

Win Support

FROM *Stakeholders*


Corporate Functions
CxO
Enterprise Security
QA/Standards Groups
HR
Project Organization
Executives
Line Management
Process / Functional Experts
Product Specialist
Technical Specialist
System Operations
IT Service Management
Service Desk
Application Management
Infrastructure Management
Data/Voice Communications



Power		Level Of Interest: Low	Level Of Interest: High
	High	Keep Satisfied	Key Players
	Low	Minimal Effort	Keep Informed

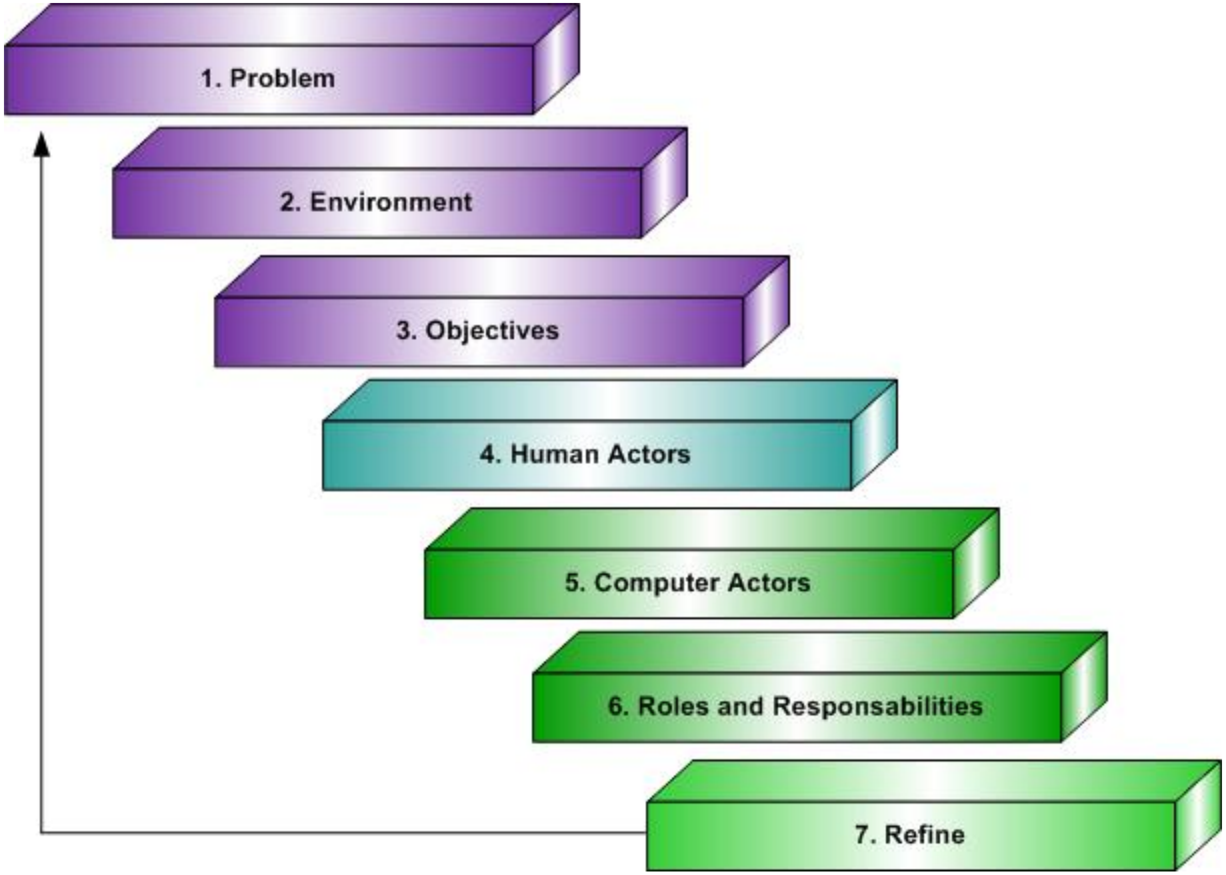
Technique: Business Scenarios

Method within a Method to…

IDENTIFY

ARTICULATE

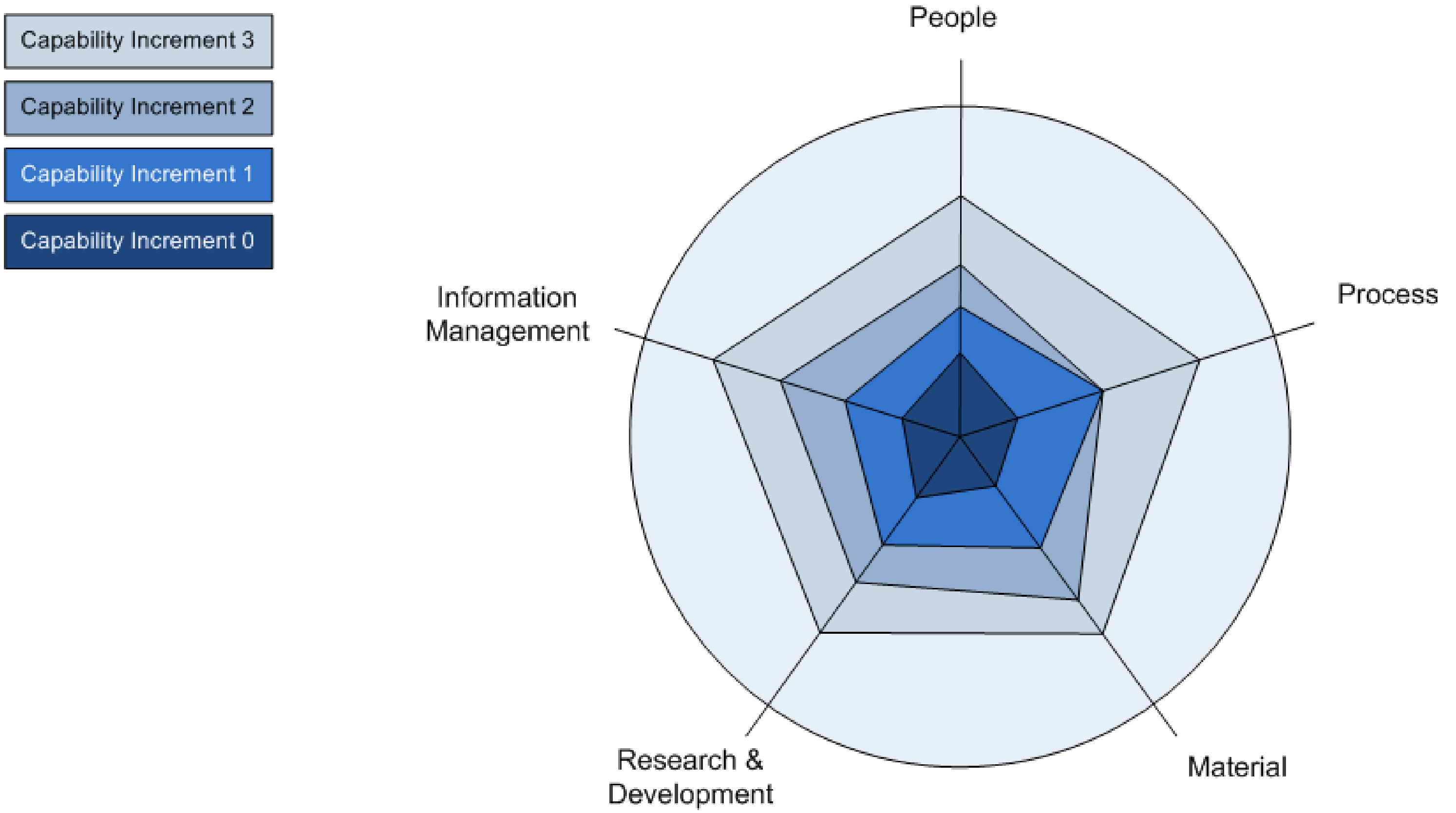
Business requirements


1. Problem
2. Environment
3. Objectives
4. Human Actors
5. Computer Actors
6. Roles and Responsabilities
7. Refine

Technique: Capability Based Planning

Manage

CAPABILITIES *of the enterprise*


Capability Increment 3
Capability Increment 2
Capability Increment 1
Capability Increment 0
People
Process
Material
Research & Development
Information Management

Technique: Architecture Partitioning

iServer 2010

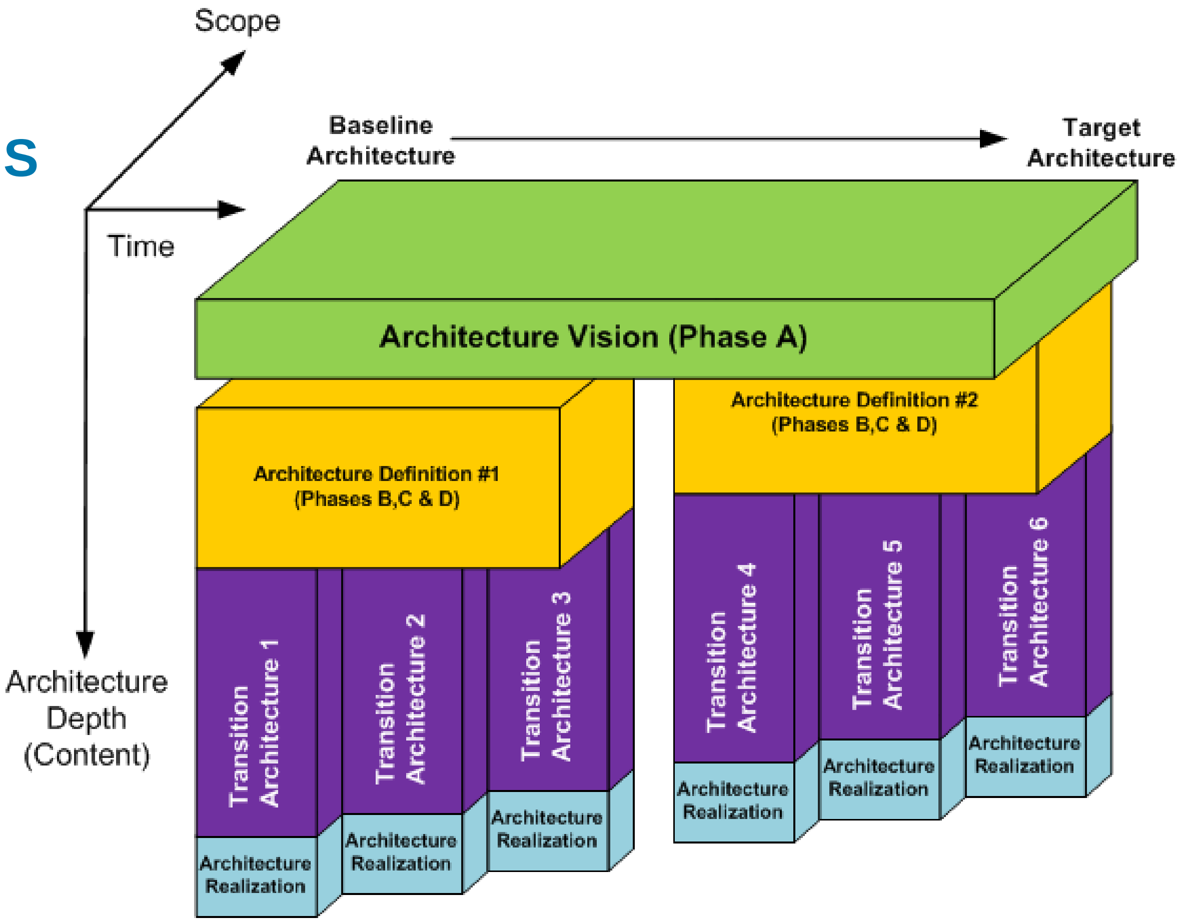
Break into Bite-Size Chunks

ENTERPRISE SCOPE

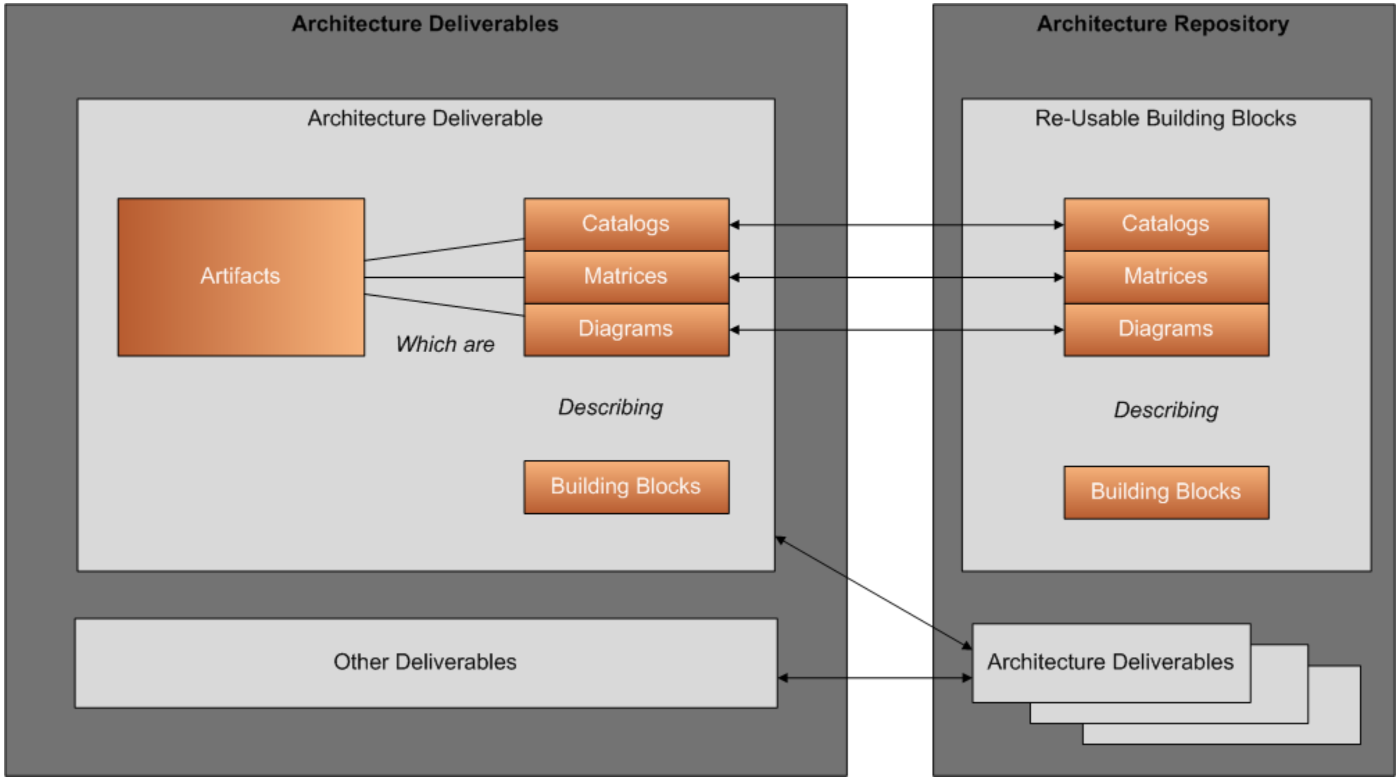
ARCHITECTURE DOMAINS

LEVEL OF DETAIL

PROJECT SCHEDULES


Scope
Baseline Architecture
Target Architecture
Time
Architecture Depth (Content)
Architecture Vision (Phase A)
Architecture Definition #1 (Phases B,C & D)
Architecture Definition #2 (Phases B,C & D)
Transition Architecture 1
Transition Architecture 2
Transition Architecture 3
Transition Architecture 4
Transition Architecture 5
Transition Architecture 6
Architecture Realization
Architecture Realization
Architecture Realization
Architecture Realization
Architecture Realization
Architecture Realization

Description of Architectural Work Products


Architecture Deliverables
Architecture Deliverable
Artifacts
Which are
Catalogs
Matrices
Diagrams
Describing
Building Blocks
Other Deliverables
Architecture Repository
Re-Usable Building Blocks
Catalogs
Matrices
Diagrams
Describing
Building Blocks
Architecture Deliverables

DELIVERABLES

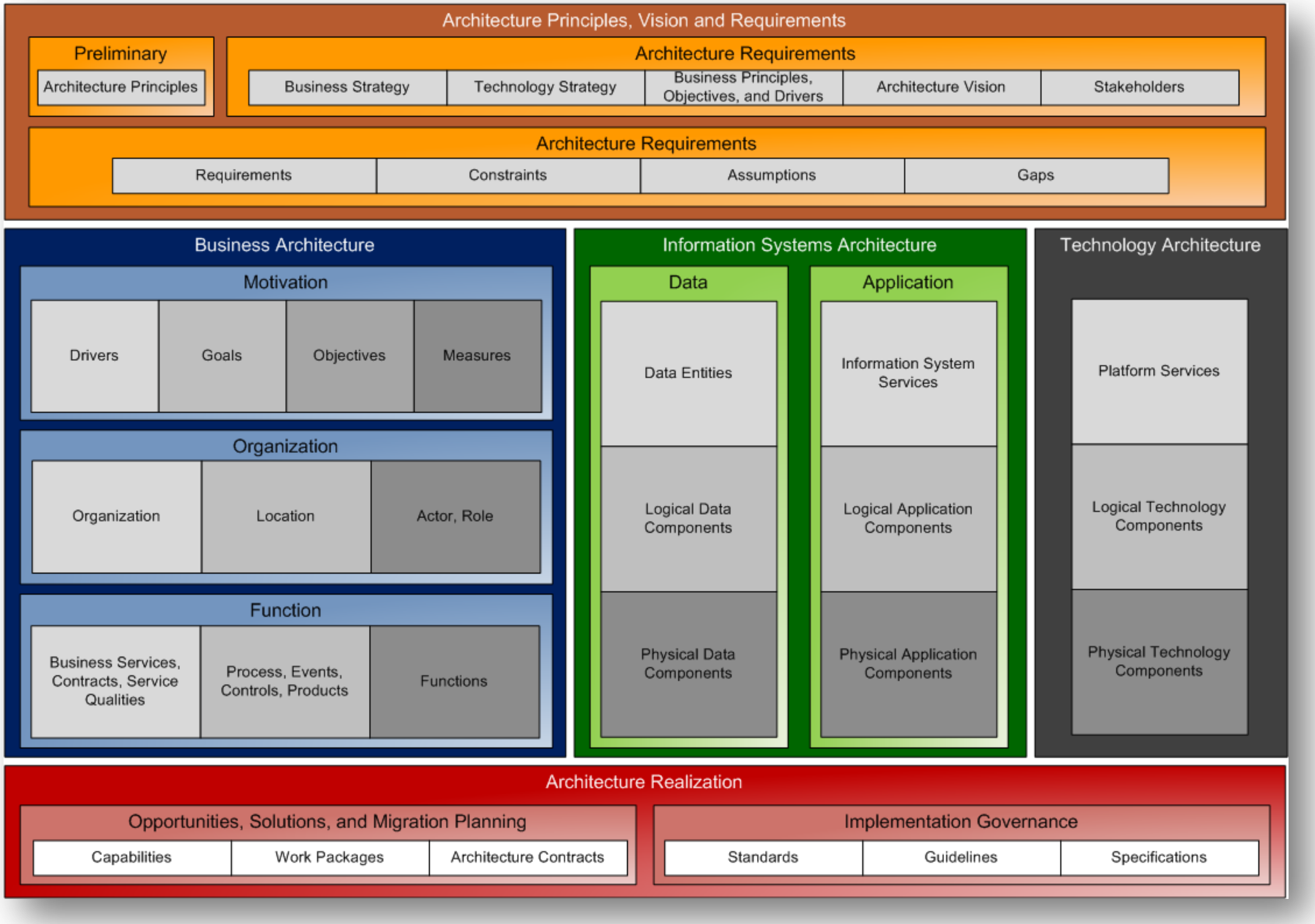
ARTIFACTS

BUILDING BLOCKS

RELATIONSHIPS

Content Metamodel

Definition of Building Blocks and Relationships



Architecture Principles, Vision and Requirements

- Preliminary
  - Architecture Principles
- Architecture Requirements
  - Business Strategy
  - Technology Strategy
  - Business Principles, Objectives, and Drivers
  - Architecture Vision
  - Stakeholders
- Architecture Requirements
  - Requirements
  - Constraints
  - Assumptions
  - Gaps

Business Architecture

- Motivation
  - Drivers
  - Goals
  - Objectives
  - Measures
- Organization
  - Organization
  - Location
  - Actor, Role
- Function
  - Business Services, Contracts, Service Qualities
  - Process, Events, Controls, Products
  - Functions

Information Systems Architecture

- Data
  - Data Entities
  - Logical Data Components
  - Physical Data Components
- Application
  - Information System Services
  - Logical Application Components
  - Physical Application Components

Technology Architecture

- Platform Services
- Logical Technology Components
- Physical Technology Components

Architecture Realization

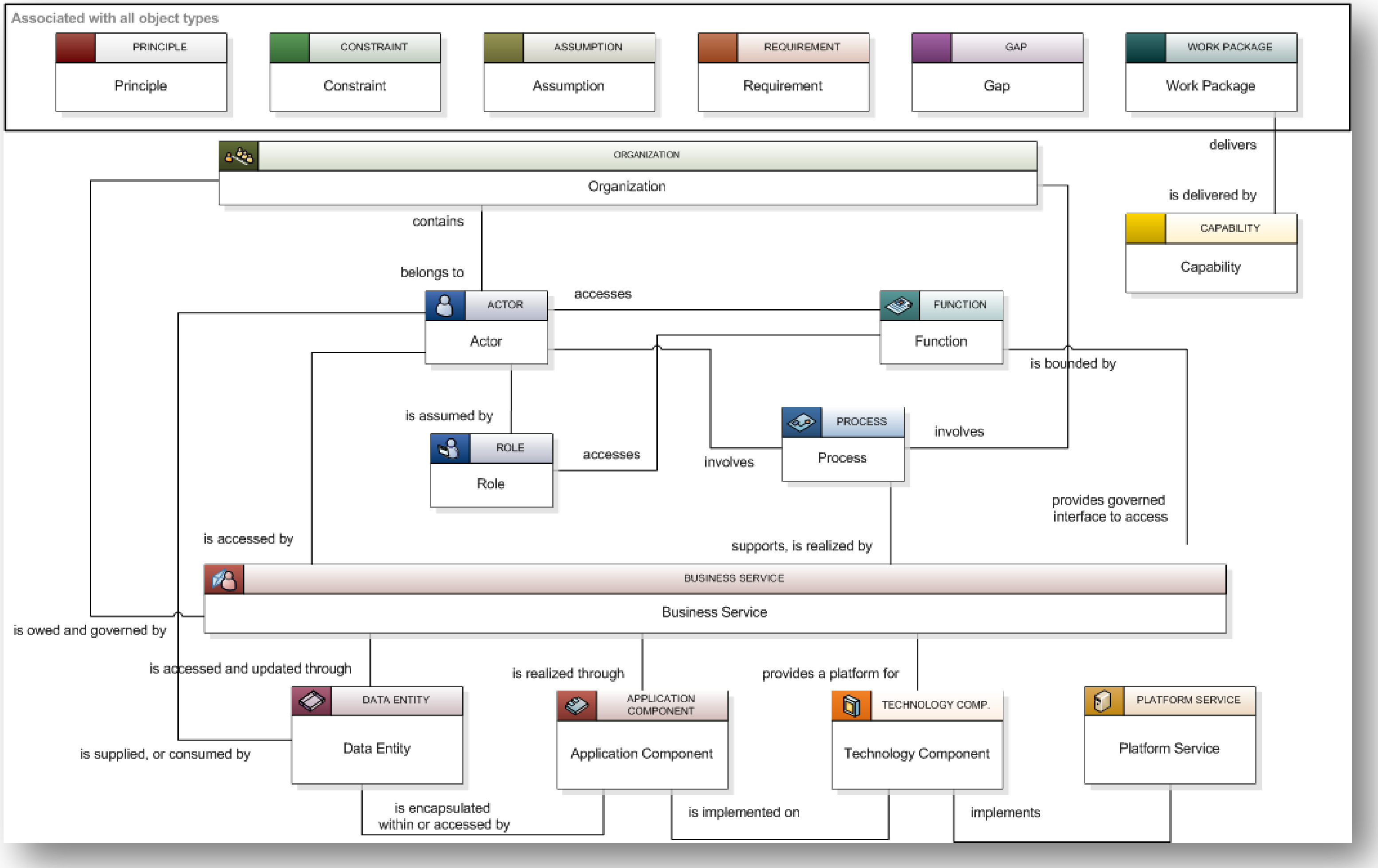
- Opportunities, Solutions, and Migration Planning
  - Capabilities
  - Work Packages
  - Architecture Contracts
- Implementation Governance
  - Standards
  - Guidelines
  - Specifications

Content Metamodel Broken Down

iServer 2010

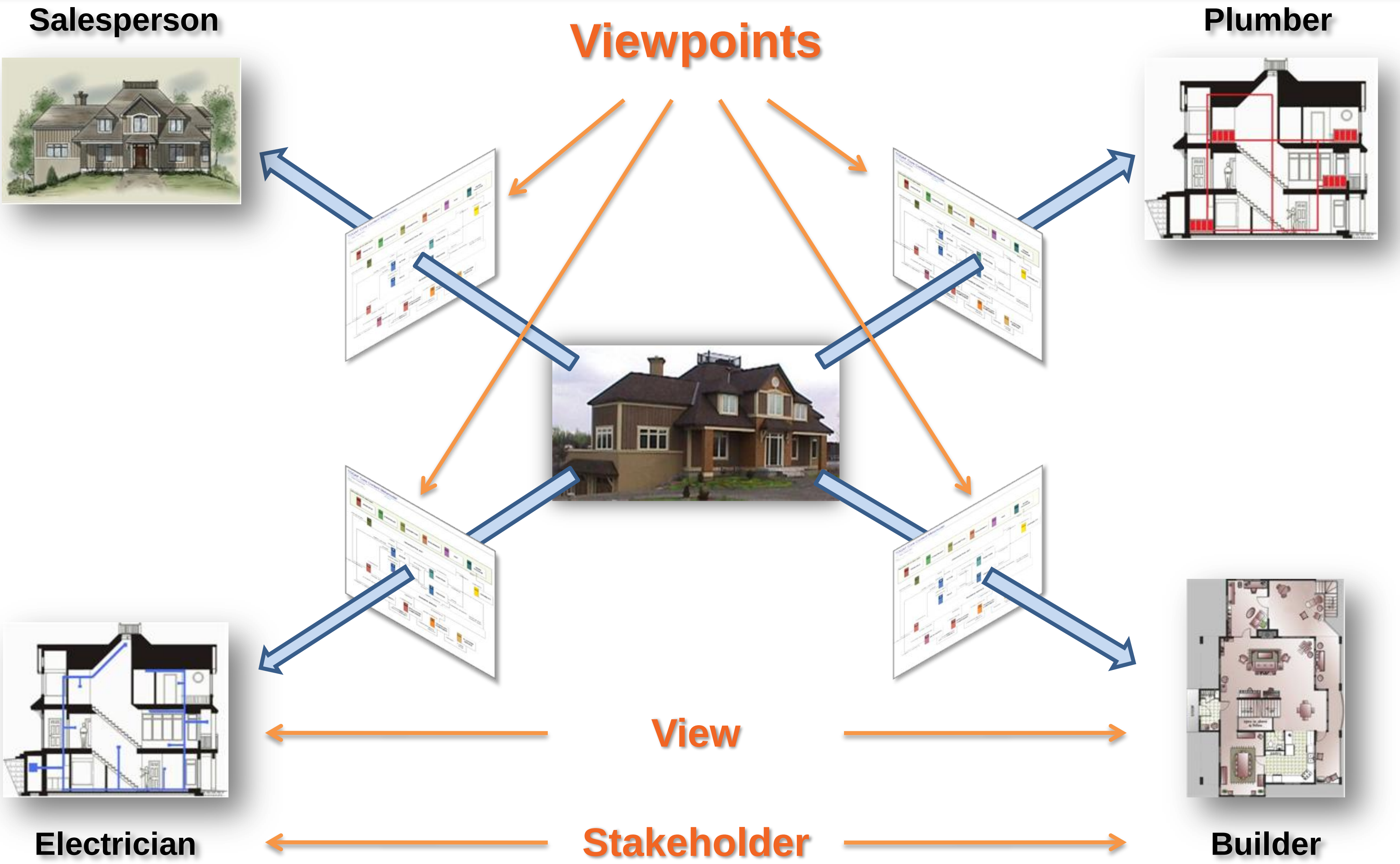
Entities and their Interactions

Select and Customize…



Associated with all object types
PRINCIPLE
Principle
CONSTRAINT
Constraint
ASSUMPTION
Assumption
REQUIREMENT
Requirement
GAP
Gap
WORK PACKAGE
Work Package
delivers
is delivered by
CAPABILITY
Capability
ORGANIZATION
Organization
contains
belongs to
ACTOR
Actor
accesses
FUNCTION
Function
is bounded by
is assumed by
ROLE
Role
accesses
involves
PROCESS
Process
involves
provides governed interface to access
is accessed by
supports, is realized by
BUSINESS SERVICE
Business Service
is owed and governed by
is accessed and updated through
is realized through
provides a platform for
DATA ENTITY
Data Entity
APPLICATION COMPONENT
Application Component
TECHNOLOGY COMP.
Technology Component
PLATFORM SERVICE
Platform Service
is supplied, or consumed by
is encapsulated within or accessed by
is implemented on
implements

Viewpoints and Views



Salesperson

Viewpoints

Plumber

View

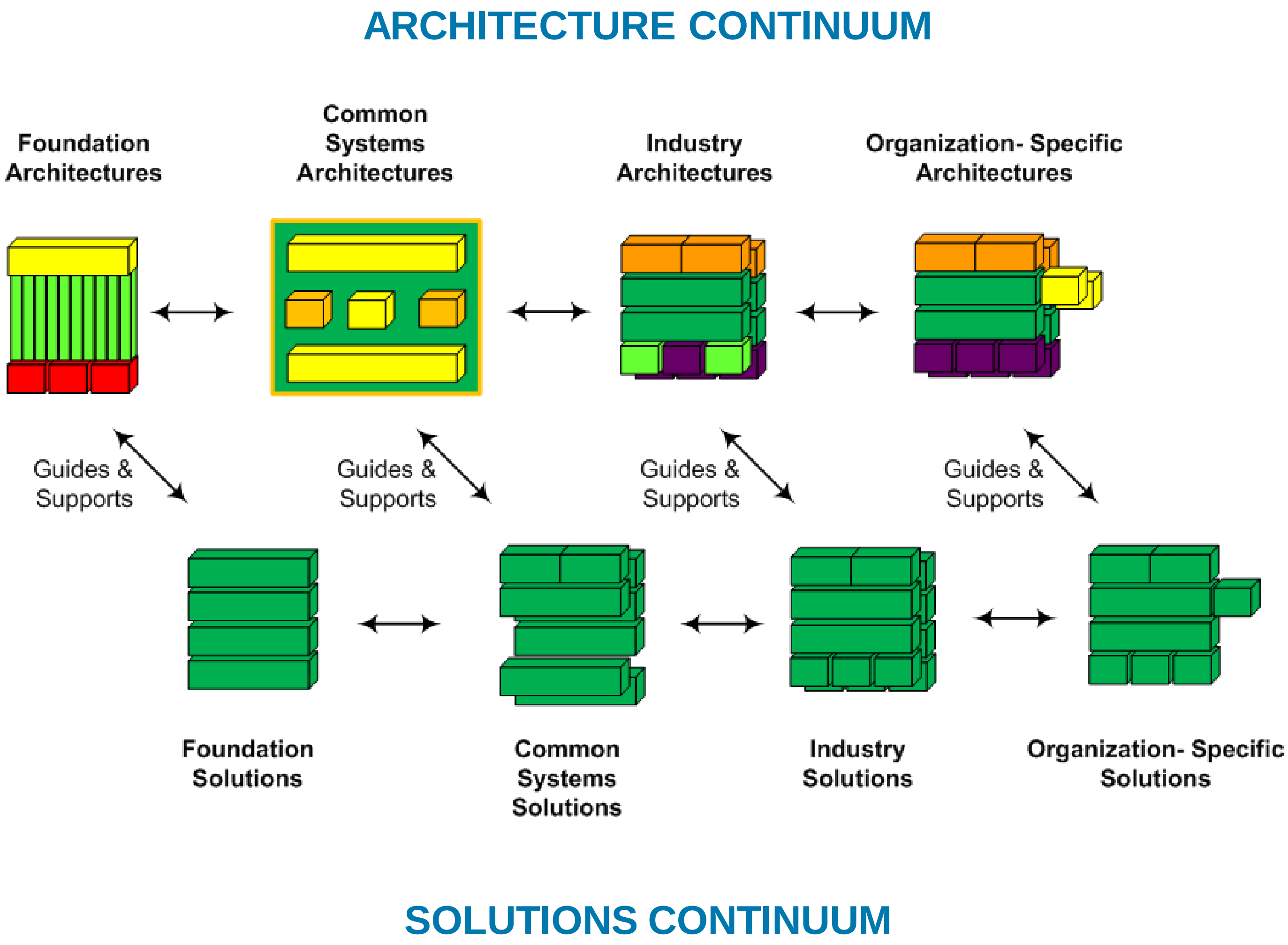
Electrician

Stakeholder

Builder

Enterprise Continuum

A Classification Framework



ARCHITECTURE CONTINUUM

Foundation Architectures

Common Systems Architectures

Industry Architectures

Organization- Specific Architectures

Guides & Supports

Guides & Supports

Guides & Supports

Guides & Supports

Foundation Solutions

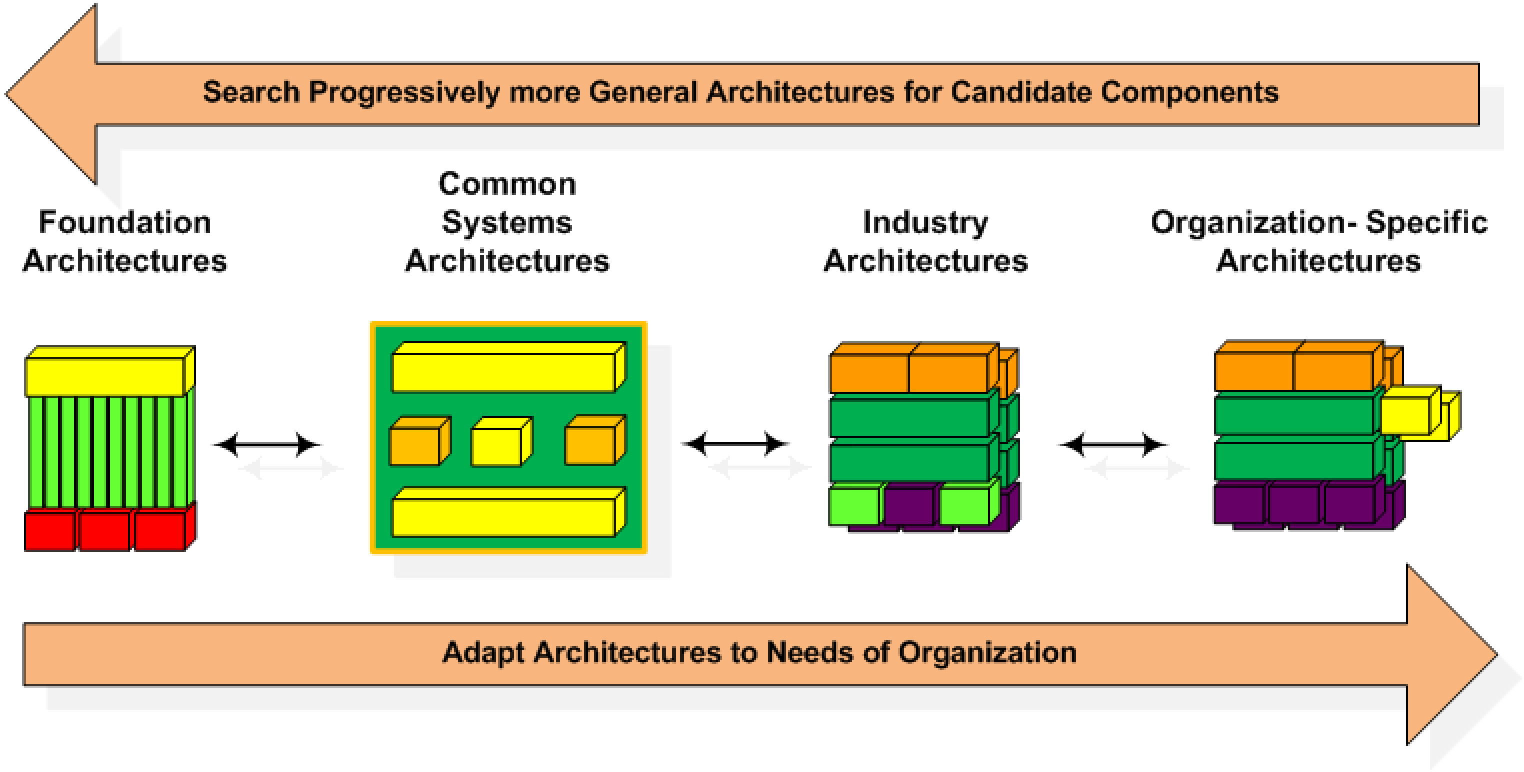
Common Systems Solutions

Industry Solutions

Organization- Specific Solutions

SOLUTIONS CONTINUUM

Architecture Continuum



Search Progressively more General Architectures for Candidate Components

Foundation Architectures

Common Systems Architectures

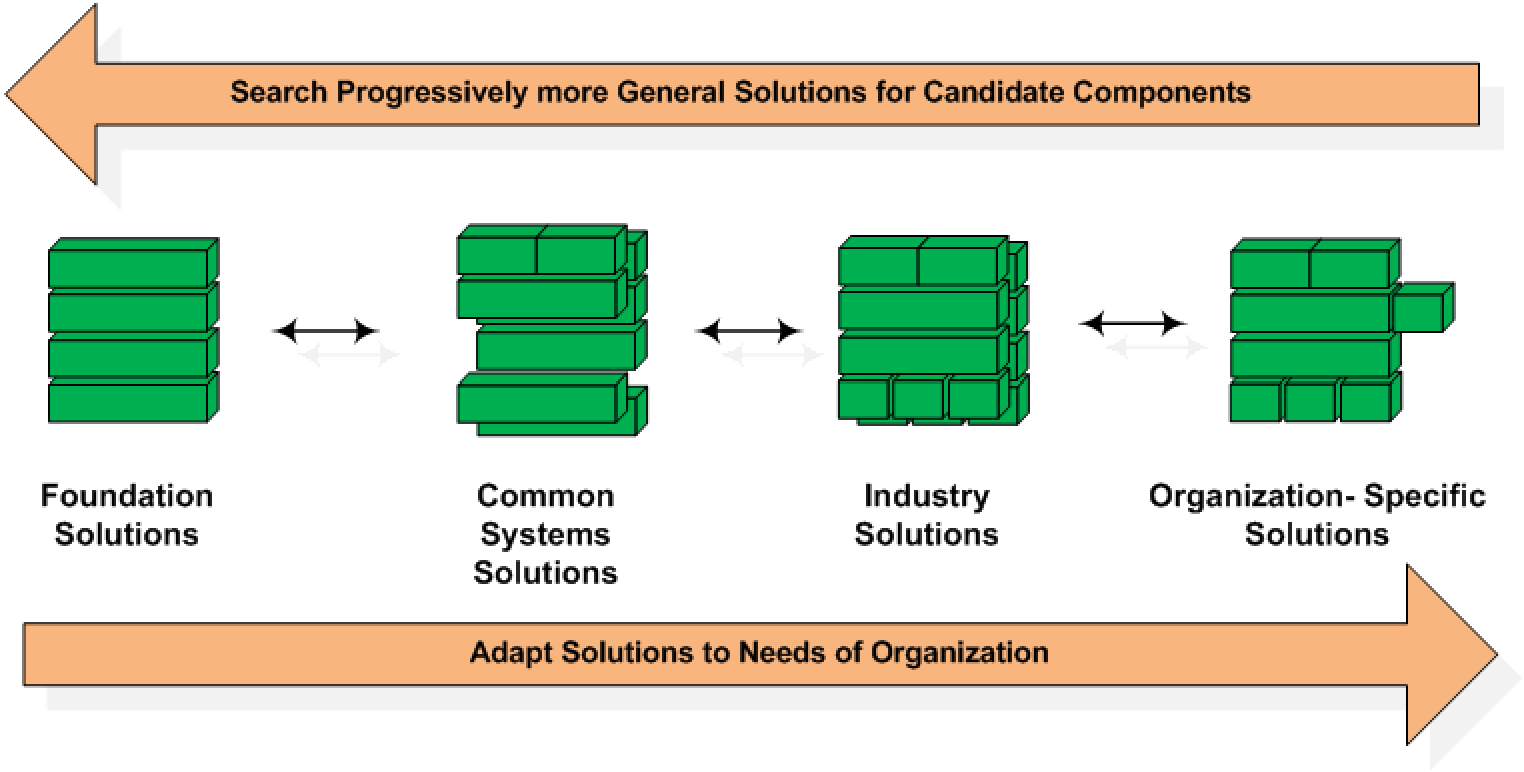
Industry Architectures

Organization- Specific Architectures

Adapt Architectures to Needs of Organization

Solutions Continuum

iServer 2010



Search Progressively more General Solutions for Candidate Components

Foundation Solutions

Common Systems Solutions

Industry Solutions

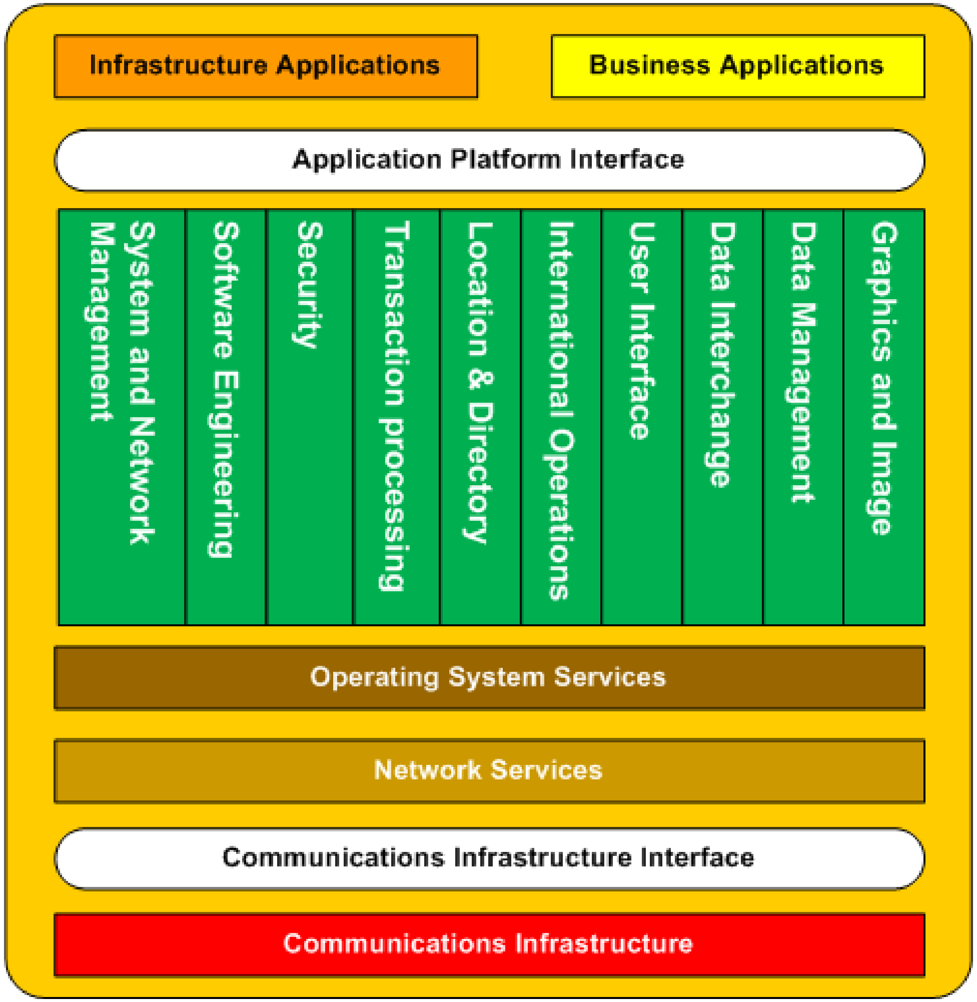
Organization- Specific Solutions

Adapt Solutions to Needs of Organization

Technical *Reference Model*

A MODEL AND TAXONOMY

of generic platform services



Infrastructure Applications

Business Applications

Application Platform Interface

System and Network Management

Software Engineering

Security

Transaction processing

Location & Directory

International Operations

User Interface

Data Interchange

Data Management

Graphics and Image

Operating System Services

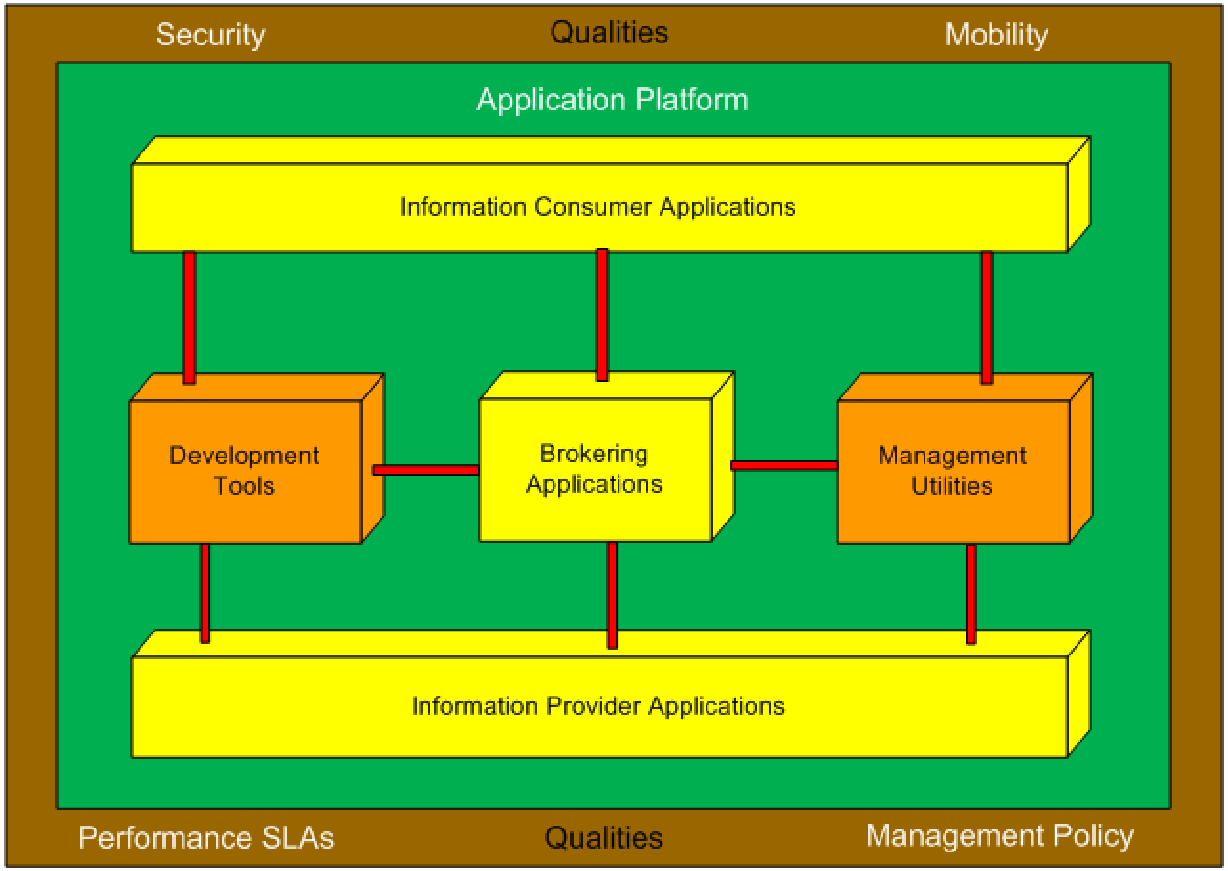
Network Services

Communications Infrastructure Interface

Communications Infrastructure

Integrated Information Infrastructure *Reference Model*

MODEL *for business applications and infrastructure applications*


Security
Qualities
Mobility
Application Platform
Information Consumer Applications
Development Tools
Brokering Applications
Management Utilities
Information Provider Applications
Performance SLAs
Qualities
Management Policy

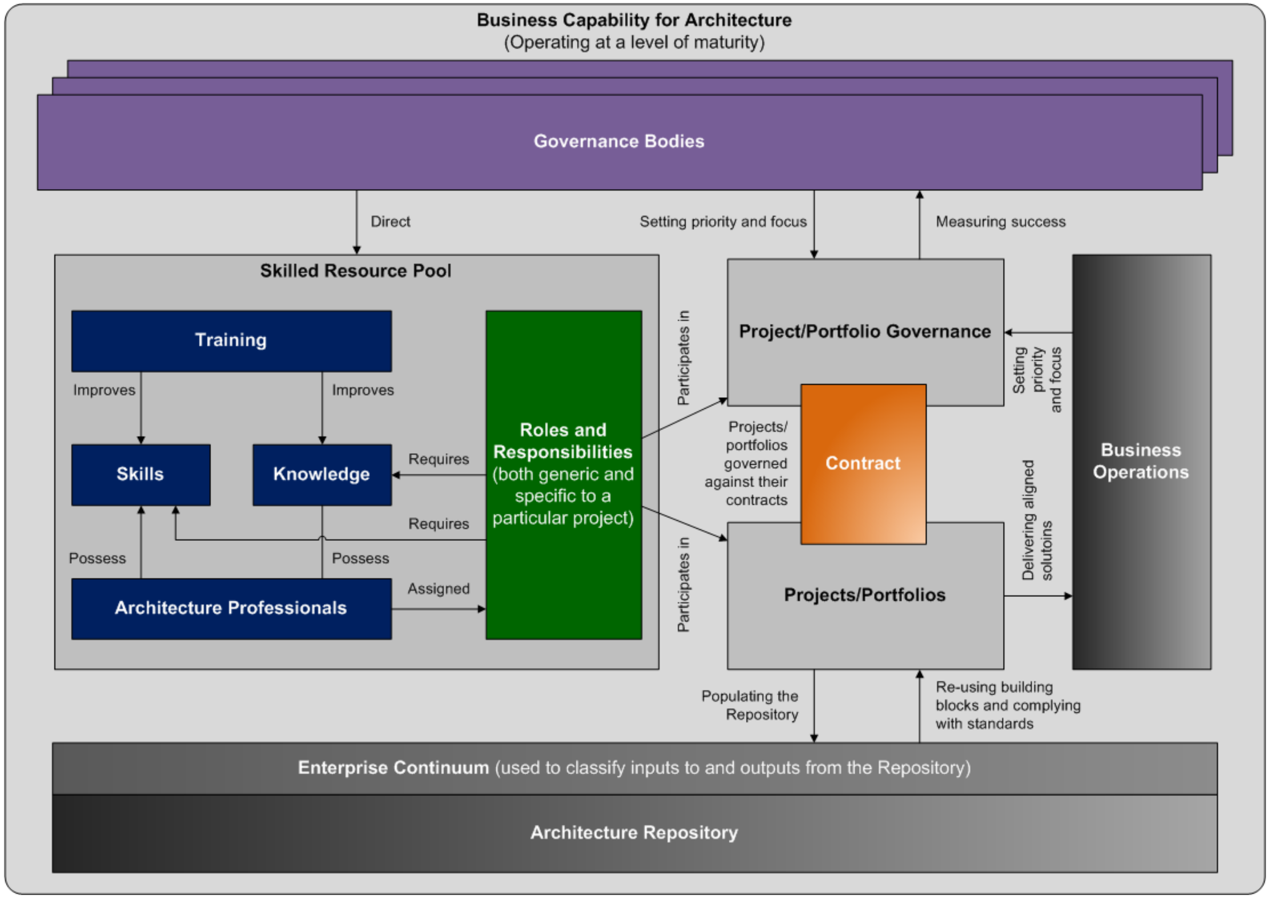
Architecture Capability Framework

Structured Definition

HOW *to establish an Enterprise Architecture Function*

WHO – *Organizations*

WHAT – *Skills, Roles*



Business Capability for Architecture
(Operating at a level of maturity)

Governance Bodies

Direct

Setting priority and focus

Measuring success

Skilled Resource Pool

Training

Improves

Improves

Skills

Knowledge

Requires

Requires

Possess

Possess

Architecture Professionals

Assigned

Roles and Responsibilities (both generic and specific to a particular project)

Participates in

Participates in

Project/Portfolio Governance

Projects/ portfolios governed against their contracts

Contract

Projects/Portfolios

Setting priority and focus

Delivering aligned solutoins

Business Operations

Populating the Repository

Re-using building blocks and complying with standards

Enterprise Continuum (used to classify inputs to and outputs from the Repository)

Architecture Repository

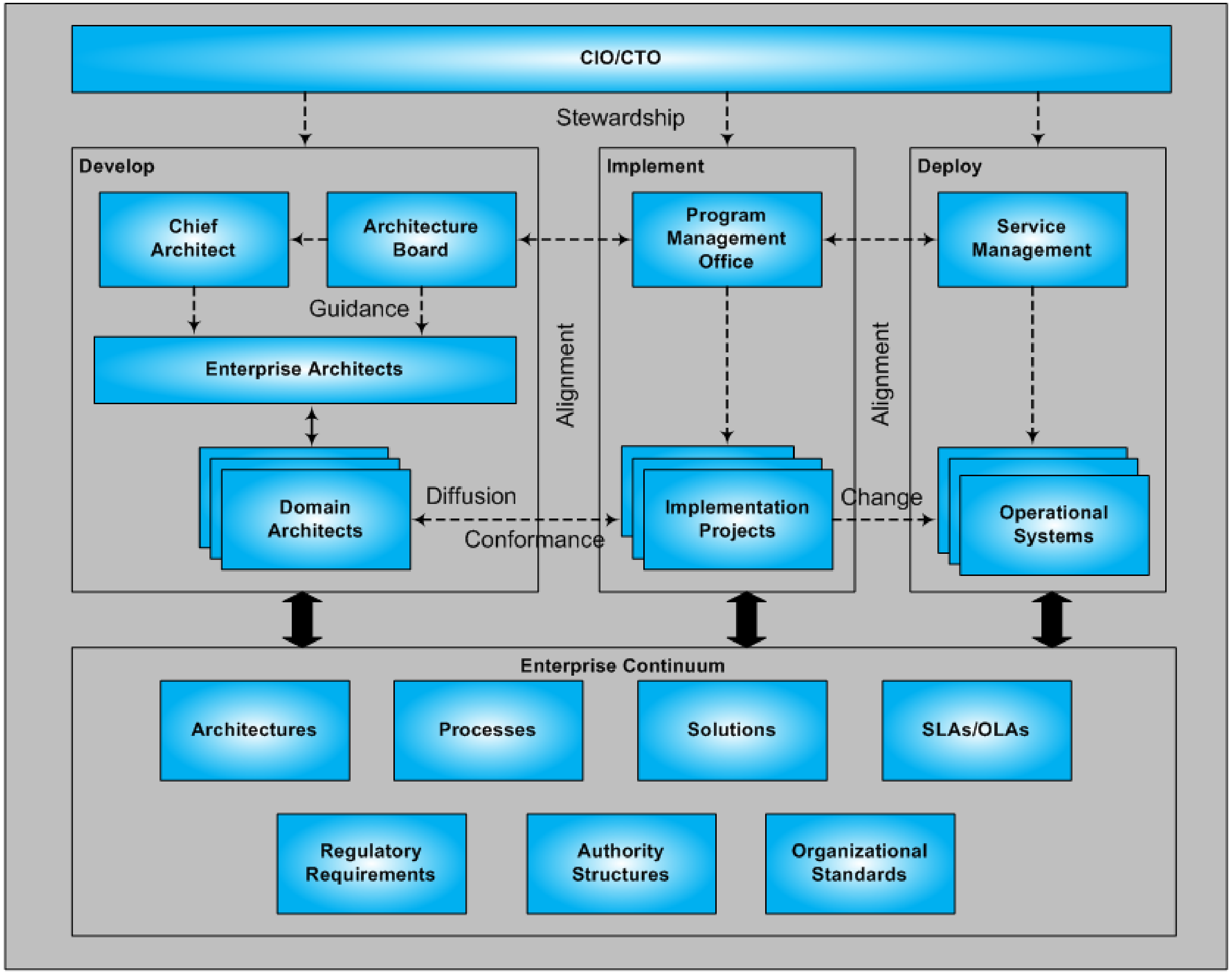
Creation and Monitoring of Architectural Components

GUIDANCE

EFFECTIVE?

EQUITABLE?

SUSTAINABLE?

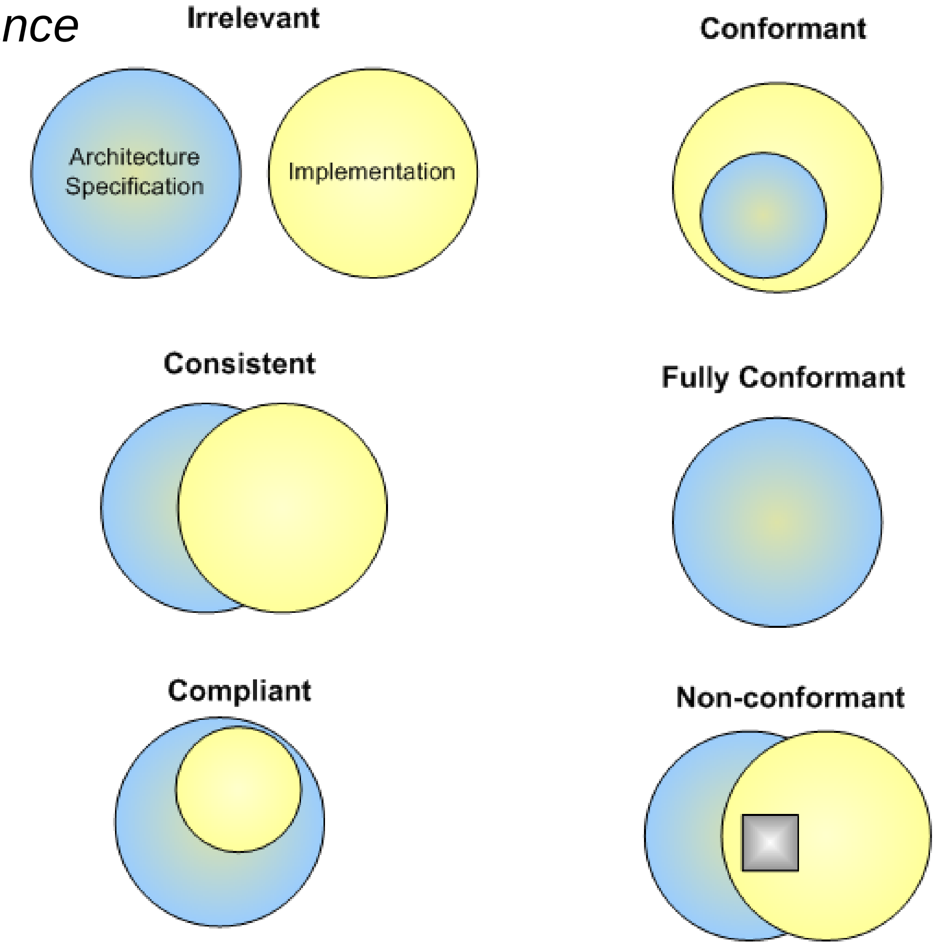

CIO/CTO
Stewardship
Develop
Chief Architect
Architecture Board
Guidance
Enterprise Architects
Domain Architects
Diffusion
Conformance
Alignment
Implement
Program Management Office
Implementation Projects
Alignment
Change
Deploy
Service Management
Operational Systems
Enterprise Continuum
Architectures
Processes
Solutions
SLAs/OLAs
Regulatory Requirements
Authority Structures
Organizational Standards

Architecture Compliance Levels

Compliance of Projects

ESSENTIAL *part of architecture governance*

FORMULATE *IT compliance Strategy*


Irrelevant
Architecture Specification
Implementation
Conformant
Consistent
Fully Conformant
Compliant
Non-conformant

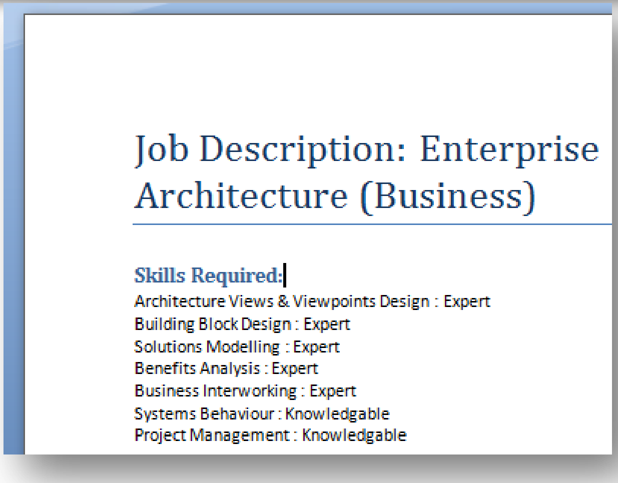
Architecture Skills Framework

iServer 2010

Define

ROLES
SKILLS
EXPERIENCE

Roles	**Enterprise Architecture Business**	**Program / Project Manager**	**IT Designer**
Architecture Views & Viewpoints Design	4	2	2
Building Block Design	4	2	3
Solutions Modelling	4	2	3
Benefits Analysis	4	4	2
Business Interworking	4	3	1
Systems Behaviour	3	3	2
Project Management	3	4	2



Job Description: Enterprise Architecture (Business)

Skills Required:
Architecture Views & Viewpoints Design : Expert
Building Block Design : Expert
Solutions Modelling : Expert
Benefits Analysis : Expert
Business Interworking : Expert
Systems Behaviour : Knowledgable
Project Management : Knowledgable

Measure

STAFF DEVELOPMENT
RIGHT FIT

The Modules of TOGAF9

- The ADM
  - Steps to Develop an Enterprise Architecture
- ADM Guidelines and Techniques
  - Support application of the ADM
- Architecture Content Framework
  - Detailed model of architectural work products
- The Enterprise Continuum
  - Model for structuring a virtual repository, classification framework
- TOGAF Reference Models
  - Technical Reference Model; Integrated Information Infrastructure Reference Model
- The Architecture Capability Framework
  - Structured definition of organizations, roles and responsibilities to establish and operate an Enterprise Architecture

… and Much More

Get a Live Product Demonstration

For a more information on TOGAF9 and its application in the iServer TOGAF9 Quick Start Solution, register for an iServer Demonstration.

A web demonstration is free and will only take an hour of your time!

One of our experienced process consultants can demonstrate the software to you using a repository based on the TOGAF9 Framework.

To book your demo, please send us an email and we will contact you to build your meeting agenda.